Communal Pronghorn Hunting in the Great Basin: What Have We Learned Over the Last Twenty-Five Years?

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Preface

This paper presents an overview of prehistoric Great Basin pronghorn hunting, especially how our understanding of this topic has grown through the recordation and investigation of traps and projectile point concentrations in the north-central and western Great Basin over the last quarter century. My involvement in this work resulted from a research paper that I wrote for Philip Wilke's Great Basin Prehistory seminar at UC Riverside during the fall of 1984. As I struggled to define a term paper topic for this course, Dr. Wilke suggested that I produce a synthesis of ethnographic and archaeological data on pronghorn hunting. At the time, he was working at the Little Whisky Flat site (26Mn5) in western Nevada (Wilke 1986, 2013), an interesting late prehistoric hunting and habitation complex located south of Walker Lake consisting of a rather elaborate pronghorn trap (including a cairn field, interior hunting blinds, and a "shaman's corral"), a bone bed, several rock rings, and petroglyphs. I followed Phil's advice, delved into the relevant literature concerning pronghorn biology, behavior, and human predation, wrote a mediocre research paper on the subject, fine-tuned and expanded the piece, and eventually published it (Arkush 1986). Such was my introduction to the study of aboriginal big-game hunting, especially the communal pursuit of pronghorn.

While working on the Inyo National Forest as an archaeological technician during the summer of 1985, I was informed of a historic wickiup frame and possible pronghorn trap on the east side of Mono Lake by Eric Levy, then the archaeologist for the California Bureau of Land Management's Bishop Field Office. Upon locating the house structure and nearby wooden drift fence and corral hunting feature, I eventually encountered a number of late prehistoric and early historic Mono Basin Paiute habitation sites and three additional corrals (two late prehistoric pronghorn traps and one historic mustang trap) that extended along a section of Pleistocene shoreline above Mono Lake. This site complex, CA-Mno-2122, served as the primary data set for my doctoral dissertation (Arkush 1989), which in turn provided me with a few fledgling specialty areas—communal pronghorn hunting and colonial era Native cultural continuity and change. In 1990 I was hired as a tenure-track faculty member at Weber State University and continued to conduct archaeological research on Great Basin communal hunting, especially pronghorn-related sites in eastern Nevada and bison-related sites in southern Idaho. At this point in my career, I feel confident in my grasp of the archaeological, historical, and ethnographic records of aboriginal big-game hunting in the Intermountain West and have contributed to this field of study. Much of this was made possible through the training and inspiration that I received from Philip Wilke, and I hope that the following overview inspires others to pursue new and innovative studies in the area of Great Basin communal hunting practices.

Abstract

Great Basin archaeologists have studied wood, brush, and stone structures associated with pronghorn hunting since at least the early 1950s. Over 100 Late Prehistoric corral and fence features have now been documented within this region, and the clustered occurrences of broken dart points near extant traps probably represent kill areas within decomposed Archaic pronghorn corrals. Given this data set, communal pronghorn hunting probably was a common practice within the Intermountain West between about 3000 BC and AD 1850 and may date back to early Holocene times. This paper provides a general overview of prehistoric Great Basin pronghorn hunting and focuses on some of the patterns reflected by trap sites in the western and north central regions where the bulk of corrals and projectile point concentrations have been recorded. Spring and late summer/early fall may have been the predominant seasons for group hunts, and pronghorn drives may have been combined with other communal economic and social activities such as harvesting pine nuts and grass seeds, trading, and matchmaking.

Introduction

The study of communal big-game hunting has long been a focus of archaeological research in western North America. Most early investigations dealt with Plains Paleoindian mammoth or bison kill and butchering sites, such as those at Dent (Figgins 1933), Blackwater Draw Locality 1 (Howard 1935; Hester 1972), Folsom (Figgins 1927), Lipscomb (Schultz 1943), Scottsbluff (Barbour and Schultz 1932), and Olsen-Chubbock (Wheat 1972). In the Great Basin, communal hunting of jackrabbits, deer, bighorn sheep, and pronghorn is well represented in both the archaeological and ethnographic records, with pronghorn (or antelope, *Antilocapra americana*) being perhaps the most commonly targeted large mammal. Prior to about 1850, this small artiodactyl occurred throughout much of the region and could be effectively hunted via traps and surrounds, especially as herds migrated along established routes between summer and winter ranges. Since the early 1950s, a number of projects have documented late prehistoric and protohistoric corrals and drive lines constructed of wood and/or rock that were used to capture pronghorn. Numerous sources (Chamberlin 1911; Lowie 1924; I. Kelly 1932; Steward 1938; Stewart 1941; Fowler 1989; Janetski 2006) mention the importance of pronghorn drives and surrounds in Great Basin Native subsistence activities, and various early historic accounts provide descriptions of pronghorn traps (Kern 1876; Simpson 1876; Bruff 1949; Bryant 1985), as well as the actual use of one (Egan 1917).

Pronghorn Traps and Associated Hunting Strategies

Some Great Basin pronghorn hunting facilities were relatively simple affairs consisting of parallel rock walls and wood/brush fences that formed a gauntlet through which animals were herded and shot at as they ran past archers concealed along a drive line fence (C. Kelly 1943:32; I. Kelly1964:50). However, the most common and best documented pronghorn hunting structures are large circular or ovate corrals with one or two fences that funneled animals into the pounds. Based upon archaeological, historical, and ethnographic information, many single-wing and V-wing fences were fashioned from tree limbs and brush and were quite long (often measuring between 1 km and 5 km), with the distance between V-wing entrances ranging from 1 km to 10 km (Simpson 1876:60; Steward 1941:219, 328; Bruff 1949:160). Some traps with V-wing fences featured one drive line that was significantly longer than the other (Fowler 1989:16), and many archaeologically documented traps incorporated natural features such as rolling hills, bottle necks, and drainages that served to direct animals toward and into corrals and to hide pens from their view. Besides drift fences that formed the outer portions of traps, a small number of pronghorn hunting complexes include rock alignments that are not part of the drive lines and that may have functioned as visual barriers to channel animals toward the trap mouths (Clifford Shaw, personal communication 2011).

Many late prehistoric and protohistoric corrals in eastern and western Nevada date between ca. AD 900 and 1850 and are relatively large, measuring between 200 m and 600 m in diameter and occupying

from about 4 to 24 acres (Parr 1989:Figure 6; Arkush 1995:Figures 8, 16; Jensen 2007:Table 16; Shaw 2011; Wilke 2013). During Benjamin Bonneville's exploration of western Idaho in the early 1830s, he mentioned a Northern Shoshone pronghorn corral that supposedly encompassed approximately 100 acres (Irving 1986:225). Some traps, such as the Huntoon Trap in western Nevada and the Mizpah Trap in northeastern Nevada, contain multiple corrals, indicating that these locations were used for multiple communal pronghorn hunts over the course of several centuries. A minority of Great Basin pronghorn corrals feature flagstones across the entrance, multiple rock hunting blinds, and small corrals attached to the main pen. The Little Whisky Flat and Huntoon traps in Mineral County, Nevada, contain such features (Figure 1), and although the exact function of the flagstones is poorly understood (they may have anchored plant fiber rope gates [Wilke 2013:82–83]), some of the subsidiary corrals may have functioned as ritualistic enclosures where shamans conducted ceremonies prior to the hunt (Steward 1941:272; Stewart 1941:366); some also may have served as close-quarter slaughtering pens where animals could easily be dispatched with clubs and/or projectiles.

