United States Department of Agriculture United States Department of the Interior

Inyo National Forest

Owens River Headwaters
Wild and Scenic River
Comprehensive River Management Plan

Environmental Assessment

Photo taken by VHB.

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CHAPTER 1. PURPOSE AND NEED

INTRODUCTION

The Inyo National Forest (the Forest) is proposing to adopt a comprehensive river management plan (CRMP) for the Owens River Headwaters (the river). This Plan is administrative in nature; the actions proposed here include establishing a final boundary, establishing maximum user capacity levels, and providing programmatic management direction. The Plan outlines the desired conditions in the river corridor and proposes management actions to aid in achieving these conditions. However, it does not directly implement any ground-disturbing actions. All future projects in the river corridor would require site-specific National Environmental Policy Act (NEPA) analysis.

The river corridor has been managed as a designated wild and scenic river (WSR) since the 2009 Omnibus Public Land Management Act added 19.1 miles of Owens River Headwaters to the National Wild and Scenic Rivers System. The river is located within the Mono Lake Ranger District.

This environmental assessment (EA) has been prepared in compliance with NEPA and other relevant federal laws and regulations. This is not a decision document. The responsible official will document the decision regarding the CRMP in a decision notice after a 30-day public review of the EA. The full text of the CRMP, including the appended Resource Assessment and User Capacity Analysis, is available to the public and can be accessed at the following link: https://www.fs.usda.gov/project/?project=57325.

This EA discloses the direct, indirect, and cumulative environmental effects that would result from the Proposed Action and No-Action Alternative. The document is organized into three chapters, as described below:

- **Chapter 1 (Purpose and Need)** includes information on the history of the CRMP, the purpose and need for the CRMP, and a brief summary of proposals by the Forest Service (FS) for achieving that purpose and need. This section also details how the FS informed the contents and management direction of the CRMP and how the public responded. Issues and concerns are identified in this chapter.
- **Chapter 2 (Alternatives)** provides a detailed description of the action and alternatives proposed by the FS. These alternatives were developed based on issues raised by the public or external agencies, concerns within FS, or some combination of these items.
- **Chapter 3 (Affected Environment and Environmental Consequences)** describes the environmental effects of implementing the Proposed Action or the No-Action Alternative. This analysis is organized by resource, such as geology, botany, wildlife, etc. Each resource section begins with a description of the affected environment and current conditions. These provide a baseline for evaluating and comparing the alternatives.

BACKGROUND

The Wild and Scenic Rivers Act (“the Act”) was signed into law in 1968. The Act protects free-flowing waters, water quality, and outstandingly remarkable values (ORVs) of many of our nation’s most

spectacular rivers. Some examples of ORVs that may distinguish wild and scenic rivers from others in the region include wildlife, recreation, cultural/historical resources, and geology. The Act safeguards the special character of these rivers, while also recognizing the potential for appropriate use and development. The Act purposefully strives to balance river development with permanent protection for the nation's most outstanding free-flowing rivers.

Towards these ends, the Act prohibits federal support for actions, such as the construction of dams or other instream activities, that would adversely affect the river's free flowing condition, water quality, or ORVs. Designation neither prohibits development nor gives the federal government control over private property.

For each river, the Act has the following effects:

- Dams and other federally assisted water resource projects that would adversely affect river values are prohibited (Section 7 of the Act).
- Outstanding natural, cultural, or recreational values are protected.
- Water quality is maintained.
- The creation of a CRMP that addresses resource protection, development of lands and facilities, user capacities, and other management practices necessary to achieve the purposes of the Act is required (Section 3(d)(1) of Act).

In 2009, Congress passed the 2009 Omnibus Public Land Management Act (Public Law 111-11). This added 19.1 miles of Owens River Headwaters to the National Wild and Scenic Rivers System. Public Law 111-11 states that 6.3 miles of Owens River Headwaters will be administered as a wild segment, 6.6 miles as a scenic segment, and 6.2 miles as a recreational segment.

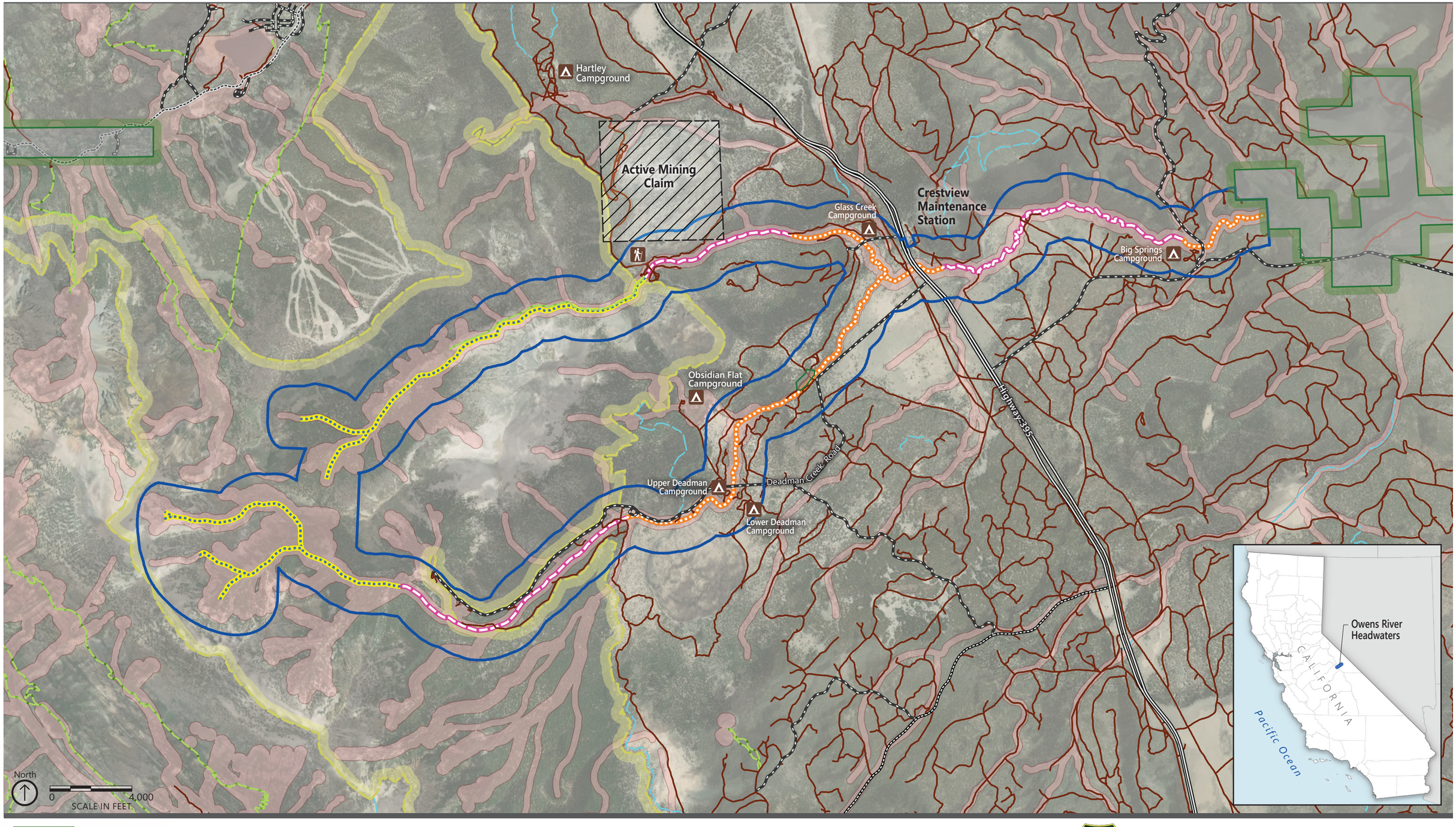
Classification

The Wild and Scenic Rivers Act requires that rivers or river segments are classified, designated, and administered as either wild, scenic, or recreational. The three classes represent a development scale and serve as a framework for future management; they are not synonymous with the river's ORVs. For example, a river segment may be designated as recreational even if recreation is not considered an ORV for the river as a whole.

