Archaeological Survey Report for the Solano Land Trust at Rush Ranch Open Space, Solano County, California

Prepared by:

Roshanne Bakhtiary, Ph.D. Candidate Department of Anthropology University of California, Davis 306 Young Hall One Shields Ave Davis, CA 95616

January 2018

Introduction

At the permission of the Solano Land Trust, the University of California, Davis Archaeological Field School conducted archaeological survey and test excavation at Rush Ranch Open Space over the course of three weeks during the summer of 2016. A surface survey of the entire property was completed over the course of four days. This report documents the results of these activities.

Project Location and Description

Rush Ranch is 2,070-acre property located south of the cities of Suisun and Fairfield, near the intersection of Grizzly Island Road and State Highway 12. The ranch is located within Suisun Marsh, on the northern shore of Suisun Bay. The property consists of approximately 690 acres of upland grassland, 80 acres of managed wetland, and 1,300 acres of tidal wetland (Flynn et al. 1989).

In 1988, Rush Ranch was acquired by the Solano Land Trust who proposed implementing a management plan which main elements included habitat restoration and enhancement, and the protection of cultural resources within the property. Today, much of the upland portion of the ranch is used for cattle grazing, while the Nature Center near the middle of the property is used by the Solano Land Trust for community outreach programs and educational opportunities. The property also contains a series of foot paths that are open to the public and are frequented by thousands of visitors each year. In 2003, Rush Ranch was designated as part of the San Francisco Bay Estuarine Research Reserve, who continues to provide funding to upkeep and improve the property.

As part of their ongoing management plan, The Solano Land Trust has proposed a series of habitat restoration projects located within Rush Ranch property boundaries. Among others, the project proposed in 2014 to restore portions of Upper Spring Branch Creek is of particular interest because of its proximity to known and documented cultural resources within the property. Although many aspects of the proposed project will have little effect on the property's cultural resources, groundwork pertaining to the berm and stockpond repairs and maintenance could impact potential cultural resources within the immediate project area. Although the entire property was surveyed for cultural resources, particular care was taken when surveying portions of the property that lay within the area of impact for this aforementioned project (Solano Land Trust).

Prehistoric Context

The archaeological record of the Late Holocene in Central California is divided into three culturally distinct periods. Within these periods are finer-scale divisions, including phases and sub-phases that are usually associated with stylistic variants of shell beads, ornaments and charmstones (Broughton 2001). The Early Period (4,100-2,550 BP) marks the occupation of the San Francisco Bay Area by complex hunter-gatherers (Groza et al. 2011). During this time, mortars and pestles began to appear along the westernmost portions of the Bay, replacing millingslab technologies that were prominent in the archaeological record during earlier periods of occupation. While these earlier milling technologies are associated with a more generalized mobile foraging lifestyle, the appearance of the mortar and pestle indicate that Early Period

cultures placed a greater reliance on the processing of pulpy foods such as acorns (Basgall 1987; Basgall and Bouey 1991; Buonasera 2005 & 2007; Wohlgemuth 1996). This resource specialization is believed to be associated with increased populations and the beginnings of sedentary village life (Milliken et al 2007). The Early Period also marks the initial occupation of sites along the Bay and a regionally specific resource specialization focused around the collection of shellfish (Luby and Gruber 1999).

The Middle Period (2,550-700 BP) is associated with an increase in the use of mortars and pestles, a well-developed bone tool industry, and the increased occupation of large village sites along the Bayshore. Similar to acorns, shellfish were also heavily exploited by Bayshore populations as evidenced by the large Shellmounds that were either reused frequently or continuously occupied throughout the Middle Period (Groza et al. 2011; Luby and Gruber 1999; Milliken et al. 2007). Populations continued to increase rapidly and concentrate in these large villages surrounding the San Francisco Bay, where densities were some of the largest.

