

# Brownware Pottery of the Southern Sierra Nevada

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## Abstract

Described here is the aboriginal ceramic industry of the southern Sierra Nevada, characterized by plain brownware pottery dating to the fifteenth or sixteenth century AD and later, found on the western slope of the range mostly from the San Joaquin River southward. The “center of gravity” for pottery use in this region is the area from the Kern River drainage in the south to the Kaweah River basin in the north. Archaeological data seem to confirm ethnographic accounts that the brownware vessels were made primarily by the Owens Valley Paiute, Western Mono, Tübatulabal, and certain groups of Foothill Yokuts.

## Introduction

This paper provides an overview of Native American pottery from archaeological contexts in the southern Sierra Nevada, California. The term “pottery” here includes vessels of fired clay but excludes items of baked or sun-dried clay and architectural daub. The geographical scope of this study extends from the Chowchilla River basin on the north to the Kern River watershed on the south (Figure 1), and from the lower edge of the foothills (>100 m asl) on the west up to the Sierran crest (3,000–4,400 m) on the east. Among the topics covered are the characteristic traits, areal distribution, and age of the pottery as well as its possible functions, cultural associations, and importance for our understanding of the archaeological record.

Most ceramics of native manufacture in the study region consist of undecorated brownware pottery made by coiling and scraping of naturally sandy or intentionally sand-tempered clay. Plastic decoration

is infrequent, and no slip or paint is evident. Surface luster typically is dull to earthy. Pottery from the southern Sierra has been called Owens Valley Brown Ware (OVBW) since that ware was first defined by H. S. Riddell (1951), but this ascription may need to be changed or refined if sophisticated analyses, such as those undertaken recently in the Owens Valley (Eerkens 2001, 2003) and Death Valley (Eerkens et al. 2002), are ever performed on the ceramics of the southern Sierra. Illustrations of typical vessels appear in Berryman and Elsasser (1966:Fig. 8), Elsasser (1972:21), Gayton (1929:Pls. 99–102), Kroeber (1925: Pl. 51), Lathrap and Meighan (1951:Pl. 3:a), Madsen (1986:Fig. 6); and Steward (1933:Fig. 1:a–i, Pl. 5: a,b,d). Also manufactured in the southern Sierra were conical smoking pipes of fired clay (Gayton 1929:241, 246, Pl. 102; see also DeBarros and Schroth 1989:227; Fenenga 1948d; Meighan et al. 1984, 1988a).

## Description

As defined by Harry S. Riddell (1951:20) on the basis of 914 sherds from the Cottonwood Creek Site, CA-INY-2, OVBW is a plain, unslipped, unpainted pottery. It was manufactured by coiling and scraping, except for the flat to rounded base which was molded from a single lump of clay and fired in an oxidizing, “although often uncontrolled,” atmosphere.

Core colors are light red or brown to light gray or black, and core texture ranges from fine to coarse. Temper includes “very fine rounded quartz sand