Owens River Headwaters was classified based on a 1991 eligibility study. This study initially recommended a scenic segment and a recreational segment. However, the 2009 Omnibus Act then created the Owens River Headwaters Wilderness, and the segment within this area was classified as wild. Table 1 summarizes the classification and length of each river segment. Figure 1 shows the location of each segment.

Table 1. Classification of Owens River Headwaters

Mileage of Classified WILD Sections	Mileage of Classified SCENIC Sections	Mileage of Classified RECREATION Sections	Total designated mileage
6.3	6.6	6.2	19.1



Inyo National Forest (US Forest Service)
Private Land
Owens River Headwaters WSR Corridor
Scenic River
Wild River
Recreation River

Owens River Headwaters Wilderness
Riparian Conservation Areas
Forest Service Roads
Forest Service Motorized Trails
Forest Service Standard Trails

Federal Highway
State Road
County Road
Town Road

Trailhead
Campground

Inyo National Forest

FIGURE 1. PROPOSED FINAL BOUNDARY
Owens River Headwaters Wild and Scenic River Comprehensive River Management Plan EA

Outstandingly Remarkable Values

The Act requires that each river possess one or more ORVs to qualify for WSR designation. To be described as outstandingly remarkable, a value must be river-related and a unique, rare, or exemplary feature that is significant at a comparative regional or national scale. While the spectrum of resources that may be considered is broad, all ORVs must be directly river related. A summary of the ORVs for Owens River Headwaters is provided in Table 2.

The ORVs included in Table 2 were evaluated and confirmed in a Resource Assessment (RA) completed in 2020. This RA was also used to guide the CRMP, to protect river values. The RA process consisted of identifying potential ORVs and determining ORV status, based on the river-related values that contribute to the river's overall character. The RA can be viewed in the appendix section of the CRMP (USDA Forest Service 2022).

Table 2. Outstandingly Remarkable Values for Owens River Headwaters

Scenery	Wildlife	Fisheries	Historic and Prehistoric/Tribal Cultural	Recreation	Geology	Botany
X	X	—	X	X	X	X

Owens River Headwaters Description

A total of 19.1 miles of Owens River Headwaters is designated as a wild, scenic, or recreational river (Figure 1). The entire river is managed by the Forest Service. There are two wild segments, totaling 6.3 miles. One of the wild segments consists of 2.3 miles of river in Deadman Creek, from the two-forked source east of San Joaquin Peak, to the confluence with the unnamed tributary flowing north into Deadman Creek from sec. 12, T. 3 S., R. 26 E. The additional 4 miles of wild river encompasses a segment of Glass Creek from its two-forked source to the area 100 feet upstream of the Glass Meadow Trailhead parking area in sec. 29, T. 2 S., R. 27 E.

There are three scenic segments, making up a total of 6.6 miles of the river corridor. One scenic area consists of a 2.3-mile segment of Deadman Creek from the unnamed tributary confluence in sec. 12, T. 3 S., R. 26 E., to the Road 3S22 crossing. Another 3-mile segment of Deadman Creek, from 0.25 miles downstream of the US Highway 395 crossing to 100 feet upstream of Big Springs, is also classified as scenic. The remaining 1.3 miles of scenic river spans Glass Creek, from 100 feet upstream of the trailhead parking area in sec. 29, to the end of Glass Creek Road in sec. 21, T. 2 S., R. 27 E.

Finally, there are also three recreational segments. The first comprises a 4.1-mile segment of Deadman Creek from the Road 3S22 crossing to 0.25 miles downstream of the US Highway 395 crossing. A 1-mile segment of the Upper Owens River, from 100 feet upstream of Big Springs to the private property boundary in sec. 19, T. 2 S., R. 28 E., is also designated as recreational. The third recreational segment consists of a 1.1-mile segment of Glass Creek, from the end of Glass Creek Road in sec. 21, T. 2 S., R. 27 E., to the confluence with Deadman Creek.

The Owens River Headwaters are located within the Inyo National Forest, in forested mountains and alpine meadows. The river lies on the east side of the crest of the Sierra Nevada Mountains in Mono County, California. The WSR includes the Owens River and two of its tributaries, Glass Creek and Deadman Creek. These three rivers, collectively referred to as "the river" in this EA, are headwaters for the Owens River System in the Eastern Sierras. The highest point in the watershed is the 11,600-foot summit of San Joaquin Mountain.

Scenery, wildlife, botany, recreation, and geology are all ORVs for the Owens River Headwaters WSR corridor. The river possesses a largely unaltered landscape, with a diverse array of views along the river corridor; it passes through mountains, gorges, and meadows, flanked by willows, grasses, aspen, forbs, and wildflowers. The nearby Obsidian Dome provides an unusual view of a large obsidian feature, and parts of the river lie in the vicinity of volcanic pumice flats and hillsides. These are a few examples of the unique geological features imparted by past volcanic and glacial events.

The river supports several unique species of wildlife, including the federally threatened Yosemite toad (*Anaxyrus canorus*), numerous northern goshawks (*Accipiter gentilis*), and migrating and breeding mule deer (*Odocoileus hemionus*). A diverse array of birds, butterflies, and mammals also reside in or pass through the river corridor. The river supports diverse plant species within its subalpine meadows, sagebrush seas, sandy flats, and wet meadows. There is one population of a plant of conservation concern, the western single-spike sedge (*Carex scirpoidea* ssp. *pseudoscirpoidea*), as well as several rare plant species. The river also offers numerous recreational activities year-round, including camping, hiking, off-highway vehicle driving, hunting, trout fishing, sightseeing, skiing, and guided tours.

PURPOSE OF AND NEED FOR THE PROPOSAL

The purpose of this proposal is to adopt a CRMP to protect and enhance the values for which the river was designated, including free-flowing water, water quality, and the ORVs identified; Section 3 of the Wild and Scenic Rivers Act (16 USC 1274, as amended) states that a CRMP will be developed for the designated river corridor. By designating the Owens River Headwaters as a WSR, Congress directed the FS to develop a CRMP for the river, which lies under their jurisdiction (USDA Forest Service 2022). The CRMP also identifies potential management actions needed to protect these values within the river corridor.

Planning is needed to integrate management of multiple resources, resource designations, and activities in the river corridor. Management of uses on public lands is necessary in this congressionally designated area to address private, public, and administrative access needs; protect resources; promote public safety; and minimize conflicts related to the uses of public lands.

Based upon the review of public input, evaluation of river corridor conditions, and need for action, the CRMP focuses on the following items:

- Resource protection, land use, user capacity, and other management practices
- Protection of ORVs
- Maintenance of free-flowing conditions and water quality
- Consideration of tribal values and needs

PROJECT AREA

Owens River Headwaters is located in the Inyo National Forest in Mono County, California. It consists of the Owens River, Glass Creek, and Deadman Creek, located on the east side of the crest of the Sierra Nevada Mountains. The watershed originates at the 11,600-foot summit of San Joaquin Mountain, flowing eastward. Deadman Creek and Glass Creek comprise the upper headwaters of the river. The confluence of these two creeks occurs just west of US Highway 395. The river flows underneath the highway to Big Springs, where it becomes the Owens River. There are over 100 documented seeps and springs in the river corridor, which supports some of the most abundant riparian habitat in the Eastern Sierra (National WSR System 2020).