Antelope shamans are well documented among Numic peoples (Lowie 1924:302–303; Steward 1938:34;

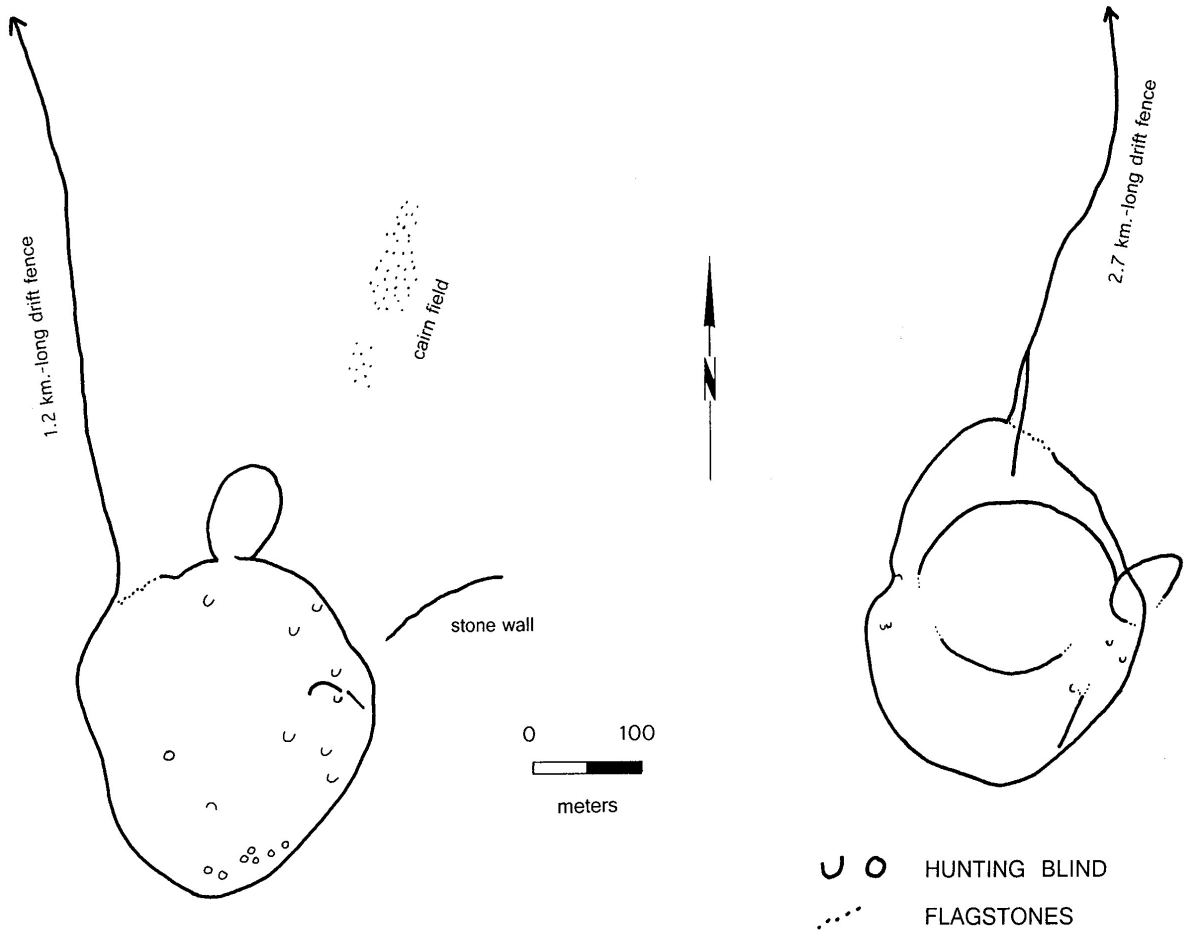

Figure 1. Examples of western Great Basin wing traps containing flagstones, blinds, and subsidiary corrals: left, Little Whisky Flat Trap (26Mn5, adapted from Wilke 2013:Figure 2); right, Huntoon Trap (26Mn589, adapted from Parr 1989:Figure 6).

Stewart 1941:423) and were responsible for organizing pronghorn drives, directing the construction or refurbishment of a trap, and "charming" the animals to induce them to enter the corrals. Group ritual before a hunt usually occurred over the course of several days/nights and included dancing, smoking, chanting, singing, and symbolic slaying of pronghorn (Hopkins 1883:55–57). In her compilation of some of Willard Park's ethnographic notes from the 1930s, Catherine Fowler (1989:14–19) provided an excellent overview of Paviotso pronghorn hunting and characterized this activity as "one of the most ritualized of Northern Paiute events."

When compared to archaeologically documented pronghorn traps in the western Great Basin, those of the north-central Great Basin (i.e., northeastern Nevada) tend to lack extensive drift fences, subsidiary corrals, flagstone-lined corral entrances, and interior hunting blinds (Murphy and Frampton 1986; Polk 1987). The Thorpe Trap and North Dry Lake Flat Trap portrayed in Figure 2 are good examples of the numerous pronghorn traps that have been recorded in the latter area. When in use, some or many of these structures may have featured one or two drift fences that were constructed mostly of brush as opposed to tree limbs and trunks. Alternatively, those eastern Nevada traps that display no vestiges of drift fences (such as the Thorpe and Valley Mountain traps) may have deployed people to form the corral wings, as described for some Northern Paiute groups (Fowler 1989:15).

A Growing Data Base: Then and Now

Jack Rudy (1953:18–20) was among the first researchers to publish a description of a prehistoric Great Basin pronghorn trap. This was the Hendry's Creek, or Mount Moriah, Trap (site 26Wp13) located along the eastern base of the northern Snake Range in extreme east-central Nevada. During the next 30 years, only a few more traps and linear rock alignments were reported in the regional literature, such as 26Mn214 and -217 in western Nevada (Pippin 1980), 42Bo447 and -448 in northwestern Utah (Raymond 1982), and the Fort Sage Drift Fence (26Wa3030) in western Nevada (Pendleton and Thomas 1983). Within the next ten years this situation changed markedly, as a number of workers either published reports or presented professional conference papers concerning extant pronghorn traps (Arkush 1986; Murphy and Frampton 1986; Wilke 1986; Parr 1989) or concentrations of catastrophically broken dart points that may represent kill areas within decomposed Archaic wood and brush corrals (Stearns and Peterson 1987; Hall 1990).