The Late Period (700 BP-A.D. 1770) is marked by the introduction of the bow and arrow, a florescence in *Olivella* shell beads, as well as an increase in the appearance of ceremonial artifacts. Shellmounds in the San Francisco Bay, for reasons debated, were either abandoned or reoccupied in entirely different ways than during the Middle Period (Luby et al. 2006). Acorns and to some degree, shellfish, were still heavily exploited, but with an increased emphasis on fishing and hunting (Luby and Gruber 1999). Overall, The Late Period is characterized by patterns of intensified long-distance trade, social stratification, and the largest prehistoric population densities aggregating in an increasing number of settlements off the Bayshore (Luby 2004).

Ethnographic Context

At time of contact in A.D. 1770, The San Francisco Bay area was home to a large, densely settled population of hunter-gatherers organized politically into small groups with defined fixed territories under independent leaders (Kroeber 1925; Milliken et al. 2009; Moratto 1984). Settlements were typically placed along ecotones, or junctures of two or more biotic zones, and subsistence activities focused on the exploitation of acorns, small seeds and nuts (Moratto 1984). Early researchers initially attributed these high population densities to California's anomalous abundance of exploitable fauna and flora. Ethnographic accounts of this region further supported the notion of California being a 'pristine' environment, undisturbed and unaffected by Native impact (Bartelink 2009). Thus, culture was assumed static through time and initial ethnographic studies were descriptive in nature and largely ignored processes of cultural change (Kroeber 1925, 1939, & 1944). Consequently, little work sought to understand the archaeological record in California until investigations (Nelson 1996; Uhle 1907) in the early 1900s at Emeryville Shellmound revealed a profound antiquity of occupation indicating the Bay area was a region of increasing complexity and population growth for thousands of years before contact (Milliken et al. 2009; Moratto 1984).

Archeological Context

Prior to conducting fieldwork at Rush Ranch, a records search of past archaeological projects/reports was performed at the Northwest Information Center (NWIC) of the California Historical Resources Information System located at Sonoma State University in Rohnert Park,

California. Archival research was also performed through the consultation of historic documents and maps that mentioned or had information pertaining to the Rush Ranch Property.

Nels Nelson was one of the first archaeologists to investigate patterns of prehistoric occupation along the San Francisco Bay. His many years of research, excavation, and survey along it's coastline culminated into a 1909 report titled "Shellmounds of the San Francisco Bay Region" (Nelson 1909). During his investigations, Nelson visited portions of land that encompassed the Montezuma, Portero and Suisun Hills of the North San Francisco Bay. In the region he specifically labeled Suisun Hills, now lies Rush Ranch, where he concluded there were few if any prehistoric sites, seemly due to that fact that the hills are barren of food resources, most notably native, nut-bearing trees. Since then, studies have been conducted in the hills and marshlands adjacent and within Rush Ranch. Like Nelson in the early 20th century, many of these studies failed to identify any isolated prehistoric artifacts or habitation sites (Flynn et al. 1989).

In 1988, Archaeological Resource Service (ARS), a company owned by Katherine Flynn and William Roop, was hired by Wetlands Research Associates, Inc. (WRA) to prepare an archaeological evaluation of Rush Ranch Open Space. The goal of this project, among others, was to complete a physical inspection of a sample of the 2,070-acre property. A group of three archaeologists completed a surface survey of around 50% of the property on foot and by vehicle. Over the course of three days, ARS identified two prehistoric bedrock mortar sites as well as a late 19th century domestic refuse pile (Flynn et al. 1989). The goal of the 2016 Archaeological Field School was to resurvey the land that was investigated in 1988, survey the remainder of the property that had not been evaluated, and to further record and investigate the two prehistoric sites that were first identified within the property in 1988.

Field Methods

Prior to conducting surface survey at Rush Ranch, GIS materials were obtained through correspondence with Jared Lewis of the Solano Land Trust. Several shapefiles and high-resolution aerial images were imported into an iOS application named "Avenza Maps" and disseminated to the field crew. This allowed for individuals to map their surface coverage in real time using GPS. Roshanne Bakhtiary also initiated consultation communications with the Yocha Dehe Wintun Nation in April of 2016, via letter and email (See attachment A for letter correspondence). This was done to notify the tribe of the impending fieldwork and survey to be carried out within traditional Yocha Dehe lands, and to encourage the tribe to participate throughout survey and excavation efforts. No response or further correspondence took place after this initial notification.

