MACROFLORAL ANALYSIS AT THE ALISO JUNCTION EARTH OVEN SITE, FS NO. 05-01-55-159, CALIFORNIA

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INTRODUCTION

The Aliso Junction Earth Oven Site (FS No. 05-01-55-159), located on a creek terrace at the junction of Aliso Creek and a seasonal unnamed creek, is situated in Aliso Canyon in the San Gabriel Mountains of Southern California. The site is thought to have been inhabited at the time of historic contact by the Tatavium, a little known Native California culture group who probably spoke a Serran language of the Takic branch of Northern Uto-Axtecan linguistic family. The site consists of three loci containing fire affected soil, fire affected rock, and charcoal. An earth oven feature was identified at the site, and two $1m^2$ units were excavated to examine the feature. The feature consisted of an earthen firing pit, heating stones/darkened sediments/charcoal, and a stone cobble cooking platform. Conventional radiocarbon analysis of two charcoal samples from the feature yielded approximate dates of 940 ± 40BP and 1000 ± 40 BP. Two macrofloral and six charcoal samples were analyzed from the fill of this oven. Macrofloral and charcoal analyses are used to provide information concerning the type of fuel/tinder burned in the earth oven, as well as possible foods cooked in the oven.

METHODS

Macrofloral

The macrofloral samples were floated using a modification of the procedures outlined by Matthews (1979). Each sample was added to approximately 3 gallons of water, then stirred until a strong vortex formed. The floating material (light fraction) was poured through a 150 micron mesh sieve. Additional water was added and the process repeated until all floating material was removed from the sample (a minimum of five times). The material that remained in the bottom (heavy fraction) was poured through a 0.5-mm mesh screen. The floated portions were allowed to dry.

The light fractions were weighed, then passed through a series of graduated screens (US Standard Sieves with 2-mm, 1-mm, 0.5-mm and 0.25-mm openings) to separate charcoal debris and to initially sort the remains. The contents of each screen then were examined. Charcoal pieces larger than 2-mm, 1-mm, or 0.5-mm in diameter were separated from the rest of the light fraction and the total charcoal weighed. A representative sample of these charcoal pieces was broken to expose a fresh cross section and examined under a binocular microscope at a magnification of 70x. The weights of each charcoal type within the representative sample also were recorded. The material that remained in the 2-mm, 1-mm, 0.5-mm, and 0.25-mm sieves was scanned under a binocular stereo microscope at a magnification of 10x, with some identifications requiring magnifications of up to 70x. The material that passed through the 0.25-mm screen was not examined. The heavy fractions were scanned at a magnification of 2x for the presence of botanic remains.

The charcoal samples were water-screened through a 250-micron mesh sieve and allowed to dry. The dried samples were scanned under a binocular stereo microscope at a magnification of 10x. Charcoal fragments 2 mm in size and greater were separated and examined under a binocular microscope at a magnification of 70x.

Remains were recorded as charred and/or uncharred, whole and/or fragments. The term "seed" is used to represent seeds, achenes, caryopses, and other disseminules. Macrofloral remains and charcoal are identified using manuals (Core, et al. 1976; Martin and Barkley 1961; Musil 1963; Panshin and Zeeuw 1980; Schopmeyer 1974) and by comparison with modern and archaeological references.

Samples from archaeological sites commonly contain both charred and uncharred remains. Many ethnobotanists use the basic rule that unless there is a specific reason to believe otherwise, only charred remains will be considered prehistoric (Minnis 1981:147).

Minnis (1981:147) states that it is "improbable that many prehistoric seeds survive uncharred through common archaeological time spans." Few seeds live longer than a century, and most live for a much shorter period of time (Harrington 1972; Justice and Bass 1978; Quick 1961). It is presumed that once seeds have died, decomposing organisms act to decay the seeds. Sites in caves, water-logged areas, and in very arid areas, however, can contain uncharred prehistoric remains. Interpretation of uncharred seeds to represent presence in the prehistoric record is considered on a sample-by-sample basis. Extraordinary conditions for preservation are required.

Schulze Digestion

Some of the charred and vitrified tissue fragments recovered in the macrofloral samples were pulverized in centrifuge tubes using a teflon rod. Schulze solution was used to dissolve the charred material and release trapped starches and/or phytoliths. Schulze solution is a mixture of strong nitric acid (75%) and potassium (or sodium) chlorate. Oxidation is rapid and any pollen remaining in these charred fragments is expected to be oxidized by this solution. Samples were rinsed with dilute potassium hydroxide (KOH) to remove humates, then distilled water following completion of the digestion with Schulze solution. Microscope slides were made with glycerine for examination with a binocular microscope at magnifications ranging from 400x to 600x.