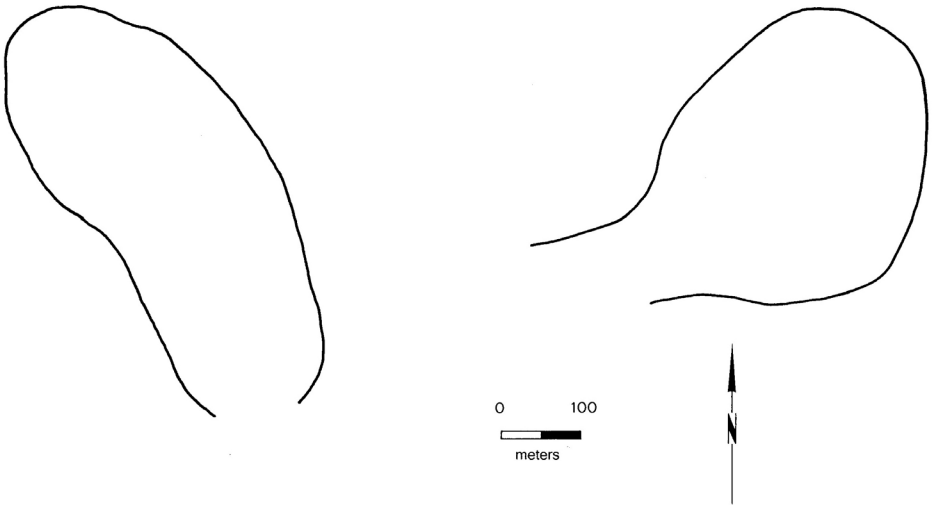

Figure 2. Examples of north-central Great Basin traps that contain no ancillary features: left, Thorpe Trap (26Ek6618); right, North Dry Lake Flat Trap (CRNV-11-3337).

The Murphy and Frampton paper was especially influential because it reported the presence of 14 pronghorn traps in Elko County, Nevada, and alerted many people to the fact that northeastern Nevada contained a relatively large number of communal pronghorn hunting features (Figure 3). As of the late 1980s, it was apparent that both northeastern Nevada and the greater Wassuk Range/Mono Lake region along the California/Nevada border contained a fairly large number of pronghorn traps (n = ~23), as well as various concentrations of impact-fractured dart points, some of which (such as at sites 25Ek2789 and 26Mn736) probably marked the locations of now-decayed pronghorn corrals and/or surround-style pronghorn kills.

Beginning in the early 1990s, Bryan Hockett and Timothy Murphy of the Nevada Bureau of Land Management embarked on an ambitious program of survey and excavation to explore the antiquity of communal pronghorn hunting in the north-central Great Basin (Hockett and Murphy 1993, 2009; Hockett 2005). This research delineated the Spruce Mountain Trap Complex (SMTC) (Figure 3), which may contain the greatest concentration of well-documented juniper branch corrals and large projectile point concentrations within the Great Basin (Hockett 2005). The SMTC area encompasses some 15,000 acres in the southern Clover Valley west and south of Spruce Mountain in a setting that probably served as a major north-south pronghorn migration corridor (Figure 4). This study area was surveyed via pedestrian transects spaced less than 30 m apart and was found to contain at least 13 juniper branch corrals and 15 projectile point concentrations (Hockett and Murphy 2009:714–715), with at least 10 of the point concentrations likely representing "kill spots" where pronghorn were surrounded or trapped (Hockett and Murphy 2009:Table 3). At least 22 other pronghorn corrals have been recorded outside of the SMTC area in northeastern Nevada (Figure 3), distinguishing this region for its rather remarkable record of communal pronghorn hunting-related sites.

As noted above, the greater Wassuk Range/Mono Lake area along the Nevada/California state line also contains a large number of aboriginal pronghorn traps. Phil Wilke was among the first archaeologists to study communal pronghorn hunting in this area, and his initial work at the Little Whisky Flat site complex was then followed by investigations conducted by graduate students, professionals, and avocationals. The combined results of these projects have revealed the presence of numerous corrals and drift/diversion fences (Figure 5), which rivals the number and density of pronghorn hunting sites in northeastern Nevada. Some of the most recent contributions to our understanding of pronghorn trapping in west-central Nevada have been made by Clifford Shaw (2011), a retired U. S. Forest Service Lands Officer and avocational archaeologist who has worked with the professional archaeology staff of the Humboldt-Toiyabe National Forest since 1996. Mr. Shaw has focused his efforts within the Bridgeport Ranger District, conducting intuitive surveys that target game drive sites and drive-related features. Thus far, these activities have resulted in the discovery and initial documentation of at least 18 trap sites, a number of which contain multiple corrals (Shaw 2011:Table 1).

One example of a multiple corral site in the Bridgeport Ranger District is the Garden Canyon Complex, located in the pinyon-juniper woodland along the northeastern flank of the Sweetwater Mountains. This site complex consists of two wing traps (each containing two corrals), three low rock rings situated on a hill east of the southern trap (Trap 2), and at least two residential sites northwest of the northern trap (Trap 1) (Figure 6). Given their location on a hill overlooking Trap 2, the rock rings probably served as observation posts for hunting activities. Some of the fallen corral posts are relatively long (measuring about 2 m), and the entire complex, if contemporaneous, may reflect communal pinyon gathering and pronghorn/deer hunting that was conducted more or less simultaneously in the late summer and/or early fall (cf. Wilke 2013:90).