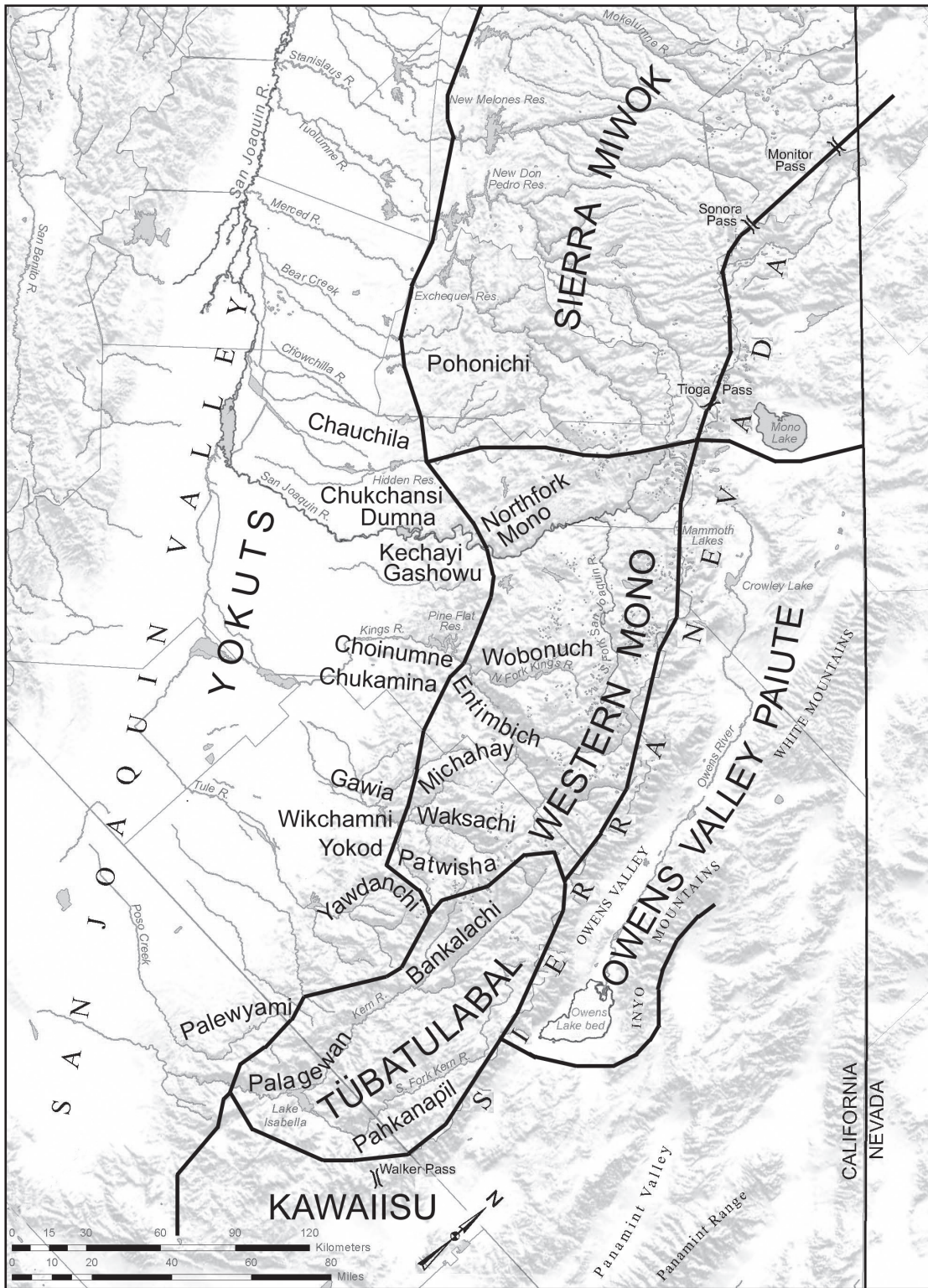


Figure 1. Southern Sierra Nevada geography and ethnographic territories at European contact. Map by Michael Mirro and Rusty van Rossmann.

to large rounded quartz sand; mica [is] present in amounts from small to very noticeable,” and walls are weak to medium strong. The surface is dull and ranges in color from reddish brown to brown on the exterior and light gray to black on the interior. Vessel walls tend to be 3–8 mm thick and are undecorated save for occasional “fingernail indentations in a single bank on rim top or below rim on interior and exterior.” Rims are often variable and uneven on the same vessel (Riddell 1951:20–23). Additional descriptive information is provided in Table 1.

### Manufacture

Brownware pottery was manufactured in the Sierra Nevada by many Western Mono and Foothill Yokuts groups as well as by the Tūbatulabal (Figure 1) (Driver 1937; Gayton 1929). The Chukchansi Yokuts and the Sierra Miwok reportedly did not make pottery (Gayton 1929:24). It is uncertain whether or not the Kawaiisu made pottery (Griset 1981), even though there is archaeological evidence of pottery use in Kawaiisu territory (Elsasser 1960; Griffin 1963; Guthrie 1957; Riddell 1951). All five of the Western Mono divisions and nine of the ten Yokuts tribelets surveyed by Driver (1937:80) claimed knowledge of pottery making. Fundamental questions remain, both archaeologically and ethnographically, about whether the residents of various Sierran localities made their own pottery, acquired ceramics through trade, or both.

Anna Gayton (1929) has described the ceramic industry of Foothill Yokuts and Western Mono. Additional data are supplied by Driver (1937). The essential first step in pottery manufacture was to procure suitable clay from a meadow. The subsequent processing involved: wedging (i.e., pounding and kneading) the clay on a bedrock outcrop; preparing a pot base from a single lump of clay; coiling the vessel walls; scraping exterior and interior surfaces with a chip of wood; polishing with a rubbing stone—usually of steatite; sun-drying the green vessel; and firing for eight to 48

hours, depending on the intended function of the pot (Gayton 1929:239–244). Produced in this manner were large bucket-shaped containers for boiling, flat-bottomed pots with slightly tapered sides, globular bowls, and small hemispherical dishes (Elsasser 1972:47; Gayton 1929:Pls. 99–102; Madsen 1986:Fig. 6).

### Nomenclature

Various names have been applied to the aboriginal brownware pottery of the western Great Basin and southern Sierra Nevada, among them Southern Paiute Utility Ware (Baldwin 1950) and OVBW (Riddell 1951; cf. Bettinger 1986). The main distinctions between the two seem to be the paddle-and-anvil shaping and reduced firing characteristic of the Southern Paiute region and the scraping and oxidized firing practiced by the Indians of the Owens Valley areas (Riddell 1951:22; Meighan 1955:12). Nonetheless, the two kinds of pottery often have been assigned to a single, extensively distributed ware (Elsasser 1960:30–31). Other names for this brownware have been applied locally in the Sierra Nevada. For example, at Terminus Reservoir on the Kaweah River, Fenenga (1952:343) named the pottery “Tulare Plain Ware” but regarded it as “typologically identical” to OVBW. Other names, “Sierra Brown Ware” and “Sierra Brown variant,” have been proposed by May (1980, 1981) for pottery found along the Pacific Crest Trail above the South Fork Kern River.