Between July 17 - 20th of 2016, fourteen individuals split up into two groups performed an initial cultural resources survey on the entire 2,070-acre property of Rush Ranch over the course of a four days. Investigations also included revisiting previously recorded archaeological sites in Rush Ranch to assess previous recording efforts. Survey areas were covered in controlled transects, traversed on food in back-and-forth sweeps with individuals spaced 10 meters apart. For portions of the property that could potentially be affected from proposed project implementation, individuals were spaced shoulder to shoulder so as to be as thorough as possible. Relative positions were routinely checked using compass bearings. Spacing was maintained throughout a range of topographic situations, irrespective of slope and vegetation coverage. Particular attention was paid to areas of exposed soils, such as dirt roads and rodent burrows. Ground visibility was limited to approximately 10-20% of the surface across the entire property due to dense grass and brush cover, with slightly higher visibility near the middle of the property where Nature Center/offices of Rush Ranch are located.

Once an artifact or feature was encountered, surveyors halted temporarily while the area immediately adjacent to the find was inspected for additional materials. When a site was encountered, its surface was carefully inspected, and crewmembers pin-flagged all surface artifacts and features. Having established site characteristics and boundaries, the survey crew then completed California Department of Parks and Recreation (DPR) primary site records forms, took site overview photographs, and recorded the Universal Transverse Mercator position (UTMs). Sites were then revisited and mapped out with a total station, and shovel test pits (STP) were dug to characterize the vertical extent of the site. For all previously recorded sites encountered during the field effort, existing DPR records were checked for accuracy. When needed, updated DRP primary forms, locations maps, and sketch maps were completed.

Upon completion of field work, all notes, maps and site records were returned to the University of California, Davis for processing. Once all site records and maps are completed, copies will be submitted to the Northwest Information Center at Sonoma State University in Rohnert Park.

Survey Results

One previously unrecorded cultural resource was identified and documented on the surface survey (UCDRR16-1). Both previously recorded cultural resources (CA-SOL-346 and SOL-IF-12) were also located and re-evaluated, while the late 19th century domestic refuse pile noted in the 1989 report by Flynn et al. could not be relocated.

Previously Recorded Sites

CA-SOL-346

CA-SOL-346 was first recorded in 1988 by ARS during their survey of the property for WRA. SOL-346 is located approximately 550 m south of the Nature Center down the access road/trail, approximately 100 m west of where the road crosses over Spring Branch Creek. The site is most easily identified by a fenced in bedrock outcrop and interpretive sign. SOL-346 consists of a series of low/partially buried bedrock outcrops into which mortar depressions have been ground. The center of the fenced in bedrock mortar outcrop is located at UTM 10 S 585303.55 m E, N 4228844.73 m N. West of the main outcrop is a fence line that separates the main visible outcrop from the other partially buried bedrock outcrops that contain a series of other mortars. Following surface inspection where the field crew was unable to relocate the midden deposit, a series of shovel test pits (STP) and excavation units were placed around the bedrock mortar outcrops. Excavated soils were wet-screened though 1/8-inch mesh screen and all cultural materials were brought back to the University of California, Davis for processing and analysis. Subsurface investigations characterized the extent of the midden deposit as being around 10 m x 10 m in diameter and ranging from 20-40 cm deep. The midden deposit is within the fluctuating tidal zone and is subject to intermittent flooding throughout the year. Due to this disturbance, it is highly likely that much of the intact deposit has already eroded into Suisun Marsh. It is also highly probable that the remainder of the intact deposit will eventually be



Figure 1: Aerial photograph showing the documented cultural resources within Rush Ranch Open Space property boundaries.

subject to the same fate (See attachment B for 1988 site record). Detailed reporting on subsurface investigations at SOL-346 will be outlined in a report for the Solano Land Trust once all analysis is complete.