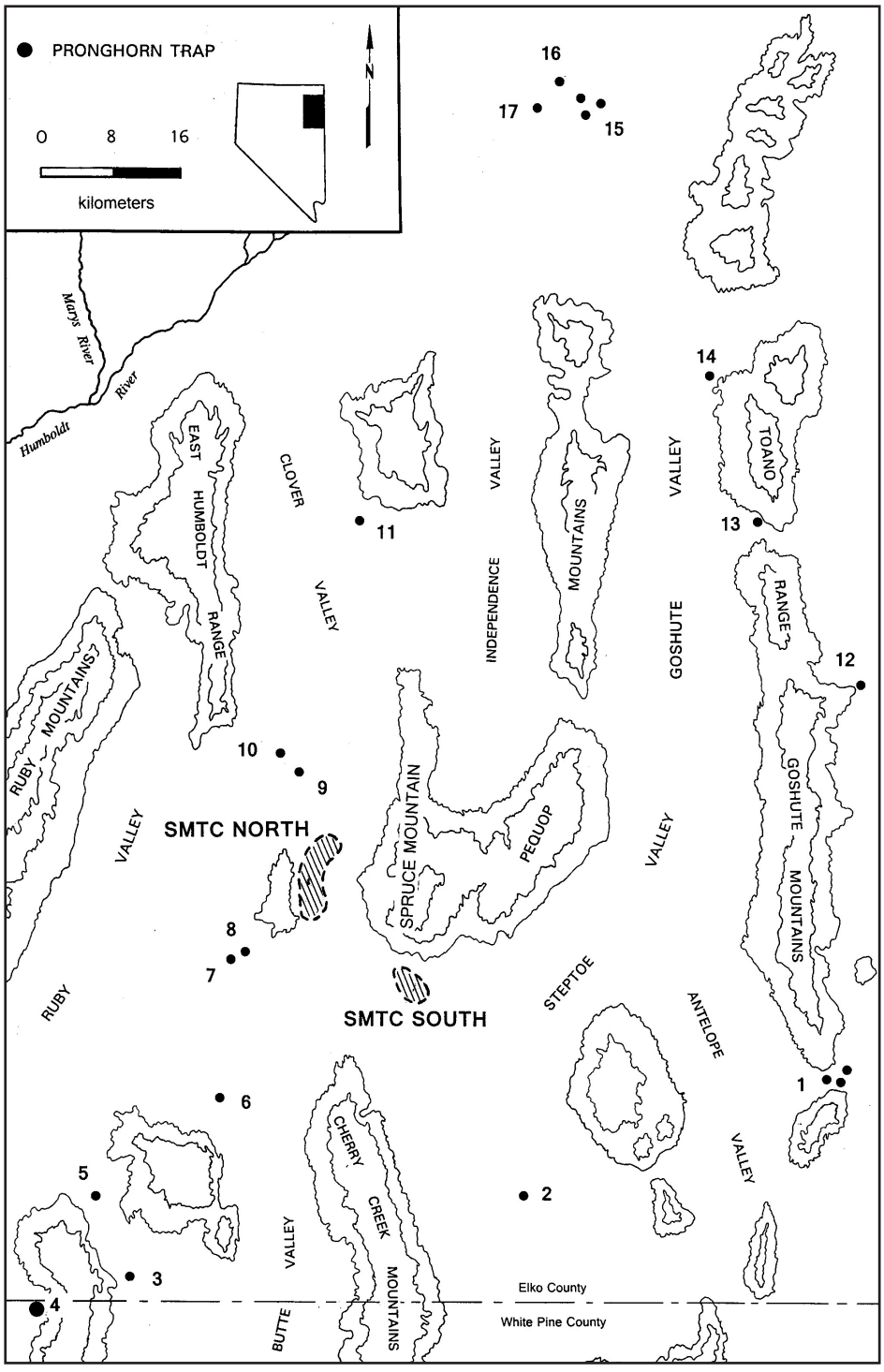

Figure 3. Locations of pronghorn traps and the Spruce Mountain Trap Complex (SMTC) in northeastern Nevada. Numbered sites are as follows: 1) White Horse Pass Complex (3 traps); 2) Currie Hills; 3) Thorpe; 4) Maverick and Luv Traps; 5) Ruby Wash; 6) Butte Valley; 7) South Dry Lake; 8) North Dry Lake; 9) Clover Valley; 10) Bubba; 11) Tobar; 12) Wendover; 13) Silverzone; 14) Cobre; 15) Five Mile Draw Complex (3 traps); 16) Dixie; and 17) Toano Draw.

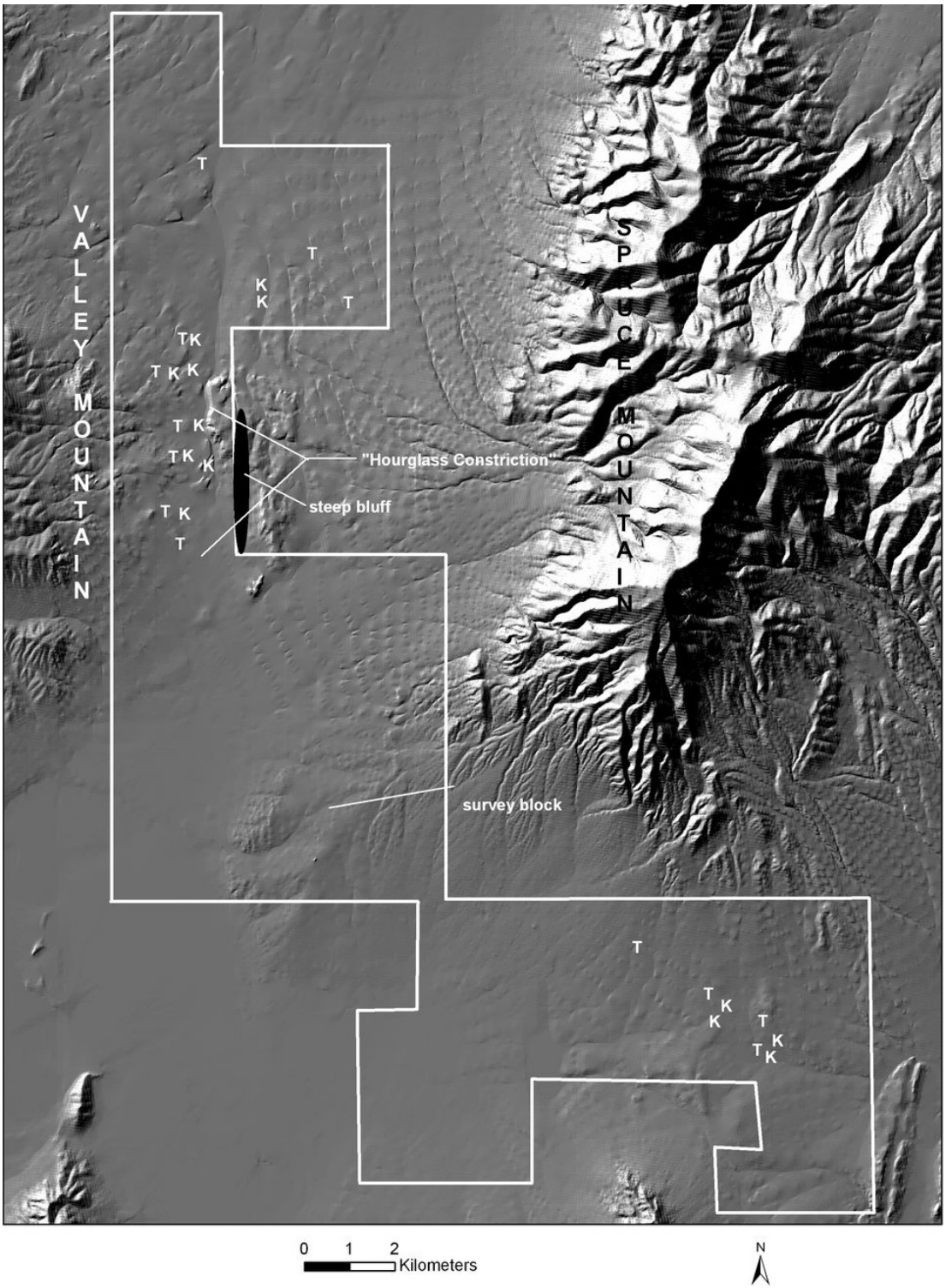

Figure 4. Map of the Spruce Mountain Trap Complex area showing the locations of corrals/traps (T) and kill spots/projectile point clusters (K). The Mizpah Trap Complex, located in the southeastern portion of the south site cluster, consists of four corrals. Image courtesy of Bryan Hockett.