PUBLIC INVOLVEMENT AND TRIBAL CONSULTATION

Public Involvement

The proposal has been listed in the Inyo National Forest's Schedule of Proposed Actions (SOPA) beginning in January 2020. A scoping notice for the availability of the CRMP was posted on the Forest website and was provided to the public and other agencies for comment during the scoping period (June 23, 2021, to July 23, 2021, and extended to August 6, 2021). Public notice was also posted on the Inyo National Forest homepage, Facebook, and Twitter, in addition to being distributed to media outlets in a press release on June 23, 2021, and again on July 27, 2021. Scoping comments on the *Cottonwood Creek Wild and Scenic River Comprehensive River Management Plan* and the *Owens River Headwaters Wild and Scenic River Comprehensive River Management Plan* were received from 47 commenters and included concerns about expanded ORVs, hydrology, and user capacity methodologies.

The EA was posted on the Forest website and was provided to the public and other agencies for a 30-day comment period on March 15, 2022. Comments on the *Cottonwood Creek Wild and Scenic River Comprehensive River Management Plan Environmental Assessment* and the *Owens River Headwaters Wild and Scenic River Comprehensive River Management Plan Environmental Assessment* were received from 22 commenters and included concerns about user capacity thresholds, water quality, monitoring, and requested additional management actions. All correspondence was reviewed by the interdisciplinary team in order to address the comments. Table 1 in Appendix A lists the comments received and responses. The interdisciplinary team considered these comments while completing the Final EA.

Tribal Consultation and Government Consultation

Tribal consultation for the Wild and Scenic River CRMP was initiated by letter in August of 2020 to the Big Pine Paiute Tribe of the Owens Valley, Bishop Paiute Tribe, Bridgeport Indian Colony, Fort Independence Community of Paiute Indians, Lone Pine Paiute Shoshone Tribe, Timbisha Shoshone Tribe, Utu Utu Gwaitu Paiute Tribe of the Benton Paiute Reservation, and the Mono Lake Kutzadika'a Tribe. This initial notification and invitation to consult asked for input to inform the Resource Assessment phase of the CRMP. Additional input was sought through email correspondence and during regularly scheduled agency and tribal-specific consultation meetings throughout 2020. Letters and electronic correspondence were sent to the tribes in June of 2021 along with copies of the draft CRMP.

Forest Service personnel presented both the Owens River Headwaters and Cottonwood Creek CRMPs during the August 2021 Inyo National Forest Intertribal Forum. The Big Pine Tribe THPO indicated

interest in a field trip to the Cottonwood Creek WSR, wanted to avoid a plan that promotes increased public visitation to this WSR in order to ensure that cultural resources and potentially sacred and ceremonial areas are preserved and not put at risk to harm or looting, and expressed a desire for tribes to be included in plans to ensure balance is maintained and to support collaborative partnerships. A tribal elder with ties to Bishop and Mono Lake Kutzadika'a expressed the need to incorporate tribal monitors and perspectives into agency planning documents in the earliest stages of the process. Although no areas of specific concern have been identified, the CRMP provides an additional level of protection to tribal and cultural resources within the river corridors. Monitoring requirements of the CRMP ensure baseline conditions of the ORVs associated with the corridors are maintained and improved as necessary. Tribal consultation efforts are ongoing and will continue through the life of the CRMP and as part of any future proposals tiered to or as a result of the plan.

On April 13, 2022, the Mono Lake Kutzadika'a Tribe provided additional comments and information on the Owens River Headwaters Draft EA. Their letter raised several issues with the corridor including: the impact of mining, motorized recreation, and the estimation of use capacity to river related values; the need for additional monitoring actions related to increased visitation and water quality; and a request to include local Native American communities to the list of vulnerable Environmental Justice (EJ) communities assessed in the document. The tribe also identified additional cultural and tribal values associated with the corridor that contribute to the outstandingly remarkable values of the Owens River Headwaters. As a result of the letter and subsequent meetings with the tribe, changes to both the environmental assessment and the CRMP for the Owens River Headwaters have been made to clarify issues raised and incorporate new information.

ISSUES AND IMPACT TOPICS

As defined in NEPA regulations (40 CFR 1500.4[1]), key issues are used in the development of alternatives to the Proposed Action. These key issues are given special consideration by the decision maker when selecting an alternative. Guided by the Forest Plan, the interdisciplinary team addressed the key issues identified during scoping.

The following key issues were identified during the development of the CRMP:

- Resource protection, including impacts on water quality, hydrology, wildlife, and botany
- Development of lands and facilities
- User capacities

CHAPTER 2. ALTERNATIVES

This chapter describes the alternatives considered for managing the river corridor. The alternatives are compared, providing a basis for choice by the decision maker and the public. The FS is required by law to develop a CRMP that addresses resource protection, development of lands and facilities, user capacities, and other management practices necessary to meet the purposes of the Act.

No unresolved conflicts emerged from issues that fell within the scope of this project. Thus, this EA evaluates a single action alternative: the Proposed Action, adoption of the CRMP. A No-Action Alternative, in which management continues under existing standards and guidelines with no adoption of the CRMP, is analyzed in this section as well. This No-Action Alternative provides a baseline for comparing environmental impacts related to the Proposed Action.

NO-ACTION ALTERNATIVE

Under the No-Action Alternative, the current Forest Plan (Section 7 of the Act), state water quality standards, existing FS policy 2670.32 which directs management for FS sensitive species, and other applicable laws would continue to guide management of the project area. Section 7 of the Act states that federal agencies must:

> *"protect federally designated rivers and congressionally authorized study rivers from the harmful effects of water resources projects. It requires evaluation of federally assisted water resources projects and a determination by the river-administering agency."* (Interagency Wild and Scenic Rivers Coordinating Council [IWSRCC] No Date)

Projects proposed in the bed or banks of a designated (or Congressionally authorized study) river require a Section 7 determination under the Act. Section 7 requires evaluation of the effects of proposed water resources projects on a river's values. Even if the proposed project is outside of the designated river corridor, a Section 7 analysis may be done if the project would unreasonably diminish the river values present at the date of designation. Such project-specific analyses may include studies such as groundwater modelling.

In addition to the Forest Plan, the Endangered Species Act (ESA) and Wilderness Act protect the species and wilderness within the river corridors. The ESA regulates the conservation and protection of endangered and threatened species and their habitats, while the Wilderness Act manages wilderness areas to preserve their unique character (Wilderness Act of 1964, Public Law 88–577). The Migratory Bird Treaty Act (MBTA) provides further protection to native bird species within the river corridor. The Bald and Golden Eagle Protection Act of 1940 provides special protections for eagles, prohibiting take, possession, sale, transport, export, or import, as well as restricting potentially disturbing activities in the vicinity of eagle nests.

Under the No-Action Alternative, the boundary of the river corridor would continue to be temporary. The temporary boundary created for Owens River Headwaters encompasses approximately one-quarter mile from the banks on each side of the river. This is temporary boundary differs from the final boundary proposed in the CRMP. If the No-Action Alternative is adopted, the temporary boundary would remain as

an interim boundary. Scenery management along the river corridor would continue to be guided by *Landscape Aesthetics: A Handbook for Scenery Management* (USDA Forest Service 1995). No additional management strategies or thresholds would be implemented to accomplish the purpose of the wild and scenic river designation.

