The Greater Yellowstone ecosystem, soapstone bowls and the Mountain Shoshone

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Abstract

Protohistoric and probably Late Prehistoric Mountain Shoshones (sometimes known as Sheepeaters) who lived in and around the Greater Yellowstone Ecosystem of north-western North America made soapstone bowls in the mountains at the time of Euroamerican contact. The Rocky Mountain soapstone bowl industry is characterized by undecorated, flowerpot-shaped bowls that generally hold more than one litre. Using ethnographic and ethnohistoric data, as well as archaeological evidence, I examine how the distribution of soapstone – also known as steatite – vessels refines ideas about Mountain Shoshone territory, which in turn makes it possible to delineate a Protohistoric seasonal mobility system that included summertime use of alpine mineral, floral and faunal resources.

Keywords

Soapstone bowls; steatite; Mountain Shoshone; Sheepeaters; Greater Yellowstone ecosystem.

Introduction

Rocky Mountain soapstone bowls are uniquely shaped containers (Plate 1) durable enough to go from sub-freezing conditions to the heart of a campfire without experiencing thermal shock. Soapstone is the original non-stick surface, with cooking utility far beyond that of pitch-covered woven baskets and greater durability than local (Intermountain Tradition) clay pots. The question of who made these soapstone pots explores the intersection of material culture, gender and social boundaries during a dynamic period of Native and Euro-American contact at the beginning of recorded history in North America's Greater Yellowstone ecosystem (GYE). In this paper I examine ethnographic, ethnohistoric, anthropological and archaeological links between Shoshone Indians living in and around the GYE and soapstone bowls, and contend that the limited distribution of

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Plate 1 Typical Rocky Mountain soapstone vessels. a. bowl preform, 35cm tall; b. unfinished bowl; c. complete bowl, 32cm tall; d. bowl fragments.

soapstone bowls makes them useful in reconstructing the Shoshone home range, which in turn makes it possible to begin to understand their seasonal mobility systems. As Sampson states, '*seasonal mobility systems cannot be properly delineated unless they are first circumscribed by the territorial boundaries within which they functioned*' (1988: 13, italics in original).

To start, I place the Rocky Mountain soapstone bowl industry in the context of other, more ancient North American soapstone bowl industries. I then introduce the vast region that includes the GYE and is home to the Shoshone Indians. Using location data for a sample of 123 bowls, bowl fragments and unfinished bowls, I test the geographical associations between bowls and the home range of the mountain-adapted Shoshone known to have made them. Factors relating to geology, raw material transport cost and ethnicity appear to condition the distribution of bowls. Using bowl distribution as a first approximation of a home range, one aspect of the seasonal mobility system that emerges is the importance of high altitude mineral, floral and faunal resources to the Shoshones.

Soapstone vessels in North America

Soapstone (also known as steatite) is a metamorphic rock composed chiefly of the mineral talc. Talc, the softest of all minerals, defines the low end of the ten-step Mohs hardness scale. A piece of talc can be scratched with a fingernail, and the powdered rock feels soapy when you rub it between your fingers. Because of high transport costs, soapstone bowls were made near soapstone sources by pecking, gouging and chopping with a variety of stone/bone and metal tools. While it is possible to make a soapstone bowl with chipped stone and bone tools in as little as thirty hours, it may have taken several years to finish some bowls (based on personal experience). In that it is subtractive rather than additive technology, soapstone bowl-making has more in common with chipped-stone technology than ceramic technology. Bowls are hewn out of a single solid piece of rock, the size and shape of which determines the bowl's final dimensions. Generally, only traces of the last stages of manufacture are visible on the surface of a bowl, and in some cases bowls are so highly polished that no traces of manufacturing remain.

Aboriginal soapstone bowl industries occur throughout North America. The East Coast soapstone bowl tradition is over 5000 years old (Truncer 1999; Yates 2000). Flat bowls were used as lamps in the Arctic (Eber 1990; Fitzhugh and Crowell 1988; Willey 1966) for centuries before European contact. At least 200 soapstone vessels were found at Poverty Point, Louisiana (Webb 1944: 389), which dates to about 2600 BP (Willey 1966: 291). In the Pacific Northwest, steatite was widely used for labrets, earspools and pendants and, to a lesser extent, bowls by 5000 years ago (Dahm 1994). In California soapstone bowls are widespread (Putnam 1879; Schumacher 1878; Heizer and Treganza 1971 [1944]; McCawley 1996). Santa Catalina Island off the coast from Los Angeles has extensive steatite outcrops and an aboriginal industry that is over 4000 years old but that seems to have intensified in the Late Prehistoric period (McCawley 1996: 136).