SOL-IF-12

SOL-IF-12 was also first recorded in 1988 by ARS during their survey of the property for WRA (See attachment C for 1988 isolate record). IF-12 is located approximately 1000 meters Northeast of the Nature Center across Grizzly Island Road near the top of a sloping hill towards the boarder of the property. This isolate was described in Flynn et al. 1989 as being two conical bedrock mortars in a quartzose sandstone outcrop. Upon investigation by the University of California, Davis field crew during surface survey in 2016, IF-12 was identified to not be a product of human use/modification. The two misidentified bedrock mortars as well as the other small depressions throughout the eight bedrock outcrops are actually panholes, or depressed erosional features found on flat or gently sloping rocks. Panholes are the result of long-term weathering and are generally seen on bedrock or very large blocks of rock. The approximate location of these outcrops is at UTM 10 S 5856193.80 m E, N 4230021.93 m N.

Newly Identified Resources

UCDRR16-01

UCDRR16-01 was the only undocumented cultural resource that was encountered and investigated by the University of California, Davis field crew during their 2016 surface survey of Rush Ranch. UCDRR16-01 is located approximately 120 meters slightly north and west of the main bedrock mortar outcrop of SOL-346, across the access road/trail, just 25 meters southeast of where it crosses Spring Branch Creek. This isolate find is identified by one bedrock mortar and one cupule that lie on two partially buried bedrock outcrops. The smaller, shallower cupule lies on the smaller bedrock outcrop to the west of the larger outcrop that contains a deeper bedrock mortar. The location of this isolate find is at UTM 10 S 585418.02 m E, N 4228878.34 m N. The ground surface around UCDRR16-01 was inspected on multiple occasions for associated cultural resources and on all occasions the field crew failed to find anything of significance. Five STPs were then placed around the outcrops to investigate the subsurface nature of this resource. All STPs were 50 cm by 25 cm and ranged in final depth from 8 cm to 25 cm. All STPs were terminated once bedrock was hit at the bottom of the pits. The excavated sediments did not indicate the presence of an archaeological deposit. Due to UCDRR16-01's proximity to Spring Branch Creek, it is probable that any non-permanent, portable cultural resources within the area have been already disturbed or displaced due to channel erosion, incision and sedimentation.

The surface survey of the remainder of the open areas within the property failed to identify any other features or prehistoric artifacts. Given that buried bedrock mortar complexes were identified during the excavation portion of this project, there is a strong probability that other bedrock milling features are present on the ranch but are currently obscured by thick vegetation, alluvium, or colluvium. More outcrops may be buried beneath spoils from the channelization of Spring Branch Creek throughout time.



Figure 2: UCDRR16-01 overview facing northwest. The smaller bedrock outcrop with cupule is on the left side of the picture, and the larger bedrock outcrop with mortar is on the right.



Figure 3: Photo of UCDRR16-01, the smaller bedrock outcrop containing the modified cupule.

Figure 4: Photo of UCDRR16-01, the larger bedrock outcrop containing the deeper bedrock mortar.

Study Findings and Conclusions

The NWIC records search indicated that there were two previously documented cultural resources within Rush Ranch Open Space. Reinspection of both these cultural resources lead to the declassification of SOL-IF-12 as a cultural resource, and further inspection and documentation of CA-SOL-346. Intensive visual inspection of the property's surface, focusing on areas proposed for surface disturbance, identified isolate find UCDRR16-01 that is described

as one bedrock mortar and one smaller cupule. Subsurface investigations around UCDRR16-01 failed to identify any other cultural resources, thus it's classification as an isolate.

Based on the results of this investigation, it is anticipated that subsurface modification and construction within the proposed project area near Spring Branch Creek is likely to encounter cultural resources. Due to the highly disturbed nature of the project area via erosion and sedimentation from Spring Branch Creek, disturbance via berm and stockpond repairs should yield no further adverse effects to this cultural resource. It is recommended that a qualified archaeologist monitor any ground disturbance within the vicinity of both CA-SOL-346 and UCDRR16-01. If prehistoric or historic deposits or features are discovered at any time during construction, activities in the area should halt until the find(s) can be inspected by a qualified archaeologist. If the find(s) proves significant, the archaeologist will prepare a recommendation for a further course of action.

References Cited

Bartelink, E.

2009 Late Holocene Dietary Change in the San Francisco Bay Area. *California Archaeology* 1(2):227-251.

Basgall, M. E.