PROPOSED ACTION

The Proposed Action involves the adoption of a CRMP that addresses the entire river. This CRMP includes all management measures outlined for the No-Action Alternative. However, the CRMP also outlines the desired conditions, standards, guidelines, management strategies, thresholds, and proposed projects to address key issues and fulfill the purpose of the Act. The actions proposed in the CRMP are a combination of continued current management, as described in existing management plans, with additional management elements created for the protection of river values.

Additional protections addressed in the CRMP include recommending a final boundary for the river; establishing user capacity levels for the river, which was separated into two capacity analysis groups based on their very different recreational use patterns; implementing thresholds for action; establishing desired conditions for the river corridors; proposing additional management actions to maintain river values; and proposing monitoring items. These components are addressed in further detail below.

River Boundary

The current temporary boundary for the river includes one-quarter mile from the riverbanks on either side of the river, along all wild, scenic, and recreational segments. The proposed final boundary is the same as the temporary boundary, with the following exceptions.

The final boundary under the proposed action includes a distance around the riverbanks that is narrower than one-quarter mile in the vicinity of the California Department of Transportation Crestview Maintenance Station, along US Highway 395. Additionally, the boundary has been widened near the headwaters, so that this area is slightly wider than one-quarter mile from each bank. These adjustments compensate for each other in order, to comply with the standard outlined by the Act of no more than 320 acres of land per mile. The recommended final boundary is shown in Figure 1.

User Capacity

The Wild and Scenic Rivers Act requires that user capacities are identified for each designated river and addressed in the river's associated CRMP (Section 3 (d)(1)). Appropriate management strategies are then developed based on these capacities. To estimate user capacity, current use must be measured, typically in number of visitors per day, vehicles per day, or campsite occupancy per day. User capacity is defined as the maximum number of visitors per day that can be supported by the river without causing degradation or adverse impacts on ORVs. User capacity is generally extrapolated from estimates of current use, types of use, and visitor behavior, although there is no single prescribed method for calculating capacity.

A user capacity analysis was conducted for Owens River Headwaters, published on June 9, 2021 (Otak, Inc. 2021). Some of the goals of this analysis included identifying current usage at the river, determining the kinds of uses the river can support, establishing thresholds of use to prevent river degradation,

calculating the user capacity, and identifying triggers for management action. In this EA, and in the CRMP, user capacity is addressed for the recreational and scenic segments, as well as the wild segments.

A total of 6.2 miles of the river are designated as recreational, 6.6 miles as scenic, and 6.3 miles as wild. In the user capacity analysis, the recreational and scenic segments were considered together, and estimates for the wild segments were performed separately. User capacity was estimated separately for these two sections based on the very different recreational uses of the different segments. The scenic and recreational segments are accessed much more easily and used more heavily for recreation than the wild segments.

Recreational and Scenic Segments

A total of 12.8 miles of the river are designated as either recreational or scenic, and these segments are located entirely within the Forest. These segments are accessible by paved and unpaved forest roads. There are three FS campgrounds along these portions of the river, including 112 campsites, as well as a group campsite that can accommodate up to fifty people and fifty dispersed campsites at the end of nearby road spurs. A small amount of day use occurs on the road spurs, but most recreation in this section of the corridor is focused around the campgrounds and some of the dispersed campsites. ORVs in these segments include scenery, wildlife, botany, recreation, and geology. Visitors could impact, either directly or indirectly, botany, wildlife, recreation, and water quality, but they are unlikely to affect other ORVs, or free flow. Recreational activities that occur in the recreational and scenic segments include camping, fishing, off-highway vehicle (OHV) use, horseback riding, snowmobiling, skiing, and snowshoeing.

Current use of the combined recreational and scenic segments was estimated using data from two campground sites. Monitoring occurred between July and October 2020, for a total of 69 days at Big Springs Campground and 79 days at Glass Campground, with fire closures from September 7 through October 4. Monitoring was considered at a third location as well, the Upper/Lower Deadman Campground. However, data could only be collected from this site for one day due a lack of staffing and volunteers as a result of the COVID19 pandemic, as well as limited project time and funding. This site was therefore not considered in user capacity estimates. Extensive monitoring of dispersed campsite occupancy and estimation of day use was also not possible for the same reasons.

Campsite occupancy at Big Springs Campground averaged seventeen campsites per day, with a minimum of two and a maximum of 26 sites occupied during the monitoring period. On 4% of the monitoring days, the campground was at full capacity, with all campsites occupied. At Glass Creek Campground, an average of 37 campsites per day were occupied during the data collection window. The highest number recorded during the monitoring period was 65, and the minimum was two. All campsites were occupied at Glass Creek Campground on 3% of the data collection days. Current daily use at the two campgrounds, including estimates of visitors per day based on campsite occupancy data, is summarized in Table 3.

Table 3. Current Daily Use at Recreational and Scenic Segments

Data Source	Estimated Current Daily Use Levels	Estimated Visitors per Day*
Big Springs Campground	17 campsites occupied (on average)	102 maximum, on average
Glass Campground	37 campsites occupied (on average)	222 maximum, on average
Total	54 campsites occupied (on average)	324 maximum, on average

*Each campsite can accommodate up to six visitors; six individuals were therefore assumed to be present at each campsite when estimating visitors per day.

The user capacity for the recreational and scenic segments was estimated as the maximum number of visitors that can be accommodated by existing campsites. This estimate took into consideration the physical design capacity of the three developed campgrounds and the capacity of the group campsite and dispersed campsites. Expansion of the physical footprint of any of these campsites to accommodate higher levels of recreation could have adverse impacts on water quality or the ORVs of concern listed above. Therefore, the limiting factor for recreational use in the recreational and scenic segments is the physical designed capacity of the developed campgrounds and dispersed campsites.

Altogether, there are 112 campsites across three established campgrounds, as well as one group campsite and fifty or fewer dispersed campsites. The campground campsites can accommodate a maximum of six visitors per site. Therefore, the 112 campsites can support up to 672 visitors per day. The group campsite, on the other hand, can accommodate up to fifty visitors per day. Up to five individuals can fit in each of the dispersed campsites. In total, these fifty sites can thus accommodate up to 250 visitors per day. The sum of the user capacities for these three types of campsites is therefore 950 visitors per day. Thus, the user capacity for the combined recreational and scenic river segments is 950.

While data are available on campground occupancy, the exact number of people occupying each campsite, and thus the campground is unknown. An estimate of average daily use at Big Springs and Glass Creek campgrounds is a maximum of 324 people (estimated by multiplying the average daily number of campsites occupied by the maximum number of six visitors allowed at each campsite). The maximum designed capacity of the two campgrounds is 546 people. Thus, the maximum average use observed was at most 59% of capacity. By applying that percentage to overall daily capacity of the WSR corridor, the average daily use of all campgrounds in the corridor was estimated to be at most 561 people. The results of this analysis are summarized in Table 4.

Wild Segments

A total of 6.3 miles of the river are designated as wild, located entirely within the Forest. The wild segments are considered in the user capacity analysis separately from areas designated recreational or scenic, as this portion of the river is much more difficult to access than the recreational and scenic segments. Therefore, the recreational character and use patterns are very different, and protection of ORVs requires a different capacity (Appendix A of the Owens River Headwaters CRMP). The primary public access point is the Glass Creek Meadow Trail head. The Glass Creek Meadow Trail is almost entirely within federally designated Wilderness. ORVs at this segment include scenery, wildlife, botany, recreation, and geology. Recreational activities that occur in the wild segments include hiking, horseback riding, camping, fishing, birding, backcountry skiing, and snowshoeing.