Madsen (1986) recognized a broad class of Paiute-Shoshone pottery, including three variants: Shoshone pottery (Steward 1941, 1943), Southern Paiute pottery (or Southern Paiute Utility Ware) (Baldwin 1950), and OVBW (Riddell 1951). In Madsen’s view, the differences among these variants seem to be based more on vessel shapes than on manufacturing techniques. Unfortunately, the names ascribed to the class and two of its variants imply production of ceramics by particular ethnic groups, and the name of the third variant (OVBW) suggests production in Owens Valley (and

Table 1. Characteristics of Brownware Pottery from the Southern Sierra Nevada.

	<b>Big Dry Creek (CA-FRE-1671) San Joaquin River Drainage (Mack 1988)</b>	<b>Kennedy Meadows/ Rockhouse Basin, South Fork Kern River Drainage (Griset 1981)</b>	<b>Dinkey Creek Hydro. Project, Kings River Drainage (Wickstrom et al. 1991)</b>	<b>Lamont Meadow/ Morris Peak, South Fork Kern River Drainage (May 1980)</b>
<b>Surface Color</b>	Dark to very dark grayish brown, brown, red, or yellowish brown; most common is dark grayish brown (10YR4/2)	“Dark chromes of gray and brown value in the yellow-red hues” (Griset 1981:194)	Black and very dark grayish-brown to yellowish-red to light gray (see Wickstrom et al. 1991:Tables 9 and 22 for colors)	Same as core: dark reddish gray, reddish gray, and dark gray to black
<b>Core Color</b>	Red, brown, or dark gray; most common is brown (10YR4/3)	Not reported	Often red	Dark reddish gray, reddish gray, and dark gray to black
<b>Hardness</b>	3.5–4.5 (Mohs scale)	Not reported	Not reported	Not reported
<b>Paste Texture</b>	Typically coarse to medium; less often fine	Variable; fine to coarse	Very fine, uniform to coarse with quartz inclusions up to 2.6 mm diameter	Fine to medium, with occasional coarse sand
<b>Luster</b>	Dull to matte	Not reported	Not reported	Not reported
<b>Temper</b>	Granite-derived plagioclase feldspar, quartz, mica, and hornblende; naturally sandy clay (?) vs. intentionally added sand temper (?)	Granite-derived quartz, feldspar, and hornblende present in virtually all sherds; mica and a dark mineral (tourmaline?) occur in <10% of the sherds	Quartz inclusions	Crushed clear to opaque angular quartz and opaque to yellow subangular feldspar; some sherds exhibit no temper at all
<b>Fracture</b>	Irregular	Not reported	Common along coil lines; fracture is typically crumbling and irregular; less often, clean and sharp	Not reported
<b>Form</b>	Not determined	Bowls; possibly wide-mouthed jars; all reconstructed vessel diameters are >20 cm; 2 basal sherds indicate flared, straight-walled bowls with flat or slightly concave bottoms	Not identified	Shallow- and steep-sided bowls; rims always straight-sided with rounded lips; “base is flat”
<b>Wall Thickness</b>	4.0–9.0 mm thick	Range from 3 to 10 mm; typically about 5 mm thick	4.2–8.8 mm (see Wickstrom et al. 1991:Tables 9 and 22 for thickness measurements)	3.0–6.0 mm; average 3.5 mm
<b>Decoration</b>	None reported	None observed	None reported	None reported
<b>Slip</b>	None	None	None reported	None reported
<b>Construction</b>	Coiling and scraping; some polishing	Coiling, scraping, and polishing are evident; one sherd may have steatite dust on its exterior	Not described	Paddle-and-anvil (?)
<b>Firing</b>	Uncontrolled; incomplete oxidation; experimentally determined firing temperature >800 °C	Some sherds retain firing clouds	Uncontrolled, oxidizing firing environment	Oxidizing atmosphere; firing clouds are rare or absent

Table 1. Continued.