The Rocky Mountain soapstone bowl industry (Wedel 1954; Frison 1982; Feyl 1997; Marceau 1982; Adams 1992) is geographically and stylistically distinct from, and appears to be more recent than, other bowl traditions in North America. In 1910, archaeologist Harlan Smith pointed out that Wyoming's soapstone vessels were 'a shape new to science, unlike the trough shaped dishes of the East and the globular ollas of California, [they are] of the form of an egg with the tip of the larger end removed' (1910: 518). Four decades later, Waldo Wedel commented that:

> What is urgently needed, of course, is a great deal more detailed information on the exact nature, antiquity, distribution, associations, and wider relationships of the steatite industry in the Wyoming area; and in view of the generally meager nature of findings at most sites here, this sort of information may be a long time coming.
>
> (Wedel 1954: 408)

Fowler claimed that '[t]he limited distribution of steatite vessels makes their use as diagnostic artefacts impractical' (1965: 164). Frison (1982) concluded that steatite vessels were probably Late Prehistoric to Historic in age, probably used by Shoshonean groups, and that the relationship of steatite bowls to Intermountain pottery ware was unclear: one may be the copy of the other; there could be mutually exclusive uses; or different uses by

different groups (Frison 1982: 285). A Rocky Mountain soapstone bowl database initiated by Marceau (1982) and expanded by Adams (1992), placed soapstone bowls in Shoshone territory, but Larson and Kornfeld cautioned that, in the case of the Shoshone, 'the link between artefacts and specific groups is in need of evaluation' (1994: 206).

Greater Yellowstone ecosystem

Rocky Mountain soapstone bowls are distributed unevenly across an area of about 300,000km^2 in the Wyoming Basin, the Northern, Middle and Southern Rocky Mountain physiographic provinces, as well as a few on the Great Plains. The majority of known bowls have been found within the GYE, a smaller area of about 72,000km^2 that includes the mountains of north-west Wyoming on both sides of the Continental Divide, south-western Montana and eastern Idaho (Fig. 1). But the GYE, as commonly defined (Keiter and Boyce 1991: xviii; Greater Yellowstone Coalition 1991: 15), does not include the Wyoming Basin to the south and the western High Plains to the east that were also part of the historic Shoshone winter and lifetime ranges (Shimkin 1947). Nor does it include the Bighorn Mountains where there are both soapstone artefacts and aboriginally utilized soapstone quarries (Frison 1982). The area under consideration here is the GYE and the adjacent winter ranges in the basins of the Yampa, Green, Bear, Snake and Salmon Rivers

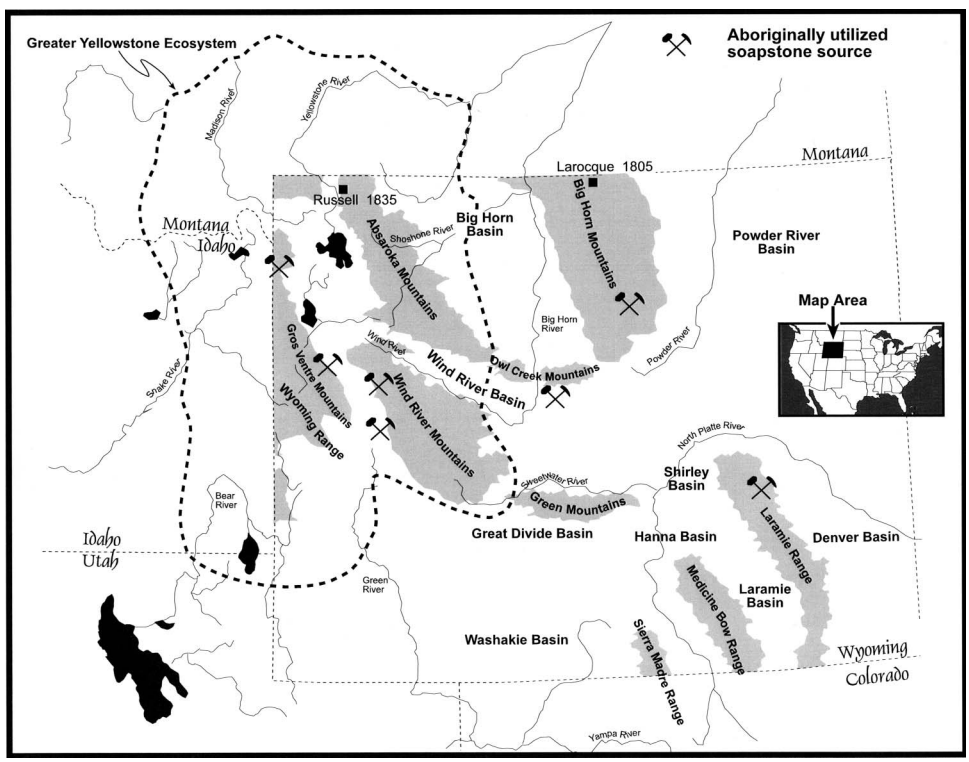

Figure 1 Map showing location of the Greater Yellowstone Ecosystem, major aboriginally utilized soapstone sources, and locations mentioned in the text.

west of the Continental Divide and the Sweetwater, North Platte, Powder, Wind River/Bighorn and Yellowstone Rivers east of the Continental Divide, plus the Bighorn Mountains. Elevations vary from about 915m above sea level along the Yellowstone River to mountain peaks approaching 4265m in the Wind River and Teton mountain ranges.

The Mountain Shoshone and the Greater Yellowstone ecosystem

Called 'Snake Indians' by many chroniclers (e.g. Ross 1956; Russell 1955; Hyde 1959), the Shoshones speak a language in the Numic branch of the Uto-Aztecan language family (Miller 1986). Shoshone have been living in the GYE for several thousand years according to some (Husted and Edgar 2002; Holmer 1990) or as little as 500 years ago according to others (Hultkrantz 1987; Wright 1978, 1984). It is likely that several waves of immigration and territorial expansions/contractions have occurred (Aikens and Witherspoon 1986). I pick up the Shoshone story long after they entered the GYE, at the beginning of the written history of the GYE.