Current use of the wild portion of the river was estimated through counts of daily visitor use and intergroup encounters per hour on the Glass Creek Meadow Trail. Monitoring occurred between August and November 2020, with fire closures from September 7 through early December. Daily visitor use was recorded for eighty days, while intergroup encounters per hour were monitored for ten days.

On average, five visitors were recorded each day on the Glass Creek Meadow Trail during the monitoring period. The maximum number of visitors observed during this period was fifteen, with a minimum of zero. The average intergroup encounter rate was 0.9 per hour during the ten-day recording window. The results of these studies are summarized in Table 4 below.

Table 4. Current Daily Use at Wild Segments

Data Source	Average Current Daily Use Levels
Visitors to Glass Creek Meadow Trail	5 visitors per day
Intergroup encounters on trail	0.9 intergroup encounters per hour

The user capacity for the wild segments was estimated using the visitor use and intergroup encounter rate data collected. These data were plotted, and a regression was performed. This analysis was used to determine the maximum number of people who could hike on the Glass Creek Meadow Trail each day without exceeding the threshold of two encounters with other groups per hour. Since there is no indication that current public recreational use is having any significant negative effects on the area, the two-group threshold was selected to provide a conservative trigger point for intensified monitoring. Thresholds of three or four groups per hour were also considered. See the User Capacity Analysis in Appendix A of the CRMP for more information. The approximate user capacity, based on these calculations, is eighteen visitors per day. The results of this analysis are summarized in Table 5.

Table 5. Current Daily Use at Wild Segments

Current Daily Use	User Capacity*	Current Use as a Percentage of User Capacity
5 visitors per day (on average)	18 visitors per day	28%
0.9 intergroup encounters per hour (on average)	2 intergroup encounters per hour	45%

*User capacity is the maximum number of visitors per day that can be supported without resulting in degradation of the river or its associated ORVs.

Thresholds for Action

The user capacity estimates described above are useful guides for management of each river segment. User capacity is the maximum number of visitors that can be supported at a river or river segment without resulting in degradation of the water quality, free flow, or the ORVs of the river. Thresholds for action are the minimally acceptable conditions of the indicators of use level being monitored (such as campsite occupancy or vehicles per day) that will not cause degradation of river values. Triggers, on the other hand, are quantifiable conditions of these indicators, specific to a river or river segment, established based on user capacity estimates.

When the conditions of a trigger are met, the threshold for action at the river or river segment is reached. In response, adaptive management actions are implemented to reduce or optimize site use and protect river values. To determine when a river or river segment meets a management trigger and therefore triggers adaptive management action, monitoring of daily use takes place every three years. If the threshold for a trigger is reached, the frequency of monitoring is typically increased. Although user capacities are only estimates, they provide useful quantitative data to guide river management.

In the sections below, management triggers and the subsequent recommended responses are discussed for the wild and recreational segments.

Recreational and Scenic Segments. The CRMP sets two triggers for management action at the combined recreational and scenic segments of the river. There are, on average, up to 561 visitors per day at these segments, estimated based on campsite occupancy at Glass Campground and Big Springs

Campground. The user capacity for this portion of the river is 950 visitors per day, estimated based on maximum occupancy at five separate camping locations.

The first trigger for management action at the recreational and scenic segments, Trigger 1, is that all campsites are fully occupied at two of the five camping locations, and that this occurs for at least one-quarter of the monitoring days during a one-year period. If the conditions of Trigger 1 are met, two actions would be taken to prevent user capacity from being exceeded.

Trigger 1 would first set off an increase in the frequency of occupancy monitoring at camping locations where the conditions of Trigger 1 were met. Occupancy would be monitored every year for the next two years, rather than every three years, at the campsites that met the conditions of Trigger 1. This would ensure river values are protected, as managers would be able to more closely track changes in use, allowing for early management action. Second, visitors would be educated about low impact camping practices, with the aim of informing visitors of alternate recreational activities. Education and outreach would help maintain current use levels and the current physical footprint. Visitors would learn about river values, how they can help protect the river, and where it is appropriate to camp along the river.

Trigger 2 is set off when all campsites are at full occupancy at three or more of the five camping locations on at least a quarter of monitoring days during a two-year period. If this condition is met, five adaptive management actions would be triggered.

Trigger 2, like Trigger 1, would stimulate an increase in occupancy monitoring frequency, from every three years to once a year for the next two years. Unlike Trigger 1, this increased monitoring frequency apply to all five camping locations, regardless of whether they met the conditions of Trigger 2. Additional management actions would involve clearly defining campsite boundaries using site management techniques to prevent campsite expansion. This would be reinforced using information, signage, and enforcement, to keep visitors from camping outside of designated areas. These two actions would help maintain use levels within existing infrastructure, discouraging the formation of new campsites that would increase the camping footprint.

Trigger 2 would also set off actions to actively rehabilitate and close off areas where there are signs of new campsites beginning to form. This would discourage the formation of new campsites, preventing the associated increase in footprint. Finally, changes to campsite access would be made as needed to maintain current use levels. This might include the implementation of a use-limiting system, which would control the level of use and discourage use of sites that are not formally designated for camping.

Wild Segments. Current use at the wild segments is lower than at the recreational and scenic segments, as access to the river corridor is more limited in these areas. Based on observations at the Glass Creek Meadow Trail, there are, on average, five visitors per day, experiencing an average of 0.9 intergroup encounters per hour. The user capacity for this part of the river is eighteen visitors per day, or two intergroup encounters per hour. The CRMP describes two triggers for adaptive management actions at the wild parts of the river.

The first trigger in the wild segment, Trigger 1, occurs if the intergroup encounter rate on the Glass Creek Meadow Trail reaches or exceeds the threshold of two encounters per hour, set based on user capacity.

This must occur on at least half of the monitoring days during a one-year period for adaptive management actions to be triggered.

There are four management actions associated with Trigger 1 in the wild segment. The first measure involves increasing monitoring frequency, such that intergroup encounter rates are directly observed each year for the next two years, rather than every three years. Managers would use the data collected during this monitoring effort to refine their understanding of the relationship between visitor use and intergroup encounter rates. This increased monitoring frequency and closer analysis of trends would allow managers to better track changes in use and potentially implement management actions early, before a dramatic shift in use levels can occur.

Under the conditions of Trigger 1 in the wild segment, access points would also be assessed, to ensure that they are appropriately sized to prevent visitor use from exceeding the thresholds for user capacity. This could include, for example, limiting parking availability to reduce the number of visitors. Visitors would also be educated about the unique and sensitive natural resources along the trail and encouraged to visit on days of the week that tend to have lower use levels. Education, outreach, and other actions would help maintain or reduce current use levels and foster an understanding of river values.

The final wild segment trigger outlined in the CRMP, Trigger 2, is set off when hourly intergroup encounter rates at the wild segments exceed the threshold of two encounters per hour on at least half of the monitoring days during a two-year window. If these conditions are met, two management actions would be implemented.