	<b>Big Dry Creek (CA-FRE-1671) San Joaquin River Drainage (Mack 1988)</b>	<b>Kennedy Meadows/ Rockhouse Basin, South Fork Kern River Drainage (Griset 1981)</b>	<b>Dinkey Creek Hydro. Project, Kings River Drainage (Wickstrom et al. 1991)</b>	<b>Lamont Meadow/ Morris Peak, South Fork Kern River Drainage (May 1980)</b>
<b>Surface Finish</b>	Scraped; rubbed. PB, R, S, T*; PStr, RNS, RWS, SI, SWS**; texture grainy to smooth	PSmo, PStr, RNS, RWS, SI, SWS**; texture smooth to very rough	PB, R, RB, S*; several pieces exhibit talc (from rubbing with steatite?)	“Paddle or impressions of small bundles of grasses on the exterior and sometimes interior surface. This is not evident nearer the rim of the vessel. Stone burnishing polishes the surface but does not obliterate the impressions. Grass and sand impressions in the base” (May 1980:277)
<b>Function</b>	Cooking; other	Cooking; storage (ollas?); other	Cooking	Not inferred
<b>Other</b>	—	X-ray fluorescence analysis of 10 sherds revealed significant differences in chemical signature, indicating use of more than one clay source	Carbonized matter (charred food remains?) was found on interior surfaces of several sherds	May (1980:276) ascribes the sherds to “Sierra Brown Ware,” and lists as a synonym “possibly ‘Owens Valley Brown’ as described by Harry S. Riddell in 1951”

Surface Finish Notes:

\* Bettinger (1986)

PB Parallel Brushed  
R Rough  
RB Random Brushed  
S Smooth  
T Tooled

\*\*Griset (1981)

PSmo Polished Smooth  
PStr Polished with Striations Observable  
RNS Rough with No Apparent Smoothing  
RWS Rough with Wiping Striations Observable  
SI Smooth with Indentations  
SWS Smooth with Wiping Striations

thus by the Owens Valley Paiute). Although OVBW is not an ideal name for pottery that was manufactured in the Sierra variously by Western Mono, Tübatulabal, Foothill Yokuts, and possibly other ethnic groups, the term has been in use for six decades and is retained here. In the present paper OVBW subsumes Tulare Plain Ware, Sierra Brown Ware, Sierra Brown variant, and other named wares/types/variants that manifest the same formal characteristics (Table 1).

### Distribution

Variable quantities of OVBW occur throughout much of the southern Sierra Nevada, from high altitudes to the foothill-valley contact zone (cf. Elsasser 1960:Map 7;

Gayton 1929:Fig. 3; Riddell 1951:Fig. 1). Table 2 lists and Figure 2 shows some of the Sierran localities and sites where such pottery has been found archaeologically. The “center of gravity” for pottery use—and presumably manufacture—in the study region seems to be in the area from the Kern River drainage on the south to the Kaweah River basin on the north. Pottery is also found within portions of the Kings and San Joaquin drainages, though less commonly than in more southerly parts of the region. Beyond the San Joaquin, in the Willow Creek, Fresno River, and Chowchilla River drainages, the number of sherds is so small as to suggest that very few pots were used and that these probably were obtained as trade items from the south or east. Farther north, in the country drained by

Table 2. Distribution of Archaeological Brownware Pottery by Watershed in the Southern Sierra Nevada.

Site(s) and/or Locality	County	Drainage, Elevation	References	Comments
Bear Mountain	Tulare	South Fork Kern River	Garfinkel 2007; McGuire and Garfinkel 1980	–
Morris Peak area	Kern	South Fork Kern River watershed, 1890–2165 m	Garfinkel 2007; Garfinkel et al. 1980; May 1980	Twenty-five “Sierra Brown Ware” (= OVBW?) sherds from Morris Peak and Lamont Meadow are described by May (1980); see Table 1, above.
Rockhouse Basin	Tulare	South Fork Kern River, 1830 m	Garfinkel 2007; Grisette 1981; McGuire 1981	Of 79 sherds reported, 77 were surface finds; one was from 30–40 cm; and one was found in backdirt (0–50 cm) (Grisette 1981:Table 31). Although no sherds were directly dated, depositional contexts at two sites dated by radiocarbon assays suggest ages of ca. post-AD 1500 and ca. AD 1725 for the OVBW at these sites.
Lamont Meadow	Tulare	South Fork Kern River watershed, 1770–2100 m	Garfinkel 2007; Garfinkel et al. 1980; May 1980	Twenty-five “Sierra Brown Ware” (= OVBW?) sherds from Lamont Meadow and Morris Peak are described by May (1980); see Table 1, above.
Kennedy Meadows	Tulare	South Fork Kern River, 1707–1828 m	Garfinkel 2007; Grisette 1981; McGuire 1981	Of 59 sherds reported, 39 are surface finds and 20 were found at depths of <10 cm (Grisette 1981:Table 31). Although no sherds were directly dated, depositional context at one site dated by radiocarbon suggests an age of ca. AD 1700–1850 for the OVBW at this site.
Kelso Valley	Kern	Kelso Creek	Griffin 1963	Griffin (1963:108–109) notes two kinds of sherds: one consistent with OVBW, the other—a tan colored sherd—“similar to types found much further south in California desert areas.”
Isabella Reservoir	Kern	South Fork and main stem, Kern River, 760–825 m	Dillon 1984; Drucker 1947; Glassow and Moore 1978;	OVBW sherds recorded on the surface of several sites: (Meighan et al. 1984:53, Table 3); CA-KER-1 (Meighan et al. 1984:64–121); KER-2 (122–144), KER-12 (185–199), and KER-21 (222–239). KER-4 produced a low-fired pottery bead (Meighan et al. 1984:147–184). One sherd was recovered from an auger core at CA-KER-428 (Glassow and Moore 1978). Pottery also reported by Riddell at “Site 6” and “Site 12” (Drucker 1947).
Success Reservoir	Tulare	Tule River, 180–540 m	Dillon 1988c; Fenenga 1948b; Meighan et al. 1988c	Pottery very rare or absent in surface contexts.
Mountain Home State Forest	Tulare	Tule River, 1830 m	Dillon 1992	OVBW sherds found on the surface of the Sunset Point Site (CA-TUL-1052); a single sherd excavated from uppermost level (Dillon 1992:98).
Lake Kaweah (Terminus Reservoir)	Tulare	Kaweah River, 105–760 m	Berryman and Elsasser 1966; Dillon 1988a; Fenenga 1948c, 1952; Jackson et al. 1989; Pendergast and Meighan 1959; von Werlhof 1961a	Fenenga named the pottery from CA-TUL-10 as “Tulare Plain Ware,” but regarded it as “typologically identical” to OVBW (Fenenga 1952:343). Pottery pipes also found at this site (see Dillon 1988a:Fig. 40). While pottery is common in this area, steatite vessels are “comparatively scarce” (Dillon 1988a:149).
Sequoia/Kings Canyon National Parks	Tulare, Fresno	Kings River, Kaweah River	Elsasser 1972; Werlhof 1960, 1961b, 1961c	OVBW found widely and at various elevations within this large area.