Of the modern Shoshone tribes in the area, the Northern Shoshone occupy the western edge of the GYE and the Western Shoshone abut the south-western corner of the GYE. The Eastern Shoshone occupy most of the GYE and adjacent basins of western Wyoming. As early as 1820, the trader Alexander Ross (1956: 166) differentiated between food-named groups of Shoshone speakers. He identified fish-eating Northern Shoshone and bison-eating Eastern Shoshone. Regional groups were named for the dominance of a particular food in the diet of that group (Table 1) and, while they were not formal political units and membership was flexible, they were tied to specific areas.

While the bison-eating Shoshones who hunted with horses on the plains east of the Rockies went on to become known as Washakie's band (Hultkrantz 1961: 35), small numbers of Shoshone families apparently maintained an Archaic pedestrian life well into the 1800s, spending summers in the mountains (Hultkrantz 1987) where they used dogs as pack animals (Nabokov and Loendorf 2004: 149–51) in country so rugged that horses were, and still are, impractical. Sometimes referred to as 'Sheepeaters' (Norris 1880),

Table 1 Selected Shoshone food group names and their locations

Shoshone name	*English translation*	*Geographic location*
Tukudika	Sheep Eaters	Wind River Mntns, Yellowstone, Bitterroot Mntns
Yahandika	Groundhog Eaters	Western Idaho
Tubudika	Pine Nut Eaters	Northwestern Utah
Kukundika	Bison Eaters	Wyoming Basin, High Plains
Agaidika	Salmon Eaters	Snake River Plain, upper Salmon River
Knaurika	Rabbit Eaters	Southeast Idaho
Haivodika	Dove Eaters	Southwestern Wyoming
Hekandika	Seed Eaters	Northern Utah
Parahiadika	Elk Eaters	Eastern Idaho

Sources: after Hoebel (1938: 411), Hughes (2000: 67), Hultkrantz (1961: 32) and Lowie (1909: 206)

these Mountain Shoshone were glimpsed by nineteenth-century observers such as Lewis and Clark (Thwaites 1904), Bonneville (Irving 1961), Ross (1956), Russell (1955) and Fremont (Jackson and Spence 1970).

Two distinct populations of Shoshones were called Sheepeaters (Hultkrantz 1961: 27; Dominick 1964). The first group of Sheepeaters lived in the mountains of the upper Salmon River in Idaho (Murphy and Murphy 1960: 322) immediately west of the GYE. Idaho Sheepeaters were distinct from, and unaware of the existence of, the Wyoming Sheepeaters (Hultkrantz 1961: 27).

The second group – the Wyoming Sheepeaters – spent their summers in the mountains of north-western Wyoming (i.e. the GYE) and wintered in either the Green River or Wind River Basins (Hultkrantz 1961: 34–5; Shimkin 1947: 247). Dominick (1964) synthesized Wyoming Sheepeater ethnohistory and archaeology. A more recent synthesis by Nabokov and Loendorf (2004) focuses specifically on Sheepeaters in Yellowstone National Park and their material and ideological culture, while emphasizing that documentary evidence is rare. Hughes (2000: 79) argues against a permanent resident group of Sheepeaters in Yellowstone National Park, contending that Sheepeaters were more myth, stemming from a European notion of a wild man, than ethnographic reality. Nabokov and Loendorf (2004: 134) argue to the contrary.

I refer to the extremely Late Prehistoric, Protohistoric and modern Shoshone who dwelled in the mountains of the GYE as 'Mountain Shoshone', while others (Dominick 1964; Hultkrantz 1954, 1961; Nabokov and Loendorf 2004) prefer the anglicized version ('Sheepeater') of the Shoshone term '*Tukudika*'. Inhabitants of the GYE have for the past 8000 plus years been exploiting the mountains and mountain sheep (*Ovis canadensis*; Frison et al. 1986; Husted and Edgar 2002) and, like Frison (2004: 162), I consider 'Sheepeater' an honorific rather than pejorative appellation; however, others have noted the term's negative connotations (Hughes 2000; Nabokov and Loendorf 2004).

Rocky Mountain soapstone bowls

The earliest known use of steatite in Wyoming occurred at the Hell Gap site in eastern Wyoming, where a flat disc came from an undated Late Palaeoindian level (Kornfeld et al. 2002: 64). Soapstone beads (Eakin et al. 1997: 423) were found at a house pit site dating to 5430 BP in central Wyoming. Other soapstone artefacts found in the Rocky Mountains include atlatl weights (Frison 1968: 266; Adams 1992), tubular pipes (Frison and Van Norman 1993) and anthropomorphic effigies (Mulloy 1958: 103). In the Rocky Mountains, bowls, bowl fragments and unfinished bowls (collectively referred to as bowls henceforth) are the most common artefact type.

Of a population of 195 known Rocky Mountain bowls, there does seem to be preference for generally undecorated, flowerpot-shaped vessels, with flat, flanged bases (Fig. 2). Decorations such as incisions and prominent lugs occur rarely. Only eight bowls exhibit any sort of decoration. Even unfinished soapstone bowls approximate the classic flowerpot shape. More than one-third of them already possess a flanged base, even though the interior had not yet been excavated to the point of functionality.