Trigger 2 in the wild segment would first cause the same increase in monitoring frequency that would occur if Trigger 3 conditions were met. Intergroup encounter rates would be monitored once a year for two years, rather than every three years. Further, changes would be made to trail access as needed to reduce the number of visitors on the trail at the same time. This could include limiting parking or instituting a mandatory permit and reservation system that would cap the number of visitors and shift some use to less busy days of the week. These adaptive management actions would all help control visitor use levels. However, Forest Service policy for wilderness areas is to use the least restrictive methods first (FSM 2320.12). A use-limiting system or other measures could then be put into place if parking restrictions are insufficient to decrease use to appropriate levels. All four triggers and their associated management actions are summarized in Table 6.

Table 6. Recommended User Capacity Triggers and Management Actions

River Segment(s)	Trigger	Adaptive Management Action
Recreational and scenic segments	Trigger 1: All campsites are fully occupied at two camping locations* for at least one-quarter of monitoring days** during a one-year period.	■ Increase monitoring frequency from every three years to once a year for the next two years for any camping locations at full capacity for at least one-quarter of monitoring days. ■ Educate visitors about low impact camping practices and alternative recreational opportunities.

River Segment(s)	Trigger	Adaptive Management Action
Recreational and scenic segments	Trigger 2: All campsites are fully occupied at three or more camping locations* for at least one-quarter of monitoring days** during a two-year period.	■ Increase monitoring frequency from every three years to once a year for the next two years for all camping locations. ■ Implement site management techniques to clearly define campsite boundaries and prevent expansion. ■ Use information, signage, and enforcement to keep visitors from camping outside of designated areas. ■ Actively rehabilitate and close areas where there is evidence of new campsites forming. ■ Make changes to campsite access as needed, such as instituting a use-limiting system that caps occupancy.
Wild segments	Trigger 1 The intergroup encounter rate on Glass Creek Meadow Trail is at least 2 encounters per hour (the estimated threshold) for at least half of the monitoring days** during a one-year period.	■ Increase monitoring frequency from every three years to once a year for the next two years, monitoring intergroup encounter rates by direct observation. ■ Use the data collected during the two-year monitoring period to refine the relationship between visitor use and intergroup encounter rates. ■ Ensure that access points are appropriately sized; for example, ensure that there are an appropriate number of parking spaces at the trailhead to prevent reaching user capacity. ■ Educate visitors about the unique and sensitive natural resources along the trail, encouraging them to hike during less busy days of the week.
Wild segments	Trigger 2: The intergroup encounter rate on Glass Creek Meadow Trail is at least 2 encounters per hour (the estimated threshold) for at least half of the monitoring days** during a two-year period.	■ Increase monitoring frequency from every three years to once a year for the next two years, monitoring intergroup encounter rates by direct observation. ■ Make changes to trail access as needed, such as instituting a permit and reservation system that caps daily use or implementing restrictions on the number of vehicles parked at the trailhead.

*Camping locations include Big Springs Campground, Glass Campground, Deadman Campground, the group campsite, and the dispersed campsites

**Monitoring days are defined as days during which vehicle traffic, foot traffic, intergroup encounter rate, or campsite occupancy are actively monitored and recorded for the purpose of estimating use levels; this does not occur on every day of the year

Additional Management Actions

In addition to the adaptive management actions in response to changes in use levels described above, the CRMP provides further management direction to meet the requirements of the Wild and Scenic Rivers Act and the Forest Service. Several additional potential management actions are described that would protect and enhance the river's free-flowing condition, water quality, and ORVs. These management actions are guided by a set of desired conditions for the river, described in further detail in the CRMP.

Although the CRMP and this EA discuss potential management actions to uphold river values, they do not represent commitments or proposals to take the actions described. Site-specific actions detailed in

these documents would require separate NEPA analysis prior to implementation. The Proposed Action of this EA is solely the adoption of the CRMP, not the implementation of any actions described. The management actions proposed in the CRMP are described in further detail below.

The CRMP outlines a set of standards and proposes management actions for the river aimed at preserving the free-flowing condition, water quality, and ORVs of the river. In the CRMP and EA, a standard refers to a mandatory constraint on decision-making in a project or activity. A standard is established to aid in maintaining desired conditions, avoid or mitigate undesirable impacts, or meet applicable legal requirements. The desired conditions for the river are described in more detail in the CRMP. The standards set for the river are summarized below. Further detail regarding these management standards is provided in the CRMP.

- Site-specific activities that occur in General Recreation Areas must promote the maintenance or restoration of Watershed Condition Framework Indicators.
- Continue to maintain and improve revegetation work done along Glass Creek.
- Dispersed campsites along creeks should continue to be contained to reduce erosion, soil compaction, and vegetation loss.
- Road and motorized trail access, as well as any new recreation facilities, must be consistent with river classification, travel management direction, scenic integrity objectives, and recreation opportunity spectrum classification.
- In the recreational and scenic segments, expansion of structural improvements may only be authorized outside designated wilderness areas and must meet scenic integrity objectives and allow user access; utility rights-of-way in these segments should be authorized only when there are no other alternatives.
- In wild segments, structural improvements must be limited only to existing structures; no utility rights-of-way should be authorized in these segments.
- Facilities that existed when the river was designated that do not conform to river classification may still be used, given that they do not adversely impact free flow, water quality, or ORVs.
- Hydrology best management practices must be followed to mitigate the impact of camping on water quality and the impact of natural and manmade changes in the contributing watershed on water quantity and flow.

In addition to the standards listed above, several specific management actions are also proposed in the recreational and scenic segments. The management actions proposed are summarized below. Further detail on these management actions is provide in the CRMP. In addition to the management actions described below, site-specific potential future management actions are also outlined in the CRMP. These actions, if implemented, would require NEPA analysis prior to implementation. Refer to the CRMP for further information on these potential site-specific actions.

- Update the Deadman Creek Watershed Restoration Action Plan to include a formal road maintenance agreement with Mono County for Deadman Creek Road.
- Evaluate campsites at Glass Creek Campground to ensure hydrology best management practices are being met.
- Consider closing dispersed campsites that are impacting water quality and restoring these sites to natural conditions.
- Consider acquiring non-federal land and easements to implement the Wild and Scenic Rivers Act and facilitate management of other resources.

- Consider measures to restore damage caused by unauthorized vehicle use in the river corridor.
- Consider relocating and maintaining the trail from Glass Creek Campground to the Glass Meadow trailhead.
- Implement some or all of the management actions described in the Travel Management Rule Record of Decision that are relevant to the river corridor. Examples of relevant actions are provided in the CRMP.

Monitoring Plan

In addition to the management actions listed above, the free flow condition, water quality, and certain ORVs of the river will be monitored upon adoption of the CRMP. Several potential monitoring items are suggested in the CRMP to address the areas of highest concern in the river corridor. These items include water quality, free flow, historic resources, wildlife, botany, and scenery. These are discussed in further detail, along with proposed monitoring actions, in Table 7.