Table 2. Continued.

Site(s) and/or Locality	County	Drainage, Elevation	References	Comments
Haas-Kings River Project area	Fresno	Kings River Watershed, 2000–2050 m	Moratto 1984b; Singleton et al. 1984	At CA-FRE-1441, 14 sherds of OVBW were found on the surface and one each in the 10–20 and 20–30 cm levels of excavation units (Dietz et al. 1984). Two sherds of OVBW were found on the surface of CA-FRE-1447 (Moratto 1984b; Singleton et al. 1984).
Dinkey Creek	Fresno	Dinkey Creek, Kings River Watershed, 1700–1800 m	IRI and TCR 1986; Kipps 1982; Wickstrom et al. 1991	Of 232 sherds reported, 141 were found on the surface, and 91 were recovered at depths of 0–50 cm; nearly all of the subsurface specimens were found within the uppermost 20 cm.
Rush Creek	Fresno	Rush Creek, Kings River watershed, 610 m	Wren 1978	Six sherds of OVBW reported from CA-FRE-747.
Balch Camp	Fresno	Dinkey Creek and N. Fork Kings River, 390 m	Goldberg 1986; Kipps 1983	Total of 16 sherds of OVBW recovered from the surface and upper levels of CA-FRE-502 in contexts indicating very late prehistoric to historic age.
Pine Flat Reservoir area	Fresno	Kings River, 150–840 m	Dillon 1988b; Fenenga 1948a, 1948d; Lathrap and Shutler 1955; Meighan et al. 1988b	Hundreds of brownware sherds recovered from the surface and subsurface deposits at several sites; many of the sherds were associated with late prehistoric or protohistoric housepits, for example, at CA-FRE-27.
Fancher Creek Project area	Fresno	Hog and Fancher creeks, between San Joaquin and Kings rivers, 140–150 m	Langenwalter et al. 1989; Meighan and Dillon 1987	Langenwalter et al. 1989, only recovered two sherds—both from 30–40 cm depth.
Big Dry Creek Reservoir Project area	Fresno	Big Dry Creek, between San Joaquin and Kings rivers, 120–140 m	Langenwalter et al. 1989; Meighan and Dillon 1987	In addition to an OVBW sherd recovered at 30–40 cm, excavations revealed “one probable and several other possible” ceramic pipe fragments (de Barros and Schroth 1989:227).
Academy CA-FRE-1671	Fresno	Big Dry Creek, San Joaquin River Watershed, 180 m	Kipps and Moratto 1985; Mack 1988; Moratto 1988	Six sherds recovered from disturbed soils at depths of 0–10 to 100–110 cm in the multicomponent site; age of sherds not determined.
Vermilion Valley/Lake Edison	Fresno	Mono Creek, San Joaquin River watershed, 2286–2317 m	Jackson et al. 1991; Lathrap and Shutler 1955; Wallace n.d.a	Of 22 sherds from site “Vermilion 1,” 18 were surface finds, and four came from a housepit of protohistoric or historic age; all sherds are formally consistent with ethnographic OVBW pottery (Lathrap and Shutler 1955).
Florence Lake	Fresno	San Joaquin River watershed, 2234 m	Jackson 1983; Jackson et al. 2006	–
Huntington Lake vicinity	Fresno	San Joaquin River watershed, above 2119 m	Hindes 1959, 1962; Jackson et al. 2006	Of 113 sherds, 79 were surface finds; the rest came from depths <30 cm.
Portuguese Flat, CA-FRE-137	Fresno	Headwaters of the San Joaquin River, 2,045 m	Caputo 1994	Five sherds of OVBW pottery and a clay pipe were recovered.