ETHNOBOTANIC REVIEW

Ethnological (historic) plant uses are important in interpreting certain charred macrofloral remains as possible or even probable subsistence items in prehistoric times. The ethnobotanic literature gives evidence of the historic exploitation of numerous plants, both by broad categories, such as greens, seeds, roots, and tubers, etc., and by specific example, i.e., seeds parched and ground into meal which was formed into cakes and fried in grease. Repetitive evidence of the exploitation of resources indicates a widespread utilization and strengthens the possibility that the same or similar resources were used in prehistoric times. Ethnographic sources do document that the historic uses of some plants were developed and carried from the past. A plant with medicinal qualities was likely to have been discovered in prehistoric times, and the usage of that plant persisted into historic times. There also was a probable loss of knowledge concerning the utilization of other plant resources as cultures moved from subsistence to agricultural economies and/or were introduced to European foods during the historic period. The ethnobotanic literature serves only as a guide indicating that the potential for utilization existed in prehistoric times--not as conclusive evidence that the resources were used. Pollen and macrofloral remains, when compared with the material culture (artifacts and features) recovered by the archaeologists, can become indicators of use. Plants represented by charred macrofloral remains are discussed in the following paragraphs in order to provide an ethnobotanic background for discussing the remains.

Native Plants

Poaceae (Grass family)

Members of the Poaceae (grass family) have been widely used by California groups for food, tools, and construction materials. Grass seeds were an important resource, and seeds from a variety of grasses were utilized including *Agrostis* (bentgrass),*Alopecurus howellii* (Pacific foxtail), *Avena fatua* (wild oat), brome grass (*Bromus*), *Distichlis spicata* (saltgrass), *Elymus* (ryegrass), *Eragrostis diffusa* (lovegrass), *Festuca* (fescue), *Hordeum* (barley), *Phalaris* (canary grass), *Phragmites australis* (carrizo grass), *Poa* (bluegrass), and *Stipa* (needlegrass). Seeds ripen throughout the spring, summer, and fall. Local conditions determined which

grasses were abundant and available for utilization. Many groups gathered grass seeds using a basketry seed beater. Seeds were knocked off into a wide-mouthed basket. Seeds could be eaten raw but most often were parched and ground into a flour that was used to make mush, cakes, and in stews. Grass stems are noted to have been used for making baskets. Grasses such as *Phragmites australis*, *Arundo donax* (giant reed), and *Elymus condensatus* (giant wild ryegrass) were used as thatching, twined mats, and nets. Carrizo and giant wild rye also were valued for making arrows (Bean 1978:575; Bean and Shipek 1978:552; Ebeling 1986:305; Grant 1978:517, 543; Hedges and Beresford 1986:25; King and Rudolph 1991:114; Luomala 1978:600; Mead 1972; Timbrook 1986).

Charcoal

Charcoal recovered from archaeological samples most often represents use of that type of wood as fuel; however, several trees and shrubs had utilitarian and medicinal uses as well. The presence of charcoal indicates that the trees and shrubs represented were present at the time of occupation. If these resources were present and collected as fuel, it also is possible that they were exploited for other purposes as well. The following paragraphs discuss plants represented only by charcoal in the macrofloral record.

Arctostaphylos (Manzanita)

Arctostaphylos (manzanita) is an evergreen shrub or small tree with purple or dark red bark and red or brown berries. The dry berries were eaten raw, cooked, dried and ground into a meal, or dried whole for future use. The seeds were parched and also ground into flour. Seeds and fruits were soaked in water to make a drink. Dried *Arctostaphylos* leaves and bark, especially *A. uva-ursi*, were mixed with tobacco (*Nicotiana*) leaves and smoked. Leaves also were brewed into a medicinal tea that is reported to be good for kidneys, or boiled into a solution that was used on cuts and burns. The wood was used in building houses and to make a variety of utensils. The several species of manzanita are often found in dry habitats. *A. glauca* (bigberry manzanita) is noted to have been common throughout the southern California coastal regions (Angell 1981:68-70; Barrows 1900:36, 64; Bean 1978:576-578; Bean and Shipek 1978:552; Hedges and Beresford 1986:15; Kirk 1975:53; Luomala 1978:600; Mead 1972:20-24).

