Rimrock Draw Rockshelter: Summary of the 2021 fieldwork and plans for 2022.

Patrick O'Grady, Museum of Natural and Cultural History, University of Orgon

In 2021, we conducted a six-week field school that included fourteen students and four supervisors. Archaeological work at Rimrock Draw Rockshelter focused on three locations, all positioned to answer lingering questions about Paleoindian use of the shelter and stream channel (please refer to the synopsis [O'Grady 2021] for more information). Work at Units 18 and 19 in the central portion of the shelter focused on completing both units to sterile deposits. Strong ties between these units and another farther to the east (Unit 2) indicate that stratigraphic relationships across the rockshelter are consistent and old, with the deepest layers containing Pleistocene herbivore tooth fragments dating between 17,000 to 18,000 years in age, stone tools, and chipping debris. The oldest sedimentary layers are continuous, with just a few centimeters of elevation change over 5 meters of distance. More Ice Age tooth fragments, debitage, bone, wood, charcoal, burned plant seeds and tubers, hair, and pockets of volcanic tephra were collected from 18 and 19 before we closed them out on bedrock. We are excited to have complete stratigraphic profiles for these units, plus large wood charcoal fragments to radiocarbon date and compare with our bison and camelops tooth enamel dates.

On the north side of the stream channel opposite the rockshelter, students digging in Units 37, 38 and 39 cut into a dense clay deposit that originates at a significantly higher elevation than the more centrally-located cienega. The presence of a dark, rich clay layer suggests that a spring may have been present. It seeped downslope (to the south) to meet the marsh, perhaps even fueling the hydrologic system for the site at times when other sources were not active. Based on the overall stratigraphic patterns at the site, Paleoindian cultural deposits consistently associated with marsh clay appeared to be a meter closer to the surface than by the rockshelter. We wanted to test that possibility since it could reduce excavation in more recent post-Mazama deposits by at least half. Artifact counts began to dramatically increase in the three units toward the end of the season. At the same time, a small seep of water began to appear in Unit 38. Given the aridity of the modern landscape and the intense drought conditions of the past few years, the sudden appearance of water in such a parched landscape was startling and exciting, giving credence to the idea that the ancient spring is still present. It signals the probable emergence of important new archaeological discoveries in the season ahead.

Our third target was Unit 30, immediately adjacent to Unit 2, where, in 2012, a chalcedony knife was recovered beneath a camelops tooth fragment dated to ca. 18,000 BP, and 15,000 BP Mount St Helens tephra was identified above both. Based on the chronologic progression from tephra to tooth enamel with a stone tool underneath, the suggestion is that the knife may be older than either of the dated items. Unit 30 lay dormant for several years, but certainly not forgotten. The 2 x 2 meter unit held the possibility that more intact tephra, camelops remains, and stone tools could be found. The deepest sediments of the unit are heavily armored with boulders from a long-ago collapse of the rockshelter face, which had to

be periodically broken up with a rotohammer and steel wedges as we dug deeper. On the last day of excavation, students recovered an almost complete camelops incisor (see photo), its identification confirmed by Dr. Edward Davis using the Condon Paleontological Comparative Collection at the U of O. The find was within a meter of the molar fragment found in 2012. We closed the excavation for the season with the knowledge that there is more to do in Unit 30. If the pattern is consistent with Unit 2, stone tools may be found underneath the incisor, adding additional weight to the idea that extinct fauna are associated with human activity at the rockshelter.

We also conducted stratigraphic studies at a trench downstream from the rockshelter. Trench 2021-1 was an expansion of Trench 2018-2, cut southward to bisect the entire stream channel. By studying the stratigraphic sequence for the entire channel, we can "zero in" on statigraphic units that are consistent with the stream channel deposits where the oldest archaeological component is evident at the shelter. If the oldest site occupations are associated with the stream, then other sites of similar age have a high probability of occurring downstream. This trench extends across the channel to a basalt rim on the opposite side which may have been a sheltered location early in the use of the primary rockshelter. On the north side, it cuts into a terrace where a dense concentration of debitage and tool fragments has produced crescents, Haskett points, Black Rock Concave Base points and evidence of overshot technology, all early time markers in the region. Students used the trench regularly as a stratigraphic reference tool during their work at the other locations, then spent time profiling the channel deposits after the excavation units were closed.

Plans for 2022:

With the completion of Units 18 and 19 in 2021, work this coming summer will center on Units 37 through 39 north of the stream channel, and Unit 30 near the back of the rockshelter. The streamside units are important for understanding the dynamics of the Rimrock Draw hydrologic system, cultural use of the landscape in relation to both the spring and stream, and stratigraphic relationships extending between the rockshelter and water sources. A large CCS foliate point and a larger obsidian Western Stemmed (Parman 1) point were exposed during trenching directly adjacent to the units, attesting to the possibilities that lie below (see photo). We are hoping to come to a better understanding about the seep exposed last summer and any human modifications associated with it.

At Unit 30, students will pick up where we left off last year. The first excavation level will begin just under the find location of the camelops incisor. In Unit 2 next door, an orange chalcedony knife with traces of bison blood was found 10 cm underneath tooth enamel from the same genus. Given the consistent nature of the rockshelter deposits, we are hopeful that more stone tools may be found in 30. If so, they will be among the oldest in North America.