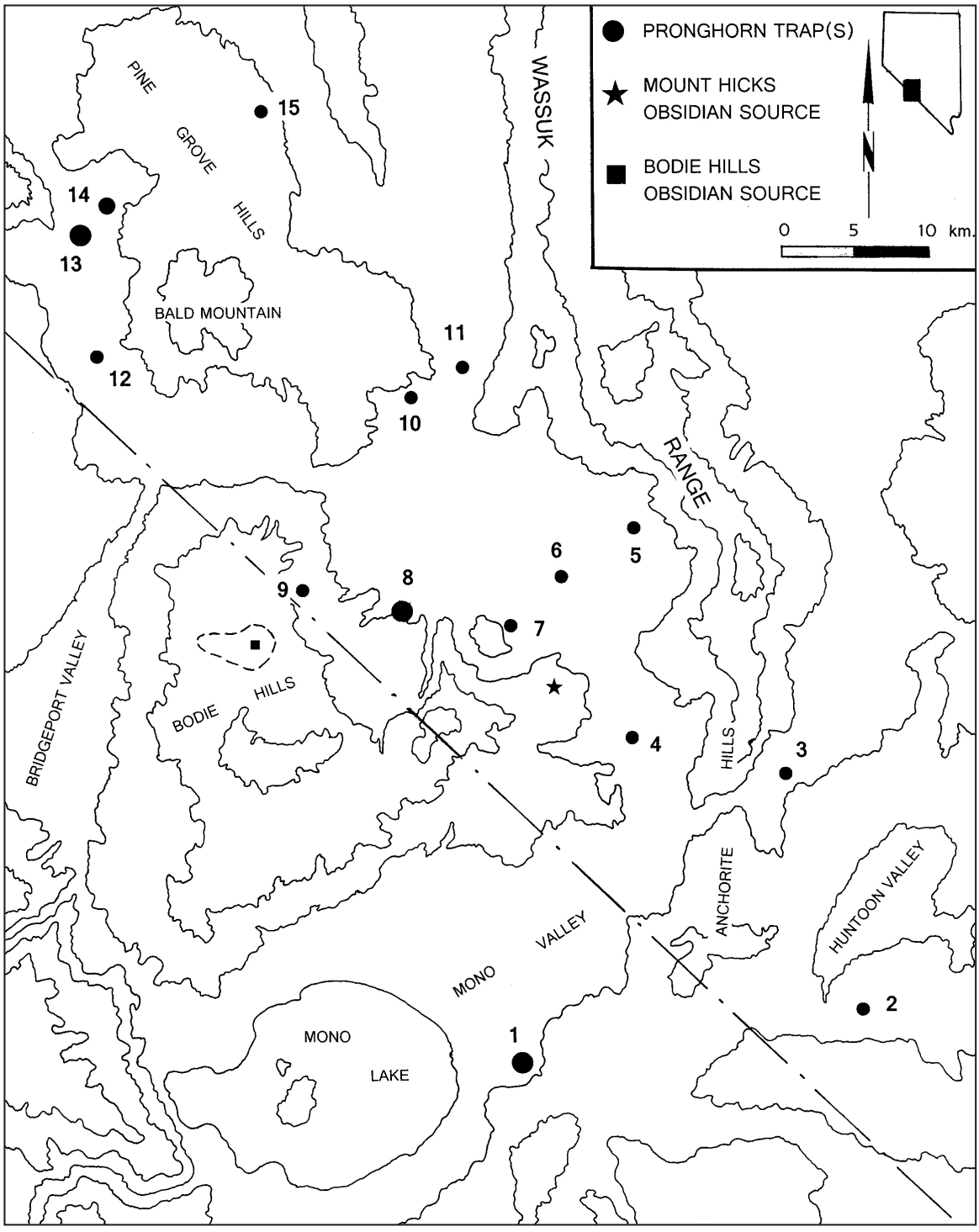

Figure 5. Locations of pronghorn traps and obsidian sources in the Wassuk Range/Mono Lake area. Numbered sites are as follows: 1) East Mono Basin Complex (3 traps); 2) Huntoon; 3) Little Whisky Flat; 4) Alkali Lake; 5) Borealis Mine; 6) Mud Spring; 7) Aurora Crater; 8) Tunna Nosi Complex (7 traps); 9) China Camp Complex (2 traps); 10) Aldrich Grade #2; 11) Aldrich Grade #1; 12) Round Mountain; 13) Garden Canyon Complex (3 traps); 14) Wiley Ranch Complex (2 traps); and 15) Rockland. Some information used for compiling map courtesy of Clifford Shaw.