Artemisia (Sagebrush)

Artemisia (sagebrush) was a plant of many uses. The seeds were eaten fresh or ground into a flour, and the leaves were used to season meat. A leaf tea was used to treat colds, sore eyes and as a hair tonic. Stems were used to make arrows, baskets, and as house thatching. Sagebrush are found in arid habitats throughout the west (Barrows 1900:75, 78; Kirk 1975:141; Mead 1972:25).

Quercus (Oak)

Quercus (oak) acorns are rich in protein and fat and were important resources, often staple foods, for native groups in California. All species of oaks produce edible acorns. Green acorns were peeled and sun-dried. Dried whole acorns were cracked using a hammerstone and a pitted anvil stone. Nutmeats were pounded into a meal using stone mortars and pestles or in a bedrock mortar located near the village or habitation. Some groups are noted to have buried whole acorns in swampy ground for 6-12 months, after which the blackened acorns were ready to eat whole. A few species of white oak, such as *Quercus gambelii* (Gambel's oak) and *Quercus turbinella* (shrub live oak), have acorns sweet enough to be eaten from the tree. These acorns were pit roasted, shelled, ground into a meal, and then made into a mush by stone-boiling. Most species of oaks, however, have extremely bitter acorns due to an abundance of tannic acid that is readily soluble in water. Leaching, the process of removing the tannin using water, was done in several different ways, and leaching processes varied from

group to group. The meal could be placed in a basket and water poured over it until the tannin was removed. Acorn meal also could be placed in a basin dug in the sand near a stream and water poured through the meal. The acorn flour then was used to make mush, cakes, soup, bread, pudding, and dumplings (Cook 1960:242; Kirk 1975:104-106; Peterson 1977:204; Spier 1978:472; Sweet 1976:13; Wallace 1978:464). A tea made from the inner bark of white oak species is astringent and was once used to treat chronic diarrhea, dysentery, chronic mucus discharge, bleeding, anal prolapse, piles, and menstrual problems. The tea also was used as a gargle for sore throats and as a wash for skin eruptions, cuts, poison ivy rash, and burns. A tea made from the inner bark of red oak species was often used for the same purposes but was considered weaker than a white oak tea. Acorn meal also was allowed to accumulate a mold that was scraped off, kept in a damp place, and used to heal boils, sores, and other skin problems (Foster and Duke 1990:278, 280; Robinson 1979:115-116; Sweet 1976:13)

Rhamnus (Buckthorn, Coffeeberry, Cascara)

The species of *Rhamnus* (buckthorn, coffeeberry, cascara) can be upright, small trees or low, spreading shrubs with red or black berries. The red berries of *R. crocea* (buckthorn, redberry) can be eaten raw or cooked. *Rhamnus* berries and bark have a laxative effect. *R. californica* (coffeeberry) and *R. purshiana* (Cascara Sagrada) bark was boiled in water to make a decoction used as a laxative and for a variety of other ailments. The bark also was soaked in water to make a tonic that was drunk to improve the appetite or restore general health. The bark was boiled with salt and applied to poison oak rashes. *Rhamnus* are found in a variety of habitats, including coastal-sage scrub, chaparral, woodlands, forests, sagebrush-steppe, and montane forests (Hedges and Beresford 1986:37; Hickman 1993:940-942; Kirk 1975:265-266; Moerman 1986:470; Sweet 1976:19; Tilford 1997:26; Westrich 1989:31-32).

DISCUSSION

The Aliso Junction Earth Oven Site (FS No. 05-01-55-159) is located at the confluence of Aliso Creek and an intermittent unnamed creek in Aliso Canyon. The site is within a lower montane vegetation zone and appears to support transitional plant species from desert-facing pinon-juniper woodlands to the north and east, coastal foothill chaparral communities to the west, and higher elevation montane conifer communities to the south. Modern vegetation at the site includes pinyon pine (*Pinus monophylla*), juniper (*Juniperus californica*), manzanita (*Arctostaphylos sp.*), chamise (*Adenostoma fasciculatum*), yucca (*Yucca whipplei*), beavertail cactus (*Opuntia basilaris*), bunch grass (*Stipa sp.*), California buckwheat (*Erigonum fasciculatum*), coulter pine (*Pinus coulteri*), golden chia (*Salvia sp.*), holly leaf cherry (*Prunus ilicifolia*), redberry (*Rhamnus crocea*), sagebrush (*Artemisia tridentata*), scrub oak (*Quercus dumosa*), goldenbush (*Happlopappus sp.*), yerba santa (*Eriodictyon sp.*), white sage (*Salvia apiana*), and whitethorn (*Ceanothus lecodermis*). Along the creek, Fremont cottonwood (*Populus fremontii*), willow (*Salix sp.*), and mule fat (*Baccharis salicifolia*) also were noted.