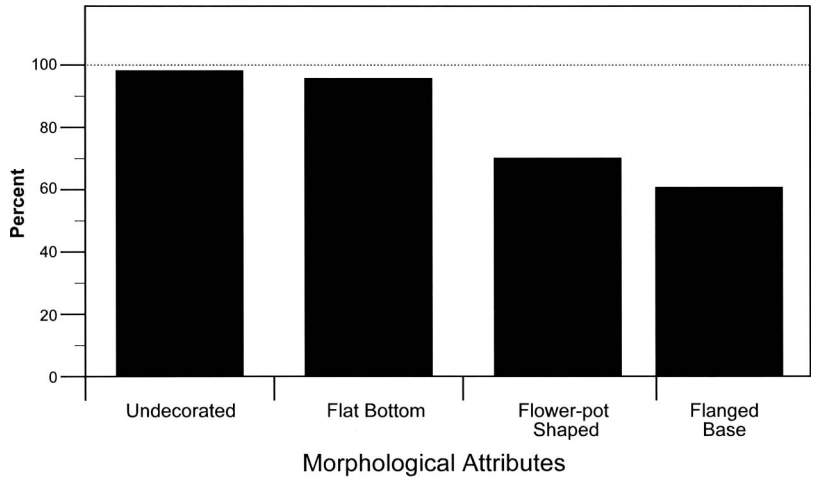

Figure 2 Rocky Mountain soapstone bowl characteristics.

The absolute chronological depth of soapstone bowls is unknown (Frison 1991; Wedel 1954). Of the 195 known soapstone bowls, twenty-two are associated with Late Prehistoric period (1500–500 BP) archaeological sites and three have been found at Protohistoric (*c*. AD 1650 to 1825) sites assumed to have been used by Shoshone (McKee 1988; Buff 1983; Carrington in Madsen 1989: 630; Lindsay 1977: 14). A total of thirty bowls exhibit manufacturing marks made by metal knives, hatchets and saws that confirm use during the Protohistoric period.

Only two Rocky Mountain soapstone bowls have been radiocarbon dated. Adams (1992: 116) AMS dated the carbonized organic residue adhering to the inside of one; the result was modern. Palmer (2005) AMS-dated similar residue on a recently discovered soapstone bowl from the Wyoming-Utah border. The calibrated age spans the Protohistoric and Historic periods, but the date has not been published.

A Protohistoric/Historic radiocarbon date for a soapstone bowl is not surprising, given that they were observed among pedestrian Shoshone in 1805 by the trader Larocque. Near what is now the Montana–Wyoming border (Fig. 1), he 'traded 8 Beavers with the Snake [Shoshone] Indians in whose possessions I saw a Kettle or Pot hewn out of solid stone, it was about 1 1/2 inch [4cm] thick & contained 6 or 8 quarts [5.7 to 7.6 litres]; it had been made with no other instrument but a piece of Iron' (Wood and Thiessen 1985: 185).

Another eyewitness account was penned by the trapper Osbourne Russell in 1835. Russell was fluent in the Shoshone language and, as was common at the time, he called them Snake Indians.

> Here [in the Lamar Valley in Yellowstone Park (Fig. 1)] we found a few Snake Indians comprising 6 men, 7 women, and 8 or 10 children who were the only inhabitants of this lonely and secluded spot. They were all neatly clothed in dressed deer and sheep skins of the best quality and seemed to be perfectly contented and happy.... Their personal property consisted of one old butcher knife nearly worn to the back, two old shattered fuses which had long since become useless for want of ammunition, a small stone pot

> and about 30 dogs on which they carried their skins, clothing, provisions, etc. on their hunting excursions. They were well armed with bows and arrows pointed with obsidian. (Russell 1955: 26)

In the first half of the last century, ethnographers recorded accounts of soapstone pot use among the Shoshone. Lowie reports that 'Wind River Shoshoni [sic] informants only mentioned man-made soapstone pots' (1924: 225–6). Steward (1943: 319) lists the Fort Hall Shoshone as having steatite bowls, while the Lemhi, Northern Paiute-Bannock, Gosiute and Promontory Point Shoshone did not. However, it is interesting to note that the Lemhi have two words for bowls: *tumbiwitua*, which Steward (1943: 375) translated as 'rock container', and *sogowitua*, or 'clay container'.

While accounts of general soapstone bowl use were documented by ethnographers, one specific statement relating to bowl use made by an indigenous informant contains provocative information I use later to possibly explain bowl distribution. Anthropologist Demetri Shimkin (n.d.) paraphrases Dick Washakie, son of the Eastern Shoshone chief Washakie: 'The pots were inherited by the daughter of the family, if there were no daughter a son might get one. They were family property. They were never traded.' In the next section I show that, by accepting Washakie's statement, the distribution of known bowl locations fairly well maps Shoshone home range during the Protohistoric period.

