



ARCHEOLOGICAL SITE CONDITION, STABILITY, AND INTEGRITY

The archaeological site indicator group includes the condition, stability, and integrity of archaeological sites within the Merced and Tuolumne Wild and Scenic River corridors. This research explored the usefulness of the National Park Services' Archeological Site Monitoring Information System (ASMIS) in monitoring visitor use impacts to archeological resources.

Introduction

Under the National Historic Preservation Act (1966) and Director's Order #28A (2004), the National Park Service is committed to the conservation of archeological resources as elements of our national heritage. Along the Merced and Tuolumne Wild and Scenic Rivers, archeological sites have also been selected as cultural contributors to the "Outstanding and Remarkable Values" (ORVs) for the river corridors. Archeological site conditions, stability, and integrity were chosen as a potential indicator group because these characteristics are sensitive to visitor use impacts (Table 1). Negative impacts can lead to the irretrievable loss of archeological research data. Typical visitor disturbances at archeological sites include: trampling and soil compaction from camping and social trails; artifact theft or movement; vandalism; fire ring construction; ground disturbance from digging, rock or feature displacement; and feature destruction (Figure 1).



Figure 1 Camping Impacts on a Tuolumne River Archeological Site.



ASMIS rates the disturbance effects to the resource from these impacts on an ascending scale reflecting minimal to severe damages: (A) negligible, (B) partial loss-repairable, (C) partial loss-irretrievable, and (D) total loss-irretrievable (National Park Service, 2007).

Findings and Highlights

Table 1 Archeological Site Conditions, Stability, and Integrity: Parameters, Plan/Application, Standards & Observed Condition

Parameter	Plan/Application	Standard	Observed Condition
Archeological sites with low vulnerability	Draft Tuolumne River Plan/ In development as a potential indicator for the Merced River corridor	For archeological sites with low data potential/susceptibility to damage, current visitor impacts may not exceed disturbance effect B (partial loss-repairable) at more than 10% of sites visited within a field season.	Tuolumne: One disturbance effect C (partial loss-irretrievable) out of 26 sites (4%) Merced: One disturbance effect C (partial loss-irretrievable) out of 21 sites (5%)
Archeological sites with high vulnerability	Draft Tuolumne River Plan/ In development as a potential indicator for the Merced River corridor	For archeological sites with high data potential/susceptibility to damage, current visitor impacts may not exceed disturbance effect B (partial loss-repairable) at any sites visited within a field season.	Tuolumne: Zero disturbance effects C (partial loss-irretrievable) or D (total loss-irretrievable) out of 22 sites (0%) Merced: Zero disturbance effects C (partial loss-irretrievable) or D (total loss-irretrievable) out of 18 sites (0%)

Technicians visited 87 archeological sites during the 2010 field season: 48 sites located in the Tuolumne River corridor and 39 in the Merced River corridor. Seventeen of the 87 sites had previously been assessed during the 2007-2009 field seasons and were chosen for revisitation to determine if short-term changes to baseline site condition could be observed. Thirteen of the revisited sites were located in the Tuolumne River corridor and four in the Merced River corridor. Seventy sites were selected for baseline condition assessment, 35 for each river corridor, and further subdivided by individual site vulnerability designations—"high" or "low"—based on research data potential and site components' susceptibility to damage.

Calculations of data potential and component susceptibility to damage were based on information documented in the ASMIS database and previous Yosemite National Park archeological surveys (Hull & Kelley, 1995; Keefe et al., 1999). Vulnerability designations are considered preliminary and subject to change, pending future research.

Site condition data, collected at each of the 87 sites, were recorded on an ASMIS field form, and supplemented with additional data specific to visitor-related impacts. Archeological data collection was guided by objectives designated in the *2010 User Capacity Management Field Monitoring Guide* (Yosemite National Park, 2010). In the 2010 field season, archeological field technicians recorded a total of 36 visitor impacts at 28 separate sites. Only two sites, each with low



data potential/susceptibility to damage, showed irretrievable losses from visitor impact effects: one site in the Tuolumne River corridor (4%), and one site in the Merced River corridor (5%). Included in this report is a summary of the types of visitor impacts to archeological sites recorded in 2010, and their disturbance effects (Table 2).

Table 2 2010 Visitor-related Impacts by Type & Effect

Visitor Impact by Type	ASMIS Resource Disturbance Effect	Total Number of Site Impacts, by Effect
Social Trail	A (Negligible)	21
	B (Partial Loss – Repairable)	2
	C (Partial Loss – Irretrievable)	1
Campfire Building	A (Negligible)	2
	B (Partial Loss – Repairable)	3
Use by Hikers/Horses	A (Negligible)	1
Camping	A (Negligible)	1
	B (Partial Loss – Repairable)	1
Climbing	A (Negligible)	1
Stock Use	A (Negligible)	1
Unauthorized	C (Partial Loss – Irretrievable)	1
Vandalism	B (Partial Loss – Repairable)	1
Total		36

Conclusion & Future Implications

Out of 87 archeological sites visited in the 2010 field season, 28 sites (31%) received visitor impacts: 13 within the Merced River corridor and 15 within the Tuolumne River corridor. The majority of impacted sites sustained one visitor disturbance, with only two sites containing three or more impacts. The most common visitor-related disturbances to archeological resources in 2010 were social trails (n=24); the second most frequently observed visitor impact was campfire building (n=5). These disturbances are followed in frequency by: camping, hiking, stock use, climbing, unauthorized collection, and vandalism. Two sites with low data potential/susceptibility to damage, one within the Tuolumne River corridor and one within the Merced River corridor, sustained visitor impacts with more severe disturbances; both instances resulted in effect C (partial loss-irretrievable). No sites with high data potential/susceptibility to damage in either corridor received visitor impacts resulting in disturbance effects of C (partial loss-irretrievable) or D (total loss-irretrievable). These results are well within acceptable standards set for the indicator.

Ongoing impact assessment and monitoring of archeological sites through the Visitor Use and Impact Monitoring Program in both river corridors is recommended to ensure that visitor-related disturbances do not negatively impact site conditions, stability, or integrity. Sampling parameters and draft standards may be reassessed in future field seasons to ensure protection for the resource. The regularly scheduled collection of archeological site information facilitates appropriate



management and treatment planning for archaeological resources within the Merced and Tuolumne Wild and Scenic River corridors.