Table 2. Continued.

Site(s) and/or Locality	County	Drainage, Elevation	References	Comments
Balsam Meadow	Fresno	San Joaquin River watershed, 2010–2050 m	Goldberg and Moratto 1984; Moratto 1984a	Of seven sherds, four were surface finds, one was found at 8 cm, and the other two came from the 10–20 cm level; age estimate: AD 1750–1900?
Mammoth Pool	Fresno/Madera	San Joaquin River, 1027 m	Jackson et al. 2006; Wallace n.d.b	Brownware pottery is present, but uncommon.
Bass Lake/Crane Valley	Madera	Willow Creek, San Joaquin River watershed, 1000–1050 m	INFOTEC 1986; IRI and TCR 1985	Pottery is conspicuous by its absence at virtually all of the reported archaeological sites in this locality.
Kerckhoff Reservoir	Fresno, Madera	San Joaquin River, 300 m	Varner 1983	Eleven sherds of OVBW pottery reported (Varner 1983: V.15–V.16; Pl. V. 38)
Hidden Reservoir	Madera	Fresno River, 100–150 m	Fenenga 1973; Kelly 1974; Wallace 1968, 1969, 1970	Aboriginal brownware pottery is rare or absent at the sites investigated.
Buchanan Reservoir	Madera	Chowchilla River, 150–300 m	King 1968; Moratto 1972	Extensive excavations over a period of years yielded only three small sheds of OVBW; by contrast, steatite vessel sherds were abundant.
Yosemite National Park	Madera, Mariposa, Tuolumne	Merced and Tuolumne rivers from 600 m to >3,050 m	Bennyhoff 1956; Hull and Moratto 1999	Despite both extensive and intensive archaeological research over a span of decades, pottery does not appear in the late prehistoric assemblages.

the Merced, Tuolumne, and Stanislaus rivers, aboriginal pottery seems to be rare or entirely absent.

To the west, very few discoveries of OVBW—probably the remains of pots acquired by trade—are found beyond the foothills, below 100 m asl on the San Joaquin Valley floor. At Buena Vista Lake, Wedel (1941:47) noted eight sherds of thick-walled pottery; however, he mentioned that “rarely shell was added as temper,” which would exclude any such sherds from being identified as OVBW. All pieces were found “in the upper 3 to 4 feet” and were thought to date to approximately AD 1700–1800 (Wedel 1941:48).

### Chronology

Brownware pottery is widely distributed in the western and southwestern Great Basin (Davis 1963; Hester 1973:51–53; Madsen 1975; Meighan 1955:11–12; Riddell 1951:20–23; Riddell and Riddell 1956:29;

Steward 1933, 1941, 1943). This fact led Gayton (1929), Kroeber (1925), Lathrap and Shutler (1955), Steward (1933), and many others to infer that the ceramic industry diffused westward across the Sierra, that is, from the Great Basin Paiute and Western Mono to the Tübatulabal and Foothill Yokuts.

By all accounts Paiute-Shoshone pottery first appeared in the Great Basin during late prehistoric times. The chronological particulars, however, continue to evolve as new information becomes available. It was once believed that this pottery had made its debut in the Great Basin at ca. AD 1300 (Eberhart 1957:69; Fowler 1968:10). Riddell (1951:23–24) ventured that OVBW was initially used at the type site, CA-INY-2, sometime after AD 1650. Subsequently, it was thought that the range of this ware had spread to Death Valley by ca. AD 1700 (Meighan 1953:189) and into the southwestern Sierra Nevada by ca. AD 1750 (Davis 1960:16). More recently, with the benefit of additional