- 1987 Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California. In *Research in Economic Anthropology*, Vol.9, edited by Barry L. Isaac, pp. 21-52. JAI Press, Greenwich.
- Basgall, M. E., and P. D. Bouey
- 1991 The Prehistory of North-Central Sonoma County: Archaeology of the Warm Springs Dam
 Lake Sonoma Locality. Report on file at the Northwest Information Center, Sonoma State University.

Broughton, J. M.

2001 Resource Depression and Intensification during the Late Holocene, San Francisco Bay: Evidence from Emeryville Shellmound Vertebrate Fauna. University of California Press, Los Angeles.

Buonasera, T. Y.

- 2005 Analysis of Fatty Acids and Other Organic Compounds in Prehistoric Milling Tools from Central California Using GC-MS and UV-Vis Spectroscopy, MA Thesis, Department of Anthropology, California State University, Chico.
- 2007 Investigating the Presence of Ancient Absorbed Organic Residues in Groundstone using GS-MS and other Analytical Techniques: A Residue Study of Several Prehistoric Milling Tools from Central California. *Journal of Archaeological Science* 34:1379-1390.

Flynn, K., W. Roop and D. Gosser

- 1989 Archaeological Evaluation of Rush Ranch, Solano County, California (ARS 88-98). Copies on file at the Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park, California.
- Groza, R. G., J. Rosenthal, J. Southon and R. Milliken
- 2011 A Refined Shell Bead Chronology for Late Holocene Central California. *Journal of California and Great Basin Anthropology* 31(2): 135-154.
- Kroeber, A.L.
- 1925 Handbook of the Indians of California. Smithsonian Institution, Washington D.C.
- 1939 *Cultural and Natural Areas of Native North America*. University of California Press, Berkeley.
- 1944 Configurations of Culture Growth. University of California Press, Berkeley.

Luby, E. M.

- 2004 Shell Mounds and Mortuary Behavior in the San Francisco Bay. *North American Archaeologist* 25(1):1-33.
- Luby, E. M., C. D. Drescher and K. G. Lightfoot
- 2006 Shell Mounds and Mounded Landscapes in the San Francisco Bay Area: An Integrated Approach. *The Journal of Island and Coastal Archaeology* 1:191-214.
- Luby, E. M., and M. F. Gruber
- 1999 The Dead Must be Fed: Symbolic Meanings of the Shellmounds of the San Francisco Bay Area. *Cambridge Archaeological Journal* 9(1):95-108.

Milliken, R., R.T. Fitzgerald, M.G. Hylkema, R. Groza, T. Origer, D.G. Bieling, A. Leventhal, R.S. Wiberg, A. Gottsfield, D. Gillette, and V. Bellifemine

2007 Punctuated Culture Change in the San Francisco Bay Area. In *California Prehistory: Colonization, Culture, and Complexity*, edited by A. Klar and T.L. Jones, pp. 99-124. AltaMira Press, United Kingdom.

Milliken, R., L. H. Shoup, and B. R. Ortiz

2009 Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today. Prepared by Archaeological and Historical Consultants for the National Park Service. Copies on file at the Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park, California.

Moratto, M.J.

1984 California Archaeology. Academic Press, London.

Nelson, N.

- 1909 *Shellmounds of the San Francisco Bay Region*. American Archaeology and Ethnology Vol. 7 No. 4. University of California Press, Berkeley.
- 1996 *Excavation of the Emeryville Shellmound, 1906.* Contributions of the University of California, Number 54. Transcribed and Prefaced by Jack Broughton. University of California Press, Berkeley.
- Solano Land Trust
- 2014 Appendix A: Upper Spring Branch Creek Restoration Project at Rush Ranch, Solano County CA. *Rush Ranch Management Plan.*

Uhle, M.

1907 *The Emeryville Shellmound*. American Archaeology and Ethnology Vol. 1 No. 7. University of California Press, Berkeley.

Wohlgemuth, E.

 1996 Resource Intensification in Prehistoric Central California: Evidence from Archaeobotanical Data. *Journal of California and Great Basin Archaeology* 18(1):81-103.