Soapstone bowl distribution

Soapstone-bowl location data came from published sources (Feyl 1997; Frison 1968, 1982; Marceau 1982), an unpublished database (Adams 1992) and several years of survey in the GYE back country. Only one-third of the 195 known bowls are associated with formally recorded archaeological sites, and only two bowls came from a controlled excavation, the rest being surface finds. The remaining two-thirds are not associated with any recorded site and lack contextual data, probably as a result of having been found long ago. Even with such poor provenance data, it is possible to draw a few generalizations about bowl distribution, dispersal from the high altitude quarries of origin and correspondence with the local Shoshone home range.

Of the 195 known bowls, bowls fragments and unfinished bowls, a sample of 166 artefacts can be confidently assigned to a state. Soapstone bowls have been found in Wyoming ($n = 143$), Montana ($n = 15$), Idaho ($n = 3$), Colorado ($n = 2$) and Utah ($n = 3$). By excluding very rough unfinished bowls and bowls reported only as hearsay from the sample of bowls that have provenance information better than the state-wide level (Table 2), a total of 123 soapstone bowls and bowl fragments can be mapped (Fig. 3) across the GYE plus surrounding basins.

How these bowls are distributed across the landscape can be evaluated by three chi^2 tests. Underlying each chi^2 test is the null hypothesis that bowls are distributed evenly across the GYE and surrounding basins. The results show that soapstone bowls are not distributed evenly across Wyoming. There is a significant difference between the observed and expected number of bowls in three drainage basins (Missouri, Colorado and Snake) that have part of their headwaters in Wyoming ($chi^2 = 8.95$, $df = 2$, $p < 0.05$). Fewer bowls

Table 2 Mapping confidence levels

Mapping confidence	*Definition*	*Number of bowls*[1]
County	Confident that the artefact was found in this county	45
Township	Confident that the artefact was found in this township (92km^2)	29
Section	Confident that the artefact was found in this township, range and section (2.56km^2)	21
Site	Confident that the artefact was found at this site listed with the WY Cultural Records Office	23
Exact	Confident that the artefact was found at this uncorrected GPS receiver location	26
Total		144

Note: [1]Includes unfinished bowls, complete bowls and fragments.

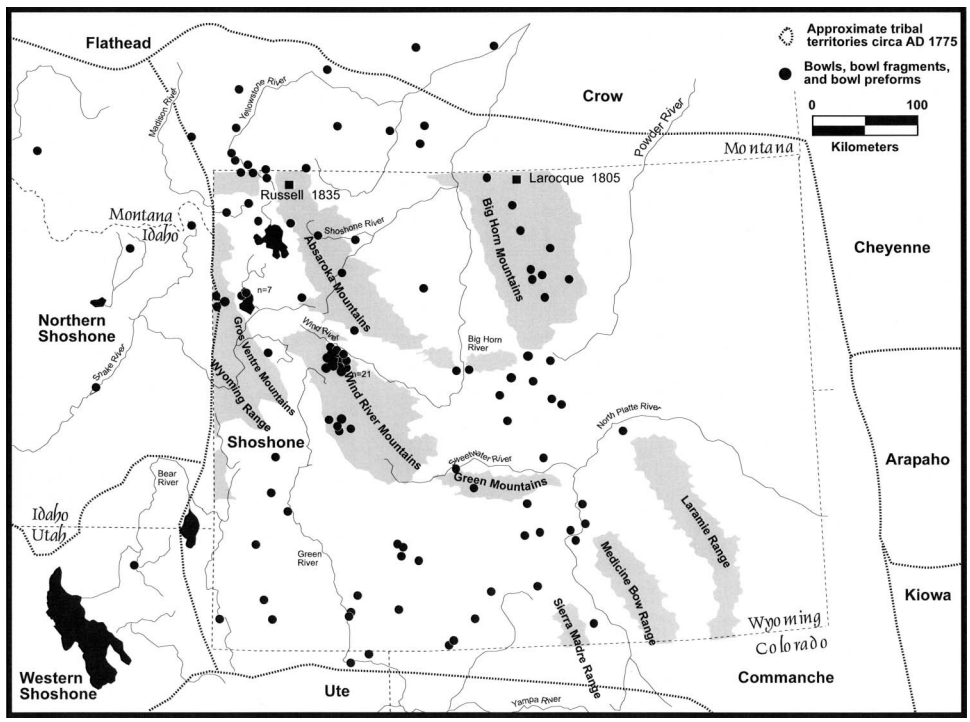

Figure 3 Rocky Mountain soapstone bowl distribution and tribal territories around 1775.

are found in the Missouri River drainage, while more bowls are found in the Colorado River drainage than expected.

Far fewer bowls occur east of the Continental Divide than are expected based on relative land area. The second chi^2 test shows that there is a significant difference between observed and expected bowl frequencies east and west of the Continental Divide (chi$^2 = 8.82$, df $= 1$, $p < 0.05$).

The final chi^2 test showed that bowls are twice as likely to occur in the GYE than would be expected if they were evenly distributed across the 300,000km^2 project area. A chi^2 test shows a significant difference between observed and expected bowl frequencies in the GYE ($chi^2 = 47$, $df = 1$, $p < 0.01$).

The high altitude connection

Soapstone bowls are inextricably linked to the high country because a) soapstone sources occur only in the mountains within the study area, b) bowls were made near sources and c) bowls were an essential part of mountain life.