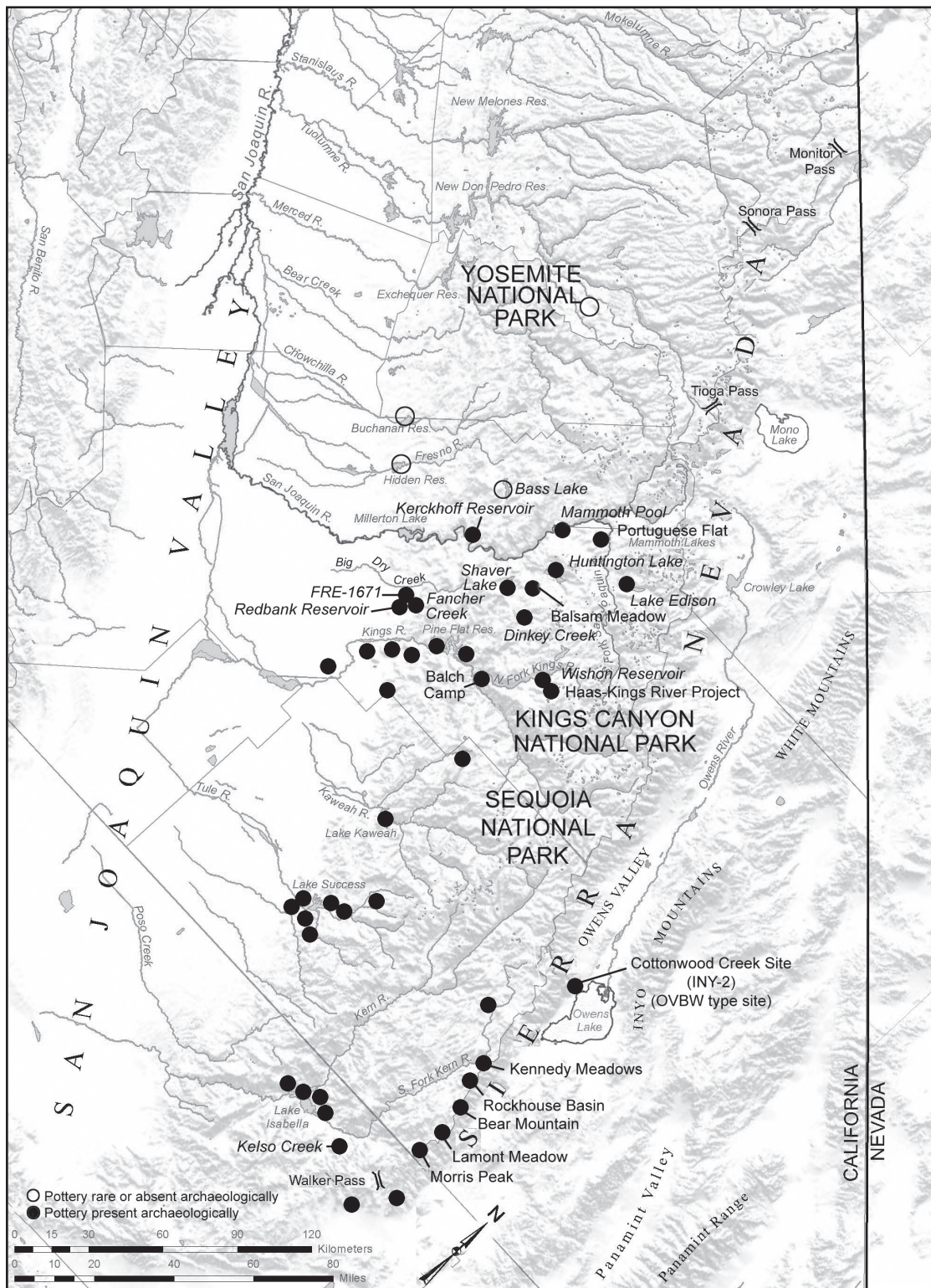


Figure 2. Distribution of archaeological brownware pottery in the southern Sierra Nevada. Site locations are keyed to Table 2. Map by Michael Mirro and Rusty van Rossmann.

data, Madsen (1975, 1986) set the appearance of Paiute-Shoshone pottery in southern Nevada and adjacent parts of California (e.g., Death Valley-Amargosa Valley) (see Wallace 1962) as early as ca. AD 1000. The pottery-making tradition then spread northward, reaching Owens Valley by ca. AD 1300 (Madsen 1986:213–214, Fig. 5).

Other scholars have inferred from their data that pottery use in Owens Valley and on the adjacent Sierran front was not widespread until after ca. AD 1500 (Basgall and Giambastiani 1995; Basgall and McGuire 1988; Bettinger 1986; Delacorte 1999). In what is perhaps the most thorough study of the topic thus far, Eerkens (2003) has adduced evidence for at least three periods of pottery manufacture at sites in the southern Owens Valley: an early period (ca. AD 1425–1475) marked by thick-walled pots containing high levels of mica; a second period (ca. AD 1430–1660) in which the pots were slightly thinner, contained less mica, and showed less exterior smoothing than before; and a final period (ca. AD 1630–1850) during which the pots were even thinner than before, contained only small amounts of mica and were typically brushed rather than smoothed on the surface (Eerkens 2003:18–21, Figure 4). The partial overlap of these periods is a result of the overlapping 2-sigma ranges of radiocarbon dates. Although this proposed chronology applies only to the southern Owens Valley, it is nonetheless useful as a baseline for comparison with age estimates for pottery in the Sierra Nevada.

The late appearance of pottery in the southern Sierra is evinced by archaeological data from numerous localities where OVBW sherds are found associated only with components of late prehistoric and historic age (Table 2). For example, of the 138 sherds reported from Kennedy Meadows and Rockhouse Basin along the Pacific Crest Trail above the South Fork Kern River, 116 were surface finds, and nearly all the rest came from depths of less than 10 cm. Although no sherds from these localities were dated directly, the

radiocarbon-dated components at three sites suggest ages for the pottery of post-AD 1500, ca. AD 1725, and ca. AD 1700–1850 (Griset 1981; McGuire 1981).