Two macrofloral and six charcoal samples were collected from the fill of a thermal feature identified as an earth oven. Samples were taken from stratigraphic levels in each of Units A and B. Macrofloral sample 015 represents the 30-40 cm level in Unit A (Table 1). This sample contained an abundance of *Arctostaphylos* charcoal (Table 2, Table 3), indicating that local manzanita wood was burned as fuel. Smaller amounts of *Artemisia* and *Rhamnus* charcoal reflect sagebrush and buckthorn wood that was burned. A moderate amount of charred termite fecal pellets suggest that some of the burned wood contained termites. The sample also contained unidentifiable vitrified charcoal and pieces of charred, vitrified tissue. Vitrified material has a shiny, glassy appearance due to fusion by heat. Vitrified tissue might represent charcoal or other plant tissue too vitrified for identification. Recovery of a few charred and uncharred bone fragments suggest meat processing activities. Numerous rodent fecal pellets, a moderate amount of worm casts, and a few insect chitin fragments and eggs indicate

some subsurface disturbance from rodent, earthworm, and insect activity. In addition, the sample contained several uncharred seeds, roots, and rootlets from modern plants.

Charcoal sample 14 was recovered from the 20-30 cm level in Unit A. This sample yielded five pieces of charred, vitrified organic tissue. A portion of this tissue was digested with Schulze solution to recover starches and/or phytoliths that would aid in identification of the charred material. No starches or phytoliths were noted. The charcoal record was dominated by *Arctostaphylos*, including several vitrified fragments of *Arctostaphylos*, with smaller amounts of *Rhamnus*, *Quercus*, and *Artemisia* charcoal present. Manzanita, buckthorn, oak, and sagebrush wood were burned as fuel in the oven.

The 10-20 cm level of Unit A is represented by charcoal sample 008. Several fragments of charred, vitrified organic tissue were present in this sample, similar to those in sample 014. The sample also contained an abundance of *Arctostaphylos* charcoal and smaller amounts of vitrified *Arctostaphylos*, *Rhamnus*, *Artemisia*, and unidentifiable vitrified charcoal.

Charcoal sample 002 was collected from the 0-10 cm level in Unit A. Several fragments of *Arctostaphylos* charcoal reflect manzanita wood burned as fuel.

Macrofloral sample 038 was taken from the 10-20 cm level in Unit B. Several charred fragments of *Arctostaphylos* charcoal and a small amount of *Rhamnus* charcoal again indicate that manzanita and buckthorn wood were burned. Numerous termite fecal pellets suggest that some of the burned wood contained termites. A few charred bark fragments most likely reflect branches/logs burned as fuel in the earth oven. Several fragments of charred, vitrified tissue might represent charcoal or other charred plant tissue. One charred and two uncharred bone fragments suggest meat processing activities. Several rodent fecal pellets, a few insect chitin fragments, and a few worm casts indicate some subsurface disturbance from rodent, insect, and earthworm activity. The sample also contained two small, green glass fragments, several uncharred seeds and leaves from modern plants, a few rootlets, and a few sclerotia. Sclerotia are commonly called "carbon balls". They are small, black, solid or hollow spheres that can be smooth or lightly sculpted. These forms range from 0.5 to 4 mm in size. Sclerotia are the resting structures of mycorrhizae fungi, such as *Cenococcum graniforme*, that have a mutualistic relationship with tree roots. Many trees are noted to depend heavily on mycorrhizae and may not be successful without them. "The mycelial strands of these fungi grow into the roots and take some of the sugary compounds produced by the tree during photosynthesis. However, mycorrhizal fungi benefit the tree because they take in minerals from the soil, which are then used by the tree" (Kricher and Morrison 1988:285). Sclerotia appear to be ubiquitous and are found with coniferous and deciduous trees including *Abies* (fir), *Juniperus communis* (common juniper), *Larix* (larch), *Picea* (spruce), *Pinus* (pine), *Pseudotsuga* (Douglas fir), *Alnus* (alder), *Betula* (birch), *Populus* (poplar, cottonwood, aspen), *Quercus* (oak), and *Salix* (willow). These forms originally were identified by Dr. Kristiina Vogt, Professor of Ecology in the School of Forestry and Environmental Studies at Yale University (McWeeney 1989; Trappe 1962).