Soapstone sources exist as numerous small bodies (<10m in diameter) within the Precambrian cores of the Southern, Middle and Northern Rocky Mountains. Soapstone is so soft that boulders of it rarely survive alluvial or glacial transport more than 2km from a source. Figure 1 depicts the major known aboriginally utilized sources in Wyoming and Montana (Feyl 1997; Frison 1982; Harris 1995). The average altitude of twenty-six known aboriginally utilized sources in Wyoming and Montana is about 2834m above sea level, with 42 per cent above 3000m. In recent times, sources this high are accessible only in the late summer and early autumn.

It is clear that soapstone bowls were made near soapstone sources. Unfinished bowls, which have an average altitude of 2996m (n = 26), are almost always (n = 24) found within 1.6km of a source. In comparison, finished bowls are found more than 90km further from a source and 700m lower than unfinished bowls (Table 3).

The distribution of bowls by physiographic setting (Fig. 4) shows a bimodal distribution of bowls between basin interiors and the mountains, with fewer bowls in the foothills. One half of the sample of 123 known bowls was found in the mountains. Even though only 14 per cent of Wyoming is mountainous terrain above 2450m, soapstone bowls are disproportionately represented. More than 30 per cent of the located bowls were found above 2450m, and twenty bowls were found above 3000m. A chi^2 test shows a significant difference between observed and expected bowl frequencies above and below 2450m. More than twice as many bowls are found above 2450m than are expected by chance alone ($chi^2 = 40$, $df = 1$, $p < 0.01$).

Correspondence of fit with Shoshone territory

In the nineteenth century eyewitnesses saw local Shoshones in Wyoming with soapstone bowls and Shoshone informants told anthropologists that they used soapstone bowls in

Table 3 Comparison of average altitude and distance to nearest known aboriginal source for finished and unfinished bowls

	Unfinished bowls	*Finished bowls*
Average altitude	2996m (n = 26)	2288m (n = 35)
Average distance to nearest aboriginal source	1.6km (n = 26)	98km (n = 89)

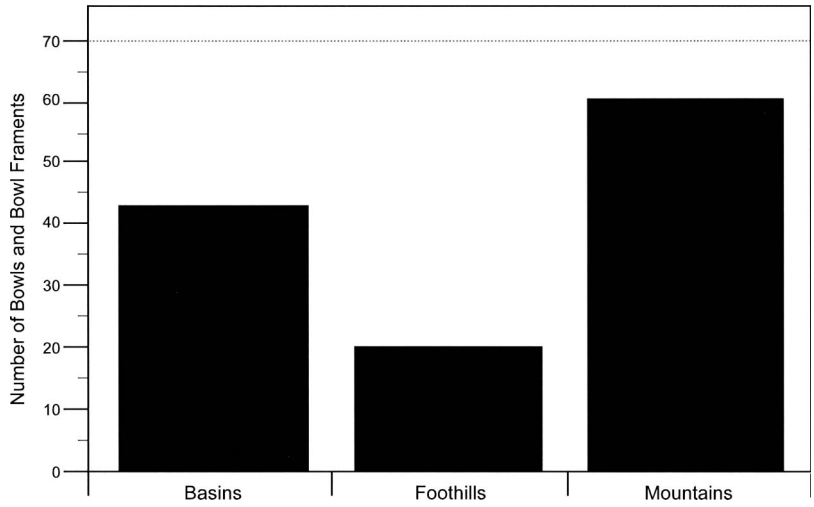

Figure 4 Distribution of bowls by physiographic region.

pre-reservation times. To underscore the relevance of their association, I test the null hypothesis that there is no difference between the distribution of Shoshones and soapstone bowls.

If soapstone bowls are representative of a local Shoshone population as the ethnographic and historical data suggest, then their distribution should be expected to conform roughly to the local Eastern Shoshone territory, assuming that they were not traded (Shimkin n.d.). The average location (centroid) of a sample of 123 bowls with known locations should not, therefore, differ significantly from the ethnographic territory of the Eastern Shoshone.

Two different ethnographic sources provided Eastern Shoshone territorial boundaries (d'Azevedo 1986; Shimkin 1947). These boundaries, extant around 1825, were digitized and the centroid of each boundary was calculated. Using unpaired t-tests of latitude and longitude assuming unequal variances, ethnographic centroids were compared with artefact location centroids. Unfinished bowls were excluded because they skewed the sample towards quarries.

There is no significant difference between the centroid of the sample of 123 bowls and bowl fragments and the centroid of the territories published by d'Azevedo (1986: ix) and Shimkin (1947: 250, map 3). The null hypothesis cannot be rejected. The hypothesis that the distribution of soapstone bowls does not differ from the Protohistoric period territory of Eastern Shoshone published by nineteenth-century Euroamerican ethnographers is supported.

In this section, quantitative analysis of a sample of 123 provenanced Rocky Mountain soapstone bowls shows that they are more likely to be found in the GYE, they are inextricably linked to high-altitude soapstone sources and their distribution maps the known Shoshone home range about the same time that Shoshones were observed using them. The next section examines three reasons for the association between soapstone bowls and Shoshones.

Discussion

Three factors can explain the artefact distribution pattern in Figure 3: geology, the high cost of transporting soapstone and ethnic identity. First, geology is the controlling factor. The centroid of a sample of 123 bowls did not differ significantly from the centroid of twenty-six aboriginally utilized sources. Bowls were made near sources and generally remained within 90km of the nearest source (compare Figs 1 and 3).