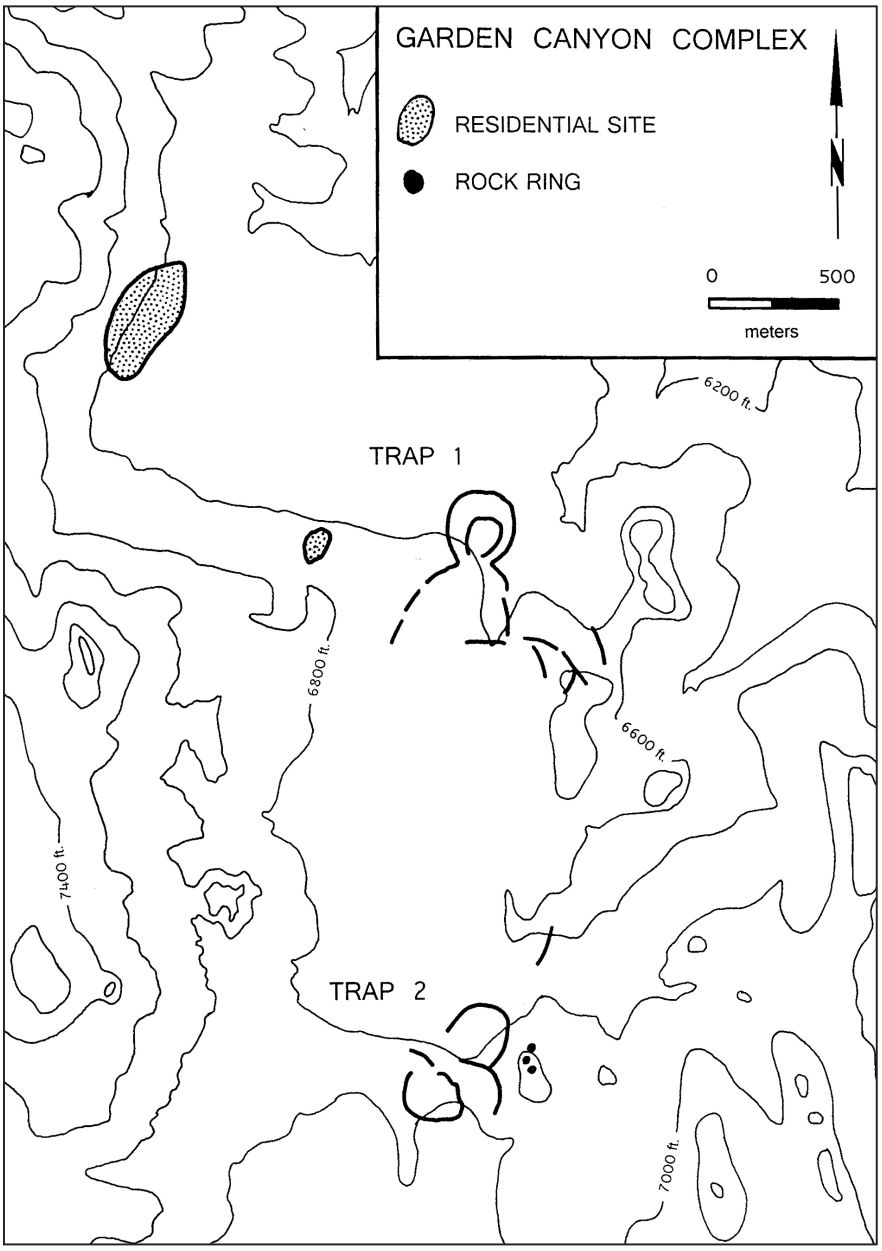

Figure 6. Map of the Garden Canyon site complex in west-central Nevada showing locations of four corrals, three rock rings (observation posts?), and two residential sites. Information used for compiling map courtesy of Clifford Shaw and David Scott.

Many archaeologists who have researched pronghorn hunting facilities believe that most corral fences were relatively short, measuring less than 1.2 to 1.5 m high. This perspective is based upon both the archaeological and ethnographic records, but a few Nevada Paiute consultants, such as Henry Williams of Yerington, indicated that some pronghorn corrals were much taller, in this case approximately 3 m high (Fowler 1989:18). Therefore, without the presence of taxonomically specific faunal remains at individual traps, it may be difficult to distinguish between pronghorn and deer hunting facilities located in the pinyon-juniper zone, where lengthy poles were readily available. Perhaps many traps situated in Great Basin woodlands were used to capture both species. A number of other trap sites in the South Walker Lake area, such as Alkali

Lake, Mud Spring, Aldrich Grade #1, and Aldrich Grade #2 (Figure 5), occur in the sagebrush/scrub ecozone and almost certainly were used exclusively to hunt pronghorn.

Through the combined efforts of various individuals over the past 60 years, an impressive record of aboriginal pronghorn hunting has been documented across much of the Intermountain West, with especially high concentrations of sites occurring in northeastern Nevada and along the California/Nevada border north of Mono Lake. As of 2012, at least 65 pronghorn trapping sites with a total of 109 corral and fence features (Hockett et al. 2013:Table 1) and a minimum of 15 pronghorn kill locales (Hall 1990; Hockett and Murphy 2009:Tables 3 and 4; Parr 1989; Stearns and Peterson 1987) had been archaeologically documented in the hydrographic Great Basin.

Antiquity of Communal Pronghorn Hunting

Assignment of an approximate date to the onset of communal Great Basin pronghorn hunting was a nagging issue for quite some time but was addressed during the recent Spruce Mountain project. In 2007 Hockett and Murphy (2009:720–726) conducted test excavations at two Archaic kill spots (Mizpah Chute and Antelope Ridge A), an Archaic projectile point unhafting locale (Antelope Ridge B), and a lithic reduction/camp site (Hourglass Overlook). All four sites contained typologically diagnostic dart point fragments, three contained subsurface artiodactyl remains, and three yielded charcoal-based radiocarbon dates ranging from 3450 to 1850 RCYBP. Of these four sites, Mizpah Chute is probably the oldest as it yielded an impressive tally of 136 Gatecliff dart points. No charcoal was recovered at Mizpah Chute, and there was an insufficient amount of collagen to accurately radiocarbon date the bone samples selected from among the 62 artiodactyl long bone fragments found there. However, an early Middle Archaic age can be assigned to the site based on the presence of Gatecliff projectile points. In the north-central Great Basin, both Gatecliff and Humboldt projectile points are characteristic of the South Fork phase, which dates from ca. 5000 to 3500 BP (Hockett and Murphy 2009:Table 1).

Based upon these data, it appears that many of the dart point concentrations in the SMTC area represent loci within now decomposed pronghorn corrals that were built and used by at least 4000 BP and perhaps as early as 5000 BP. In all likelihood, communal pronghorn hunting in the north-central Great Basin was a common activity toward the end of the Middle Holocene (ca. 5500–5000 BP) and probably extended back into Early Holocene times. Hockett and Murphy (2009:731–732) reported the presence of large side-notched dart points at or near three of the SMTC corrals (Cobre, Hill, and Storey), suggesting that these spots mark the locations of pronghorn kills dating to Early Archaic times, ca. 7500–5000 BP.

Another notable recent development regarding the dating of pronghorn traps in northeastern Nevada is the chronometric work conducted by Jill Jensen (2007) in association with her Master's thesis research. As part of a project that investigated the sexual division of labor and group-effort hunting, Jensen addressed the more recent aspect of communal pronghorn exploitation and obtained AMS radiocarbon dates on structural elements from six traps (Clover Valley, Cobre, Currie Hills, South Dry Lake, Silverzone, and Sprucemont) in Elko County. Excluding several outlier intercepts that probably reflect the use of older wood in younger structures as well as intercepts younger than AD 1870, calibrated age ranges for all six traps indicate that they were constructed and used between about AD 1450 and 1870 (Jensen 2007:Figure 24). More specifically, Jensen believed that the Clover Valley Trap was built between AD 1626 and 1870, whereas the Cobre Trap was first constructed between AD 1456 and 1665 and was rebuilt between AD 1720 and 1822. The three wood samples submitted from the Silverzone Trap exhibit one significant overlap at AD 1427–1529. This

information corroborates ethnographic data for this region, which indicates that pronghorn drives were an integral aspect of protohistoric Western Shoshone subsistence practices. It also provides additional data on trap maintenance/refurbishment and the general use life of Great Basin pronghorn traps.