Charcoal sample 41 represents the 20-30 cm level of Unit B. This sample contained numerous fragments of *Arctostaphylos*, including vitrified *Arctostaphylos* charcoal. A few fragments of *Rhamnus* and *Quercus* charcoal also were present.

Charcoal sample 035 from the 10-20 cm level of Unit B contained one piece of charred, vitrified organic tissue. A portion of this tissue fragment also was digested with Schulze solution. The sample yielded one *Hordeum/Elymus*-type starch, suggesting that this tissue fragment might represent a charred piece of ground meal containing flour from barley/wild rye seeds. An abundance of *Arctostaphylos* charcoal was present, including vitrified *Arctostaphylos*, as well as small amounts of *Quercus* and *Rhamnus* charcoal.

Charcoal sample 025 was recovered from the 0-10 cm level of Unit B. This sample contained several fragments of *Arctostaphylos* charcoal, again indicating use of manzanita wood as fuel.

SUMMARY AND CONCLUSIONS

Macrofloral analysis was conducted on samples from the fill of an earth oven at the Aliso Junction Earth Oven Site (FS No. 05-01-55-159) in southern California. Samples from both Units A and B yielded an abundance of *Arctostaphylos* charcoal, indicating that local manzanita wood was burned as fuel. Samples from both units also contained smaller amounts of *Quercus* and *Rhamnus* charcoal, reflecting oak and buckthorn wood that was burned. Each of the macrofloral samples yielded charred termite fecal pellets, suggesting that some of the burned wood contained termites. Charred, vitrified organic tissue fragments were recovered in samples from both units. A portion of charred tissue from samples 014 (Unit A; 20-30 cmbs) and 035 (Unit B; 10-20 cmbs) was digested with Schulze solution to recover starches and/or phytoliths that would aid in identification. The tissue fragment from sample 014 yielded no phytoliths or starches and might represent cooking foods that do not contain starches or phytoliths, such as bulbs or yucca buds. The charred tissue in sample 035 exhibited one starch grain similar to those found in barley/wild rye seeds and might represent a piece of charred meal. A few charred and uncharred bone fragments in each of the macrofloral samples might indicate meat processing activities. Small amounts of *Artemisia* charcoal were noted only in samples from Unit A, reflecting sagebrush wood burned as fuel.

TABLE 1
PROVENIENCE DATA FOR SAMPLES FROM SITE 05-01-55-159,
THE ALISO JUNCTION EARTH OVEN

Sample No.	Unit No.	Depth (cmbs)	Provenience/ Description	Analysis
015	A	30-40	Fill from earth oven	Macrofloral
014	A	20-30	Charcoal from earth oven	Botanic ID
008	A	10-20	Charcoal from earth oven	Botanic ID
002	A	0-10	Charcoal from earth oven	Botanic ID
038	B	10-20	Fill from earth oven	Macrofloral
041	B	20-30	Charcoal from earth oven	Botanic ID
035	B	10-20	Charcoal from earth oven	Botanic ID
025	B	0-10	Charcoal from earth oven	Botanic ID

TABLE 2
MACROFLORAL REMAINS FROM SITE 05-01-55-159,
THE ALISO JUNCTION EARTH OVEN, CALIFORNIA

Sample No.	Identification	Part	Charred		Uncharred		Weights/ Comments
			W	F	W	F	
015	Liters Floated						1.00 L
Unit A	Light Fraction Weight						49.82 g
30-40	FLORAL REMAINS:						
cmbs	Vitrified tissue			64			0.05 g
	Erodium	Seed				1	
	cf. *Pinus*	Seed				1	
	Poaceae	Seed			1		
	Rubus	Seed				1	
	Sap/Resin					1	
	Roots					X	Few
	Rootlets					X	Few
	CHARCOAL/WOOD:						
	Total charcoal ≥ 2 mm						6.89 g
	Arctostaphylos	Charcoal		36			1.69 g
	Artemisia	Charcoal		2			0.05 g
	Rhamnus	Charcoal		2			0.05 g
	Unidentifiable - vitrified	Charcoal		X			0.15 g
	NON-FLORAL REMAINS:						
	Bone ≥ 1 mm					1	
	Bone < 1 mm			X		X	Few
	Insect	Chitin				24*	
	Insect	Egg				3	
	Rock/Gravel					X	Moderate
	Rodent fecal pellet ≥ 2 mm				8		
	Rodent fecal pellet < 2 mm				X	X	Numerous
	Termite fecal pellet		X				Moderate
	Worm casts		X	X	X	X	Moderate
014	FLORAL REMAINS:						
Unit A	Vitrified organic tissue			5			0.60 g
20-30	CHARCOAL/WOOD:						
cmbs	Total charcoal ≥ 2 mm						27.12 g
	Arctostaphylos	Charcoal		63			8.67 g
	Arctostaphylos - vitrified	Charcoal		16			1.35 g
	Artemisia	Charcoal		1			0.12 g
	Quercus	Charcoal		3			0.19 g
	Rhamnus	Charcoal		17			1.48 g