Second, transporting soapstone as a raw material has a high cost/utility ratio. Due to the destructive nature of soapstone-reduction technology, a block of soapstone large enough to make into a bowl yields little useable surplus for bead or pipe manufacture. In comparison, a similarly sized chunk of obsidian has a lower transport cost/utility ratio since it will yield many usable edges. Widely traded, Yellowstone obsidian has been found in twelve states and one Canadian province (Brose 1994; Cannon and Hughes 1993, 1997; Davis 1972; Griffin 1965; Griffin et al. 1969; Hatch et al. 1990; Lepper et al. 1997; Struever and Houart 1972; Vehik and Baugh 1994). In contrast to obsidian, soapstone in the form of bowls mostly stayed in the Rocky Mountains; only a few bowls made it to the Great Plains to the east or the Great Basin to the west (Fig. 3).

The third factor is ethnic identity. Because tribal boundaries shifted dramatically through time on the Plains, the period bracketed by Larocque's 1805 account (Wood and Theissen 1985: 185) and Russell's 1835 sighting is of particular importance. An approximation of tribal territories derived from published sources (d'Azevedo 1986: ix; Bamforth 1988: 92; Hyde 1959: 123) and centred around the GYE is shown in Figure 3. As of 1775, Rocky Mountain soapstone bowls are found almost exclusively within Shoshone territory. But approximately fifty years later, Shoshone territory (DeMaillie 2001: ix; Murphy and Murphy 1960: vi; Russell 1955: 143; Shimkin 1947: 247–50) had contracted (Fig. 5). Shimkin (1947: 251) describes the Eastern Shoshone world around 1825 as a 'north–south ellipse' 720km by 400km for an area of 226,000km^2. The home range derived from soapstone bowl distribution measures about 600km N–S by 500km E–W and has an area of about 235,000km^2.

Eastern Shoshone informant Dick Washakie's statement that the bowls were rarely traded finds some confirmation in a distribution map (Fig. 3) showing that bowls are rare occurrences in the territories of neighbouring tribes. No bowls have been found in Crow territory in the Powder River Basin, but several bowls show up along the Yellowstone River below Billings, Montana, in country used by Shoshone, Flathead and Crow. A few bowls and fragments have been found in the earth lodges villages of North Dakota (Smith 1972: 65–6; Lehmer et al. 1978: 236–8) and in a dune in north central Nebraska (Nebraska History 1994), but these can be explained if Shoshone women accompanied men of other tribes (by choice or not) back to the Plains, or by the raiding, looting, loss or discard of bowls.

Interpretation

Soapstone bowls were in use during the Protohistoric period and, based on eyewitness accounts, they were made and used by Shoshone people. Assuming that bowls were the possessions of women and were handed down from mother to daughter (Shimkin n.d.),

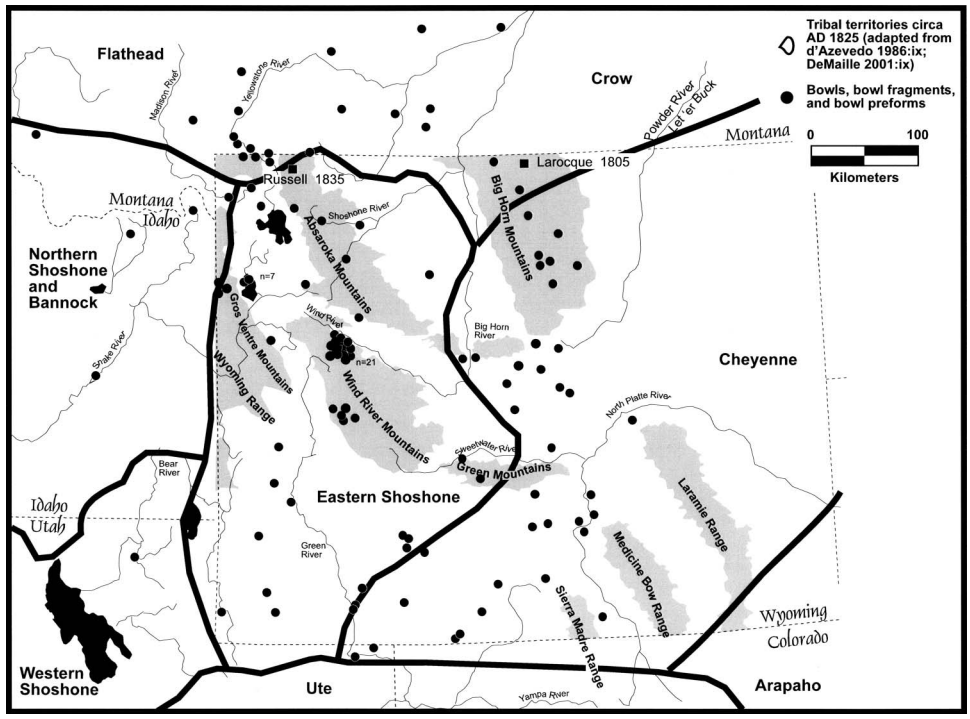

Figure 5 Rocky Mountain soapstone bowl distribution and tribal territories around 1825.

then soapstone-bowl distribution ought to represent the home range of Mountain Shoshone women and families.