Table 7. Potential Monitoring Items within the River Corridor

Location of Monitoring Action	Potential Issue / ORV Addressed	Monitoring Action
Various existing locations along major contributing tributaries	Water quality	Continue documenting water quality metrics at existing monitoring locations and consolidate data in a database to include a collection of point-in-time data from field observations of fish, land use, color, smell, water alkalinity or lab samples; use California Environmental Data Exchange Network for past water quality data
Throughout the corridor	Water quality	Conduct surveys of surface water and groundwater to monitor for wildlife, recreation use, and riparian health.
Above and below Glass Creek campground/ recreation residence tract	Water quality	Conduct annual water quality monitoring and include interested tribes as relevant.
Downstream limits of major contributing tributaries	Free flow	Establish a practice of annual observations, at a minimum, to note water elevations/depth at certain locations that can be easily replicated upon subsequent visits. These locations could be surveyed so that water depth could be used to calculate flow and to establish a basic database to determine adequate flow when compared to fish or other species survivability. At a minimum, include a survey point at the US Highway 395 crossing. Establish metrics for water quantity to better track and predict climate change trends and effects.
Throughout the corridor and adjacent Dry Creek watershed	Free flow	Monitor and collect Big Springs stream gage data and groundwater well data from available sources including USGS and MMSA within the contributing watershed. Data will support future analysis, calibration and prediction of flow at Big Springs to assess the effects of climate change

Location of Monitoring Action	Potential Issue / ORV Addressed	Monitoring Action
		and future upstream groundwater withdrawals. Monitoring at Big Springs will also include annual collection of two stable isotope samples to assist in analyzing hydrologic connectivity with Mammoth Mountain Ski Area.
Campgrounds	Potential ORV impacts from camping level of use	Campground hosts will collect campground occupancy data annually.
Throughout the corridor	Scenic impacts	Begin monitoring scenic integrity upon use changes such as grazing, mining, or other development.
Throughout the corridor	Wildlife impacts from visitor use	Continue surveys for/documentation of SCC wildlife species within the WSR corridor.
Throughout the corridor	Wildlife impacts/mule deer migration corridors	Continue collaboration with CDFW to monitor mule deer migration and population trends.
Throughout the corridor	Botany impacts from visitor use	Continue surveys for/documentation of SCC and invasive plant species within the WSR corridor.
Throughout the corridor	Prehistoric cultural resource impacts from visitor use and motorized recreation	Continue surveys for/documentation of previously recorded and unknown historic properties within the corridor. Monitor at risk sites as identified
Throughout the corridor	Tribal cultural values of the Mono Lake Kutzadika'a	Annual Tribal and Forest Service field trip to corridor to identify concerns.

COMPARISON OF THE ALTERNATIVES

The action proposed in this EA is the adoption of the CRMP drafted for Owens River Headwaters. The CRMP would institute a final boundary for the river corridor. These boundaries would generally consist of one-quarter mile from the riverbanks on either side, with the exception of a narrower area around the California Department of Transportation Crestview Maintenance Station and a wider portion at the headwaters. The CRMP also provides estimates of the user capacity, outlining triggers for the implementation of adaptive management actions. Additional management actions are proposed to maintain and enhance river condition and river values, and potential monitoring items are also described. The management and monitoring actions described in the CRMP provide guidance to achieve desired conditions. Adoption of the CRMP does not equate to implementation of these management actions; all site-specific river management projects would still undergo NEPA analysis as needed.

Under the No-Action Alternative, the CRMP would not be adopted. The river would continue to be managed under existing state, federal, and Forest Service regulations, but the management actions proposed by the CMRP would not guide river maintenance and protection. Additionally, the proposed river corridor boundary would remain an interim, temporary boundary. Table 8 provides a side-by-side comparison of the Proposed Action and the No-Action Alternative.

Table 8. Summary Comparison of the Alternatives

Proposed Action: **CRMP is adopted**	**No-Action Alternative:** **CRMP is not adopted**
River condition and values would be protected by existing FS plans and policies and applicable laws and guided by the CRMP.	River condition and values would be protected only by existing FS plans and policies and applicable laws, with no guidance from the CRMP.
A final river corridor boundary would be established, located generally one-quarter mile from the riverbanks on either side, with deviations in the vicinity of the headwaters and the California Department of Transportation Crestview Maintenance Station (see Figure 1).	The proposed boundary, which encompasses one-quarter mile from the riverbanks on either side, would remain a temporary, interim boundary; no final boundary would be adopted.
User capacities would be established for the wild and recreational segments based on current use levels, with thresholds for adaptive management action.	No user capacities or associated thresholds would be established, nor would these items guide management decisions.
Use levels would be monitored every three years, or more regularly if needed based on user capacity triggers.	Use levels would not be monitored regularly.
Water quality, free-flowing condition, and ORVs would potentially be monitored at each segment at specific locations.	Items related to water quality, free-flowing condition, and ORVs would be monitored only sporadically.
Future management actions at the river would be guided by the ideas proposed in the CRMP, with the goal of achieving the desired conditions laid out in the plan	Future management actions at the river would only be guided by existing federal, state, and agency regulations.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

During internal scoping with the FS, an alternative was considered that set user capacity at current use levels, rather than at the estimated user capacity proposed in this EA. User capacity represents the maximum number of visitors that the river corridor could support without causing degradation or adverse impacts on ORVs. In the recreation and scenic segments of the corridor, most recreation centers around camping; consequently, the limiting factor for recreational use in the recreational and scenic segments is the physical designed capacity of the developed campgrounds and dispersed campsites. A current use capacity alternative was dismissed because there is no significant evidence that the current level of campground use is degrading ORVs.

In the wild segment of the corridor, which is remote, more difficult for users to access, and has no campgrounds, user capacity was estimated based on intergroup trail encounters. Use levels in this section are low and there is no reason to believe that the proposed user capacity in the Proposed Action would result in effects that are significantly different from the current levels of use.

CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

This section summarizes the affected environment, the potential changes and impacts due to implementation of an alternative, and the basis for comparison of alternatives. Resources determined by the interdisciplinary team to be potentially affected are identified and analyzed. These include the ORVs relevant to each river, as well as global resource values, such as hydrology. The summaries focus on the resource issues and project goals disclosed in Chapter 1.

GENERAL METHODOLOGY FOR ANALYZING IMPACTS

In accordance with the Council on Environmental Quality (CEQ) regulations for implementation of NEPA, direct, indirect, and cumulative impacts are described under each impact topic (40 CFR 1502.16), and the impacts are assessed in terms of context and intensity (40 CFR 1508.27). To determine impacts, the current condition of each resource analyzed is presented below, followed by a comparison between the alternatives described in Chapter 2.

In the CRMP (Appendix A), river managers must make user capacity decisions even when use levels do not currently threaten river values or the established desired conditions for those values. For Owens River Headwaters, existing information suggests that current use levels in the wild and scenic river corridor are not likely to threaten river values or the established desired conditions for those values. Decisions about capacity would not result in near-term management actions to regulate use levels.

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts were determined for each impact topic by combining the impacts of the alternatives being analyzed with other past, present, and reasonably foreseeable future actions that would also result in beneficial or adverse impacts.

HYDROLOGY/GEOLOGY

Affected Environment

Hydrology

The Upper Owens River is fed by Big Springs, a spring with flows so high as to be unique to the Eastern Sierra Mountains. It is recharged by snowmelt and runoff from Deadman (San Joaquin) Ridge that infiltrates into permeable pumice deposits and migrates through fractured andesite to the springs. Big Springs issues from a complex of andesitic, rhyolitic, and basaltic lava flows. The areal extent that provides recharge for this groundwater system is not fully understood (Burak 2015; Evans 2002; Briebart et al. 2001). Published researcher indicates that Big Springs may be fed both by the Deadman and Glass Creek watersheds, which correspond with the surface watersheds, and the Dry Creek watershed, which is south of the Owens River Headwaters watershed. There may be connectivity to groundwater reservoirs

that does not correspond with the extent of contributing surface watersheds. This is a unique hydrogeologic system that results in headwater springs of the Owens River, an important feature and recreational asset in the Eastern Sierra. The Upper Owens and Big Springs discharge is relatively constant throughout the year with flows peaking annually during the snowmelt season in late spring to early summer. Big Springs and Deadman Creek provide natural sources of phosphorus, which encourages abundant growth of aquatic plants in the upper Owens River and in Crowley Lake. Big Springs was found to be the primary source of phosphorus for Crowley Lake.