TABLE 2 (Continued)

Sample No.	Identification	Part	Charred		Uncharred		Weights/ Comments
			W	F	W	F	
008	FLORAL REMAINS:						
Unit A	Vitrified organic tissue			5			0.76 g
10-20	CHARCOAL/WOOD:						
cmbs	Total charcoal ≥ 2 mm						29.98 g
	Arctostaphylos	Charcoal		81			10.58 g
	Arctostaphylos - vitrified	Charcoal		9			0.44 g
	Artemisia	Charcoal		3			0.03 g
	Rhamnus	Charcoal		11			1.25 g
	Unidentifiable - vitrified	Charcoal		1			0.04 g
002	CHARCOAL/WOOD:						
Unit A	Total charcoal ≥ 2 mm						3.09 g
0-10 cm	*Arctostaphylos*	Charcoal		50			2.65 g
038	Liters Floated						1.00 L
Unit B	Light Fraction Weight						29.46 g
10-20	FLORAL REMAINS:						
cmbs	Bark			8			<0.01 g
	Vitrified tissue			28			0.01 g
	Ambrosia	Seed			4	1	
	Artemisia	Seed			1		
	Artemisia	Leaf				1	
	Calandrinia	Seed			1		
	Cryptantha	Seed			1		
	Eriogonum-type	Leaf			14	79	
	Poaceae	Seed			2	1	
	Schismus	Caryopsis			2		
	Rootlets					X	Few
	Sclerotia					X	Few
	CHARCOAL/WOOD:						
	Total charcoal ≥ 2 mm						
	Arctostaphylos	Charcoal					
	Rhamnus	Charcoal					
	NON-FLORAL REMAINS:						
	Bone			1		2	
	Glass					2	
	Insect ≥ 1 mm	Chitin				5	
	Insect < 1 mm	Chitin				X	Moderate
	Muscovite					X	Few
	Rock/Gravel					X	Moderate
	Rodent fecal pellet				19	2	
	Termite fecal pellet		X	X			Numerous
	Worm cast				X	X	Few

TABLE 2 (Continued)

Sample No.	Identification	Part	Charred		Uncharred		Weights/ Comments
			W	F	W	F	
041	CHARCOAL/WOOD:						
Unit B	Total charcoal ≥ 2 mm						7.80 g
20-30	*Arctostaphylos*	Charcoal		65			4.58 g
cmbs	*Arctostaphylos* - vitrified	Charcoal		20			1.55 g
	Quercus	Charcoal		1			0.02 g
	Rhamnus	Charcoal		4			0.14 g
035	FLORAL REMAINS:						
Unit B	Vitrified organic tissue			1			0.46 g
10-20	CHARCOAL/WOOD:						
cmbs	Total charcoal ≥ 2 mm						44.68 g
	Arctostaphylos	Charcoal		75			7.39 g
	Arctostaphylos - vitrified	Charcoal		19			1.92 g
	Quercus	Charcoal		2			0.04 g
	Rhamnus	Charcoal		4			0.19 g
025	CHARCOAL/WOOD:						
Unit B	Total charcoal ≥ 2 mm						1.82 g
0-10 cm	Arctostaphylos	Charcoal		50			1.50 g

W = Whole
F = Fragment
X = Presence noted in sample
L = Liters
g = grams
* = Estimated frequency

TABLE 3
INDEX OF MACROFLORAL REMAINS RECOVERED FROM SITE 05-01-55-159,
THE ALISO JUNCTION EARTH OVEN, CALIFORNIA

Scientific Name	Common Name
FLORAL REMAINS:	
Vitrified tissue	Represents charred material with a shiny, glassy appearance due to fusion by heat
Sclerotia	Resting structures of mycorrhizae fungi
STARCH:	
Hordeum/Elymus-type	similar to Barley/Wild ryegrass
CHARCOAL/WOOD:	
Arctostaphylos	Manzanita, Kinnickinnick
Artemisia	Sagebrush
Quercus	Oak
Rhamnus	Buckthorn

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