Discussion and Conclusion

The past 25 years have witnessed a substantial increase in the number of recorded prehistoric pronghorn-related hunting sites. Documentations of the existing traps and projectile point concentrations near trap features have significantly improved our understanding of both the strategies used to intercept, drive, and capture these animals and of the relative importance of group pronghorn hunting within regional subsistence systems. This is especially true of the north-central and west-central Great Basin where many trapping facilities were established within migration corridors, such as those in the Anchorite Hills/Little Whisky Flat, Clover Valley, Toano Draw, Silverzone Pass, and White Horse Pass areas of Nevada (Hockett et al. 2013:Figure 4).

We now know of two regions within the hydrographic Great Basin that contain unusually high numbers of communal pronghorn hunting sites, but challenges remain, such as determining whether other areas between the Wasatch Mountains and the Sierra Nevada (such as central Nevada) hold similar archaeological records. Ethnographic data (e.g., Steward 1938:142; 1941:219–220) indicate that communal pronghorn hunts were important activities for many central Nevada Shoshone groups in protohistoric times. For example, Julian Steward (1938:Figure 8) plotted the locations of at least eight pronghorn drive localities in central and south-central Nevada. Assuming that his Shoshone consultants provided accurate information concerning terminal prehistoric subsistence practices, this area may contain a number of communal pronghorn hunting sites similar in size to those of northeastern Nevada. Many of these sites may not yet be documented, but we do know of at least six big-game hunting features that probably were used to capture pronghorn (Hockett et al. 2012; Hockett et al. 2013:Figure 4, Table 1).

These six documented structures occur in valley settings and consist of the following: Locus 191 (a long series of rock cairns with some wood posts); McCabe (a wood corral); Easy Junior (two wood corrals and a projectile point concentration); Fish Lake Valley (a large stone corral that shows up quite well on Google Earth); and Railroad Valley (a wood corral) (Bryan Hockett, personal communication 2012; Hockett et al. 2013:Table 1). The valleys of central Nevada undoubtedly supported substantial precontact pronghorn herds, and Native peoples in this area most likely hunted them frequently via traps and surrounds. The region has great potential for expanding the zone of intensive pronghorn exploitation and should be a focus of future research in this regard.

Additional hunting structures were recently discovered in the South Walker Lake, Nevada area, but most were not professionally recorded. They include individual traps at Mustang Spring X, Ring Lake, Wichman, Safford, and Cambridge (Hockett et al. 2012; Hockett et al. 2013:Table 1). Two other sites north of the Walker Lake area (Wabuska and Banjo Fence) also await professional evaluation and documentation (Hockett et al. 2012).

The preceding discussion of areas either known to contain, or that should contain, high densities of communal pronghorn hunting sites leads one to ponder the general size of the precontact pronghorn population within the northern two-thirds of the hydrographic Great Basin—that part corresponding to temperate, high desert biomes. This region probably had the highest prehistoric pronghorn carrying capacity, and therefore it should contain the vast majority of pronghorn-related hunting facilities and sites. Great Basin grasslands were significantly impacted by early historic

livestock overgrazing (Christensen and Johnson 1964; Tsukamoto 1983:10), and consequently many of the valley ecosystems seen today that are characterized by a "sea of sagebrush" and non native plants previously supported extensive tracts of native forbs and grasses. Succulent forbs such as vetches, buckwheat, spurge, bursage, and phlox are important spring and summer foods for pronghorn, whereas sagebrush, saltbush, and bitterbrush dominate their diet during late fall and winter (Smith and Beale 1980:10).

Undoubtedly, the prehistoric pronghorn carrying capacity north of the Mojave Desert was substantially greater than it has been during historic times. In the early 1920s the pronghorn population in Nevada had been reduced to some 4,250 animals (Nelson 1925), with numbers slowly increasing following the implementation of conservation practices and management dictated by law. Recent wildlife biology survey data from four states that comprise much of the hydrographic Great Basin report a regional pronghorn population estimated at between 48,000 and 51,000 animals (Tsukamoto et al. 2003:Table 2). The approximate population estimates for each state are: California, 5,000 to 5,500; Utah, 12,000 to 14,000; Oregon, >13,200; and Nevada, 18,000. Some wildlife biologists believe that the hydrographic Great Basin supported a maximum prehistoric population of between 250,000 and 350,000 animals (Don Beale, personal communication 1993; David Kitchen, personal communication 1993). If this is true, then grasslands and high desert shrub lands provided some of the most optimal pronghorn habitat and therefore supported a majority of the region's population. With such a robust resource to exploit, seasonal Native economic activities would have been structured to allow people to focus on communal pronghorn hunting whenever possible. The archaeological record of northeastern and west-central Nevada certainly supports this notion.

Besides an increase in the number of known pronghorn trap and kill sites, what other important things were learned about Great Basin pronghorn hunting over the last two-and-a-half decades? First, researchers such as Bryan Hockett and Timothy Murphy have presented compelling evidence that Great Basin foragers communally hunted pronghorn for at least the last 5,000 to 5,500 years. Areas that contain large numbers of late prehistoric and protohistoric traps most likely supported substantial pronghorn populations for millennia. Therefore, these localities should also contain Archaic sites with clusters of catastrophically broken dart points where pronghorn were slain inside of now-decayed wooden traps. Excavation of these sites may yield datable organic materials, thus extending the record of communal hunts into the distant past. The kind of pioneering work conducted by Hockett and Murphy (2009) and others (e.g., Stearns and Peterson 1987; Hall 1990) regarding the antiquity of communal pronghorn hunting represent significant contributions to the study of Middle and Late Holocene Great Basin subsistence systems.

Another distinction worth noting is the apparent differences in corral construction between Northern Paiute and Shoshone groups, especially in regard to the use of subsidiary corrals and corral entry flagstones. In the western Great Basin a number of traps include small enclosures along the corral periphery as well as rows of flagstones at the corral mouths. I am not aware of any traps in either the central or eastern Great Basin that exhibit these features, and their absence in these regions may reflect an ethnic pattern, specifically being relatively common among various Northern Paiute groups but virtually absent for Western and Northern Shoshone peoples. Several of Omer Stewart's (1941:366) Northern Paiute consultants confirmed the presence of shamans' enclosures at antelope traps, and subsidiary corrals at trap sites in the western Great Basin almost certainly are associated with shamanic activities, especially ceremonies that were conducted prior to a drive. In regard to Northern and Gosiute Shoshone pronghorn hunting, Julian Steward's (1943:266) consultants indicated

that antelope shamans did not use special enclosures. Likewise, eight of nine Nevada Shoshone consultants responded negatively when asked about the use of a shaman's enclosure (Steward 1941:272), with the one positive response coming from a Battle Mountain Shoshone shaman.

Ethnographic data concerning the purpose of flagstones at corral mouths are meager. However, one of Willard Park's Northern Paiute consultants, Henry Williams of Yerington, Nevada, reported:

> The corral is made of cedar and pine branches. It is about 10 ft high and 200 yds in diameter. A single row of flat stones is placed across the entrance so the antelope cannot smell where the men have stepped. If this were not done the antelope would turn back. *One man is stationed at the gate to close it when the antelope are driven in.* Usually from 20 to 25 antelope are gotten in one drive [Fowler 1989:18] [emphasis added].