Work will also continue in the trench, still open from last season. Stratigraphic profiling is an important aspect of field archaeology and many field programs often train students by profiling excavation units alone. Students will learn the intricacies of prepping stratigraphic walls for study, profiling alluvial/colluvial/eolian sedimentary units, identifying facies, particle sizes and descriptions, and color/hue definitions. At the same time, the search will continue for cultural deposits associated with the fluvial deposits within the channel system.

Course Format

The 2022 field school program is divided into four sections for student educational development: 1) establishing regional context, 2) lithic identification, 3) beginning excavation techniques, and 4) advanced excavation techniques. The first week is an orientation that includes lectures and field trips to Sagehen Gap Clovis site (35HA3548), Malheur National Wildlife Refuge, French Round Barn, and other locations of archaeological and historic interest; a tour of the Harney Basin and surroundings to establish geographical context; and walking tours of the area surrounding Rimrock Draw Rockshelter to provide environmental and cultural context for the site and setting. The second week consists of a five-day lithic workshop conducted by noted lithic analyst Dan Stueber, who trained students in flintknapping, and stone tool and debitage analysis; information vital to any student's ability to identify significant artifacts during the course of excavation. Each day of instruction is followed by field trips to nearby Paleoindian sites of interest to practice newly developed skills and enhance understanding of the archaeological context of Rimrock Draw.

The third week transitions from introductory studies to field work, with students beginning the process of excavation in 50x50 cm units near the shelter. Such units are well suited for training students in basic excavation techniques prior to working in the more complex rockshelter units, allowing the opportunity to develop ability at hand excavation, horizontal and vertical measurement, note-taking, and recordation on probe and level records. Weeks four through six mark the transition from introductory to advanced excavation, with students shifting between the North Locus and Unit 30, located in the oldest and most archaeologically challenging portion of the site. Ultimately, students are trained in three phases of archaeological investigation, including Phase 1: pedestrian survey techniques, Phase 2: test excavation, and Phase 3: data recovery. Surveys will be conducted in a 300-m radius around the rockshelter on multiple occasions this year, enhancing the site record and providing additional opportunities to practice identification skills.

Summary

In summary, Rimrock Draw Rockshelter is essentially an "open-air site", meaning that early inhabitants took advantage of the protection offered by a shallow (ca. 3 m deep and 20 m long) overhang in an otherwise open landscape for protection from precipitation, wind, or sun, depending on the season. A permanent stream was adjacent to the shelter during the earliest

occupation of the site between ca.18,000 to 9,000 CAL BP, after which a cienega formed by a combination of weak and intermittent steam flow, and springs between 9,000 to 7,600 CAL BP. The oldest deposits overly bedrock near the back wall of the rockshelter and are approximately dated by large Pleistocene-aged herbivores.

Characteristics of the deposit include smaller, extant animal species, flake tools of obsidian and cryptocrystalline silicates, fuel wood, burned seeds, hair, and a predominance of obsidian debitage. Dates associated with the oldest use of the rockshelter range from ca.18,000 CAL BP to 17,000 CAL BP on camelid and bison teeth, respectively, and also on a ca. 13,000 CAL BP bison tooth on bedrock at the base of the stream channel, found in association with obsidian debitage. Thus, the physical evidence from the site indicates human use is associated with the stream channel between ca. 18,000 to 13,000 BP.

Temporally diagnostic stemmed projectile points dating between ca. 13,300 and 7,000 BP are also found in the rockshelter, as well as across the surface in a 300 m radius surrounding it. We base the older temporal boundary on the discovery of Western Stemmed points under Clovis-aged deposits at Paisley Caves (Jenkins et al. 2012) and the 13,300 to 12,800 CAL BP date range for Clovis established by Waters and Stafford (2007). The 7,000 year terminus of site use is estimated by the abundance of Northern Side-notched points (n=30) which date between 7,300 and 4,500 CAL BP (Grayson 2011), and the paucity of Elko Series points (n=5) whose age range is 6,500 to 1,000 CAL BP. Elko points are considered to be the most common type of projectile point found throughout the northern Great Basin. Other projectile points coeval with Elko, and later points crafted for use with bow and arrow (ca. 1750 to 150 BP) are also rare at the site. The chronological associations suggest that there is a period of use at the site between ca. 18,000 and 13,000 CAL BP that relates to human activities oriented to the presence of the stream, and a period tied to later use of both the stream and cienega that was much more pronounced between 13,000 to 7,000 CAL BP. The stream was visited infrequently in the 18,000 to 13,000 CAL BP period and human presence then is confined to a few small areas, whereas site use was frequent and widespread during the time the cienega was present between 9,000 to 7,600 BP. The fact that large and widespread lithic scatters on the ground surface do not occur further downstream may indicate that the cienega and related spring were the only water feature (and the key attraction) after the stream stopped flowing, and any cultural deposits were subsequently buried. It is both reasonable and likely that the earliest people at this rockshelter utilized other protected locations along the stream further down and campsites were relatively common when the ground surface was nine feet lower, as it was during that time.

Archaeological preservation is, for the most part, equivalent to open-air site conditions. To date, there has been little previous work to identify the characteristics that should be considered when searching for open-air sites with intact stratigraphy in desert country. Such sites may be less common than late Holocene occupation sites, but they exist in significantly higher numbers than caves and rockshelters and the answers about where to look and how deep are quickly being understood. Our work to interpret the natural and cultural relationships between the streams and their terraces, the rockshelter, the surface above it, the drainage basin, and the broader regional context will be invaluable when searching for other sites. As

caves and rockshelters are excavated and become depleted as archaeological resources, open-air sites and especially those buried deeply in alluvium will become the future for archaeological exploration and discovery.