However, at CA-FRE-1044 in the Dinkey Creek area of the Kings River watershed, a sherd of OVBW is reported to have been in direct association with charcoal dated  $940 \pm 80$ : AD 1010 (TCR and ACRS 1984:523). This anomalously early date, or perhaps the association, is suspect as it appears to be inconsistent with the age of OVBW elsewhere in the southern Sierra and Owens Valley. More typical are the hundreds of brownware sherds recovered from the surface and from Late Prehistoric or Protohistoric housepits at Pine Flat Reservoir farther downstream on the Kings River (Fenenga 1948d; Dillon 1988b, 1988c; Fenenga 1948d).

### Interpretations

The preponderance of archaeological evidence shows that OVBW appeared in the southern Sierra Nevada no earlier than ca. AD 1500 and that its range was still expanding some 350 years later. Pottery use and probably manufacture are especially well represented archaeologically in the drainages of the Kern and Kaweah rivers, suggesting that the advent of OVBW might have been earlier there than in other parts of the region, except possibly in the vicinity of high-mountain passes.

I suspect that soon after ca. AD 1500 a brownware pottery industry diffused from the Owens Valley Paiute, down the South Fork and main stem of the Kern River, first to the Bankalachi, Palagewan, and Pahkanapil Tübatulabal and then to the Palewyami Yokuts. At roughly the same time (ca. AD 1500–1600?) it seems likely that brownware pottery was carried westward into the mountains by ancestors of the Patwisha, Michahai, and Waksachi Mono, who in turn conveyed it to their Wikchamni, Gawia, and Yokod Yokuts neighbors downstream in the Kaweah River basin. Possibly the old trail from Owens Valley to the Kaweah River, via Cottonwood and Coyote passes

(see Riddell 1951:14), was followed by the Mono during their ascent to the crest of the range. The Yawdanchi Yokuts of the Tule River watershed above what is now Springville may have learned how to manufacture ceramics from the Wikchamni or Yokod, or possibly they acquired the knowledge from Bankalachi potters.

Farther north, and perhaps a little later (ca. AD 1600–1700?), pottery-making ancestors of the Wobonuch and Entimbich Mono made their way from Owens Valley to the upper Kings River watershed and eventually came to occupy lands as far downstream as the confluence with Dry Creek, near Trimmer, putting them into contact with the Choinumni and Chukamina Yokuts—both of whom then added pottery manufacturing to their cultural inventory. A later but parallel movement by ancestors of the Northfork Mono was either from the Long Valley-Mammoth Mountain locality westward to the headwaters of the San Joaquin River, or possibly from the high country along the upper reach of the South Fork San Joaquin River, and thence downslope. In this case, the Mono expansion down the San Joaquin drainage is thought to have occurred recently (ca. AD 1750–1875?) and involved strained relationships with established peoples in the foothills. Consequently, the Kechayi, Dumna, and Chukchansi Yokuts, and possibly the Gashowu as well, seem never to have adopted the pottery industry.

Relying upon ethnographic data published by Gayton (1929:245–246), Mack (1988) suggested that it may be possible to distinguish types of OVBW on the basis of manufacturing techniques observed in different localities of the southern Sierra. For example, there are

differences in manufacturing techniques between the Western Mono and Yokuts from Kings River and the same tribes along the Kaweah River. It may be possible in the southern Sierra to separate types of Owens Valley Brown Ware not along ethnic lines but along drainage divides. The Patwisha

(Mono) and Wukchumni (Yokuts) both took added steps in their manufacturing process to prepare the clay, thus their pots should have a finer, more uniform paste texture than [pottery of] the groups of the Kings River, who did not prepare the clay as carefully. In addition, the Kaweah River groups marked vertical lines with a stick on the outside of the pot. This should show on the outer surface of sherds. If it is possible to formulate types of Owens Valley Brown Ware based on small differences in manufacturing techniques and if these differences conform to certain river drainages, both the spread of pottery manufacture and the trading patterns present in the southern Sierra might be understood more fully [Mack 1988:536–537].

In-depth technical analysis and comparison of an adequate sample of sherds from each of the major river basins would either confirm or refute Mack's hypothesis and would certainly enhance our overall knowledge of the physical characteristics and variability of brownware in the southern Sierra. Likewise, determining the age of pottery from sites at various elevations in each river drainage (by means of direct AMS radiocarbon dating of organic material on or in the sherds) would elucidate the timing and direction of pottery production, diffusion, and conveyance in the region. Such studies also have the potential to advance our understanding of linguistic prehistory, as brownware pottery appears to be an archaeological signature of Numic expansion into, and cultural influence within, the southern Sierra Nevada.

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