This rare account of flagstone usage suggests that such features often served as anchors for plant fiber net gates, as suggested by Wilke (2013:82). Whether these features played mostly a utilitarian role as opposed to a symbolic one may never be known. The archaeological record indicates that corral entry flagstones were a late prehistoric and protohistoric phenomenon confined to the western Great Basin and may have been constructed primarily by Northern Paiute peoples.

The predominant seasons during which pronghorn drives were held are another important topic that has not been widely considered. Sparse data on seasonality exist in both ethnographic and archaeological accounts of communal pronghorn hunting. Among the Honey Lake Paiute, for example, "March was the best time for the antelope drive. Drives were held in early spring. In the fall the antelope are scattered. In the winter they come together in herds" (Fowler 1989:14). During an interview in the early 1930s, Henry Williams, a Walker River Paiute man, told Willard Park that "the antelope drive is held when people go up in the hills for pine nuts [i.e., early fall]" (Fowler 1989:18). One or more of Steward's (1938:175) Grouse Creek Shoshone consultants indicated that pronghorn could be hunted twice a year in northwestern Utah, "when antelope went south in the fall and in early spring; in the summer antelope were too scattered to hunt."

Several pronghorn bone beds in the Mono Lake/Walker Lake area (two of which are associated with corrals) have yielded seasonality data in the form of perinatal and juvenile elements, reflecting spring and late summer/early fall kills. Locus 23 is a butchering area associated with Trap 2 at CA-Mno-2122 and dates between 540 and 440 RCYBP (Arkush 1995:21, 30–31). It contains bones from a minimum of three pronghorn including one juvenile (Yohe 1995), as well as 15 charred pinyon hulls, reflecting late summer/early fall game and plant processing. At the Little Whisky Flat Trap complex (26Mn5) both vandalized rock ring deposits and a nearby bone bed yielded perinatal pronghorn remains, suggesting that this hunting facility may have been used primarily during the spring (Yohe 1985; Wilke 1986, 2013). Site 26Mn715 is a seasonal camp situated near the eastern base of Anchorite Pass just west/southwest of the Little Whisky Flat site that dates between 1800 and 1640 RCYBP. This deposit contained the remains of at least 21 pronghorn including fetuses and juveniles (Dansie 1990:Table 208) and therefore is associated with one or more early-to-mid spring hunting and butchering events.

A well-preserved Late Prehistoric or protohistoric corral (site 26Mn711) built mostly of juniper branches, trunks, and boulders and measuring approximately 300 m in diameter occurs about 1 km southwest of 26Mn715 and may have been used for trapping deer. Excavation of a small, near surface lithic scatter within the game enclosure recovered only one faunal

element, a rabbit-sized long bone shaft (Hall 1990). Judging from the record of artiodactyl hunting in and near Anchorite Pass, this corridor connecting the Mono Lake and Walker Lake basins served as a migration route for both deer and pronghorn and was a favored locale for spring communal hunting for at least 2,000 years.

A final discussion topic concerns whether the camp groups coming together to conduct pronghorn drives had participated in other communal subsistence activities before or after the hunt in order to take advantage of the number of people in temporary macrobands, thereby maximizing returns on more than one resource. Some ethnographic accounts, such as the one noted above from Henry Williams (Fowler 1989:18), clearly indicate that Great Basin foragers often scheduled pronghorn drives during the season of pine nut gathering (early fall). Steward (1941:220) reported that the Shoshone of the Morey/Eureka area of central Nevada "hunted antelope in the spring before seeds ripened." Although Steward did not indicate that these pronghorn-hunting macrobands remained intact in order to harvest seeds en masse, it certainly would have made sense to do so if local conditions warranted such a strategy.

Ethnohistoric accounts and archaeological data tell us that Great Basin Natives maintained flexible subsistence and settlement practices in order to efficiently exploit seasonally available resources, especially those that occurred in discrete patches. Given this longstanding strategy, one supposes, local resources permitting, that many camp groups that had traveled considerable distances to take part in a pronghorn drive would have stayed together to harvest other seasonal foods, exploit nonfood resources, strengthen alliances, arrange marriages, share information, and trade (Hockett et al. 2013:66; Wilke 2013:87).

This paper presented a historical overview of communal pronghorn hunting studies, a discussion of how our understanding of the antiquity, variability, and geographic extent of this practice improved over time, and noted some of the challenges faced in producing a more fine-grained picture of this topic. Perhaps the most pressing issue for current and future researchers to focus on is locating and excavating bone beds associated with kill spots and traps. Thorough investigation of these deposits can provide valuable information regarding the time depth and seasonality of communal pronghorn hunting and regarding herd size and composition. These data sets are sorely needed, as relatively few pronghorn bone beds and processing camps have been excavated, and they would significantly improve our understanding of communal pronghorn hunting. One problem in locating processing camps associated with particular traps is that they do not always occur within or around the corrals where most animals presumably were slain. Instead, it appears that field-dressed pronghorn carcasses often were removed to field camps located away from traps. The relatively small size of pronghorn made it easy for pedestrian hunters to transport them, as evidenced by the many enclosures that are not associated with discernible lithic scatters or concentrations of processed bones.

A relatively large number of Great Basin pronghorn hunting features (~110) and kill locales (~15) are now documented, robust testimony to communal pronghorn hunting having played an important role within aboriginal subsistence practices in various parts of this region for at least the last five millennia. Future studies should attempt to locate new constellations of kill spots, drive lines, and corrals, as well as the associated processing camps, and to identify and excavate processing sites associated with previously recorded enclosures where the preservation of faunal remains may be quite good. Accomplishing these goals during the next 20 years is realistic.

Much has been learned about communal pronghorn hunting since Jack Rudy published his description of the Mount Moriah Trap in 1953. Recent literature

attests to a renewed interest in the archaeology of communal pronghorn hunting in the last decade, a fitting legacy to the work and insights of Phil Wilke and others who conducted pioneering field projects on this topic in the early 1980s.

Acknowledgments

Eric Dillingham, Bryan Hockett, David Scott, and Clifford Shaw graciously shared information concerning various sites and site complexes. David "Jack" Scott kindly hosted me on a tour of numerous trap facilities on the Humboldt-Toiyabe National Forest's Bridgeport Ranger District during May 2007. Eric Dillingham, Bryan Hockett, David Scott, Clifford Shaw, Mark Q. Sutton, and an anonymous reviewer provided comments on an earlier version of this paper. Over the course of his career, Philip Wilke has made numerous contributions to the field of western North American prehistory and mentored many students who have gone on to do the same. The term paper that I produced for his graduate seminar in 1984 set me on a path to a professional career and generated a research interest in communal big-game hunting. For that, I will always be grateful.

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