It is clear from the ethnographic literature that pottery was generally made and used by women except when it became a craft specialty (Arnold 1985: 102; Kramer 1985: 83; Sassaman 1998: 161) and, among the Numa, it appears that pottery was made and used by women (Lowie 1924: 225). By extension, it should be safe to assume that soapstone bowls were also made and used by women. For the sake of argument, let me simplify hunter-gatherer gender roles (like Amick 1999: 171–2) by saying that soapstone bowls are in the female domain. More often than not, bowls (and bowl fragments) should be found at camps where entire families stayed and food processing occurred. In contrast, weapons might be over-represented and evidence of culinary arts under-represented at the camps of all male hunters or warriors.

Ethnographic literature makes it clear that Shoshone women were likely to stay near their families after they married (Shimkin 1986: 315; Lowie 1909: 210, 1924: 278; Shapiro 1986: 624). There is a pan-Numic tendency for a husband to live with his wife's family for at least the first year (Shapiro 1986: 624). Among the Eastern Shoshone 'bride service was common, especially a young groom living initially with his bride's parents' (Shimkin 1986: 315; see also Lowie 1909: 210, 1924: 278). Matrilocality would ensure that the bowl-making tradition would continue. Assuming that bowls were not extensively traded (as the ethnographic and historic records appear to indicate), the distribution of soapstone bowls provides a first approximation of the home range of Mountain Shoshone women and families.

The term 'home range' refers to the resource area occupied, and is neutral in terms of boundary defence, unlike the term 'territory' which Cashdan (1983: 47) defined as the area controlled, restricted or maintained by the local residents. If Mountain Shoshone and Sheepeater Shoshone are synonymous, then the distribution of bowls reflects the home range of the Sheepeaters, but, given the lack of Sheepeater documentation (Nabokov and Loendorf 2004: 288), resolution of this question is unlikely.

According to historic accounts, the soapstone-bowl phenomenon occurred at a time when both pedestrian sheep-eating and equestrian bison-eating Shoshones coexisted in the GYE. The presence of horses at this time makes assessing the importance of stone bowls in the lives of mobile hunter-gatherers more complex than it would be if only pedestrians made and used bowls. More AMS dating is needed to see if bowls were used in pedestrian times (before AD 1600).

The seasonal round of both Late Prehistoric pedestrian and Protohistoric equestrian Shoshone families involved following migratory pronghorn (*Antilocapra americana*), bison (*Bison bison*), elk (*Cervus elephas*) and mountain sheep (*Ovis canadensis*) from winter ranges in the basins to summer range high in the GYE. Once in the mountains they procured important mineral resources like chert, quartzite, obsidian and soapstone. At high altitudes where subalpine forests give way to alpine meadows, they encountered other fauna like snowshoe hare (*Lepus americanus*), yellow-bellied marmot (*Marmota flaviventris*) and trout (*Oncorhynchus clarki*). A great many economically desirable roots, bulbs and fruits (e.g. *Polygonum* sp., *Erythronium grandiflorum, Vaccinium* sp.) grow at or near the subalpine/alpine ecotone and have the benefit of ripening later than plants at low altitudes. Later in the year, as autumn changed to winter, they followed the wild game migrating out of the GYE to low-altitude winter grounds in the basins. (But not always: two relatively low-altitude sites in mountain valleys deep in the GYE contain evidence of over-wintering Late Prehistoric Shoshones (Hughes 2003:105; Rapson 1991).)

Generalizations about Late Prehistoric/Protohistoric Shoshonean seasonal rounds (Shimkin 1947: 279) and subsistence practices (Murphy and Murphy 1960; Nabokov and Loendorf 2004: 262–7) are based on ethnography and the analysis of sites well below 2500m (e.g. Frison 1971; Current 2005). Analysis of high altitude (>2750m) Shoshonean sites is beginning to paint a picture of intense high-altitude resource use. Unpublished results of recent surveys by Office of the Wyoming State Archaeologist researchers in three GYE mountain ranges show that site density increases with elevation from the foothills to the alpine zone. For example, my colleagues and I have recorded 103 archaeological sites above 3000m in the Wind River Mountains. Their average altitude is 3186m, and Late Prehistoric sites are more common than any other time period. Of the fifty-two sites with formal artefacts, twenty-four contain soapstone artefacts and/or groundstone artefacts such manos and metates, long considered to be plant-processing tools. This suggests that whole families, not just task-oriented male hunting groups, used the mountains. High-altitude surveys in the neighbouring Absaroka and Teton Mountains show a similar pattern.

By employing 'a paradigm that recognises no clear boundary between ethnography and prehistory but uses each to inform the other' (Bettinger 1991: 656), I have shown how the distribution of archaeological artefacts – in this case soapstone bowls – confirms

anthropologic and ethnohistoric accounts of local Mountain Shoshone territory. Knowing the home range allows for delineation of a seasonal mobility system (Sampson 1988: 13), and, if my contention that a population of local Shoshone women and families made and used soapstone bowls is accepted, then the local Shoshone home range emphasizes the role that mountains played in the seasonal mobility system of whole families of mobile hunter-gatherers.

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