Base flow of the Upper Owens River and Big Springs is supported by the large underlying groundwater system that is recharged primarily from snowpack. Recharge of the underlying groundwater system may be susceptible to projected reductions in snowpack characteristic of more extreme changes in weather conditions because of climate change. Climate change projections for the southwest region of the United States indicate that snowpack levels lowered by 25 percent during the 2011 to 2016 drought, and average springtime snowfall is expected to drop 64 percent by 2100. Also, in the past 50 years, there have been four major statewide droughts plus smaller regional droughts. Scientists expect that climate change will lead to more frequent and more intense droughts statewide. Overall precipitation levels are expected to increase slightly with more frequent years of extreme levels of precipitation, both high and low, as a result, this is expected to cause more droughts that are more intense and last longer compared to historical norms (PlaceWorks et al. 2021).

Groundwater demand is high regionally, with the largest withdrawals occurring at Mammoth Mountain Ski Area (MMSA) for snow production and the Town of Mammoth Lakes for residential use. Groundwater wells on the eastern base of MMSA and in the Town of Mammoth Lakes are within the Mammoth Creek watershed that drains to Hot Creek and the Owens River more than 9 miles downstream of the designated WSR reach. Groundwater wells at the northern base of MMSA are within the headwaters of the Dry Creek watershed that drains northeast to the Upper Owens immediately below the designated WSR reach. Hydrologic studies conducted for these groundwater wells predicted that groundwater supply exceeds demand based on historical precipitation and model calibration using historical well data (Wildermuth Environmental 2003, 2009; Mammoth Community Water District 2005; Team 2007 Partner Engineering and Science, Inc. 2020). Many of these studies noted an assumed connection to the larger groundwater system that underlies the region and supports flow at Big Springs, however, none specifically quantified the groundwater connection, as in all cases it was demonstrated that groundwater recharge exceeded the groundwater withdrawals.

Geology

There is geologic evidence of volcanic activity along Owens River Headwaters. Significant geologic features or attractions within the region include Inyo Craters, Obsidian Dome, Obsidian Flats, Glass Creek Flow, Deadman Dome (North and South), Recumbent Dome, Long Valley Caldera, and Locatable Pumice. Five rhyolite dome-flows are also known, located at Wilson Butte (volcanic cone jagged chunks); Obsidian Dome (volcanic glass extrusion); Glass Creek flow (a volcanic extrusion of jagged chunks); and North and South Deadman Dome (a volcanic extrusion of jagged chunks). There are also two small unnamed domes, one at Inyo Craters, consisting of three phreatic eruptions explosion pits, two of which contain small lakes, and another at Deer Mountain, a cone-shaped hill 500 feet high with a crater at the summit. Other features in the corridor include the Resurgent Dome; Feeder Dike; vents and fumaroles; north-south trending fault scarps; and the Sherwin, Tahoe, and Tioga glacial deposits.

Stream segments also contain unique geology. Rare geologic features at the river include basalt and andesite, formed by volcanic and glacial events. The topographically defined Long Valley Caldera is approximately 19 miles across from east to west and 10 miles across from north to south. The Obsidian Dome and Glass Creek Dome in particular are outstanding examples of rhyolite domes, tephra layers, explosion craters, and marble-cake blocks, which are mixed magmas containing a crystal-poor black obsidian and a crystal-rich light gray pumice.

The corridor has scenic geology with interpretive potential and historic mining. It is a known Geothermal Resource Area exhibiting a unique Geothermal Reservoir.

Impacts of No-Action Alternative

Hydrology

Under the No-Action Alternative, existing federal guidelines, such as those in the Forest Plan and Section 7 of the Act, as well as state water quality standards, would continue to protect water quality in Owens River and its headwaters. Overall, the No-Action Alternative would have no impact on hydrology because this value is already protected by the existing protections of the Act and State water quality standards.

Geology

Under the No-Action Alternative, existing guidelines, such as those in the Forest Plan, would continue to protect geologic resources. Since no new activities would occur under the No-Action Alternative, there would be no direct effects. Overall, the No-Action Alternative would have no impact on geology.

Impacts of Proposed Action

Hydrology/Geology

The designated river has excellent water quality that supports diverse ecological communities (Mono County 2007). The river exists in a free-flowing condition with a range of flows that provide optimal conditions for wildlife, natural processes, and channel integrity.

The free-flowing condition, water quality and specific ORVs of designated WSRs would be protected or enhanced from current condition. Any proposed development at the WSR must be consistent with the river's classification, and management must be consistent with the CRMP, if it is adopted (DA-WSR-DC-01 in LMP).

The Proposed Action, adoption of the CRMP, would provide management guidance to further protect the river's geology/hydrology ORV. The Proposed Action would therefore focus projects and inventories, such as watershed-wide groundwater permitting and withdrawal, camping, and off-highway vehicular use, to meet the intent of the Wild and Scenic Rivers Act. Such activities would provide greater understanding and predictability of free flow conditions, aid in developing climate change adaptation plans, and reduce sources of water quality impairment Thus, the Proposed Action would potentially have indirect positive impacts on geology/hydrology.

Cumulative Impacts

The effects of the Proposed Action in the Owens River watershed over the next fifty years would result in the establishment of standards and practices to manage on-site camping and off-highway vehicular use, thereby reducing the potential for water quality impacts. Planning and adaptation strategies would be developed to mitigate manmade and natural impacts to contributing hydrology sources, especially in the case of future climate change impacts. Similarly, the Proposed Action would improve the level of protection for outstanding geologic values because inventory work would better identify these values in the field. Management-related sediment delivered to the Owens River could measurably decrease under the Proposed Action. However, the Proposed Action, adoption of the CRMP is administrative in nature. No ground-disturbing activities are proposed. Therefore, there would be no incremental or substantive cumulative impacts on geology or hydrology.

SCENERY

Affected Environment

Scenery was determined to be an ORV of the river, based on a Resource Assessment published in 2021. The viewshed varies along the river corridor, which encompasses Owens River, Glass Creek, and Deadman Creek. Although the viewshed is limited along much of the corridor due to its low relief and dense forest cover, the diversity of unique views within the river corridor imparts the river with its outstanding scenery.

Part of Glass Creek Meadow Trail offers views of a small cascade along the creek, and wide views of Glass Creek and the surrounding mountains can be seen from the upper end of the trail. Glass Creek Meadow is characterized by sweeping meadow views filled with willows, grasses, and forbs. The meadow undergoes dramatic seasonal variation. In summer, it is covered with colorful wildflowers, and it is awash in golden willow, aspen, and cured grasses in the fall. Snow covers the landscape in winter.

There are also a number of unique geological features along the river corridor that enhance the scenery. Glass Creek Meadow is flanked by volcanic pumice flats and hillsides, with the ridges and peaks of the Sierra Nevada Range in the background, providing dramatic views year-round. The stark pumice peaks of White Wing Mountain can also be seen from parts of the river corridor. A large and unusual obsidian feature called the Obsidian Dome is visible from the corridor. Deadman Creek passes through a gorge, offering sweeping views from above the feature. Some visible manmade modifications are present in the as well, including native surface roads, campgrounds, road signs, some evidence of mining, and a communication tower. There are also several areas where there is evidence of recent prescribed fire activity.

The Scenic Integrity Objectives (SIOs) of this river are High and Very High. The SIO at a river defines the minimum level to which a landscape is to be managed from an aesthetics standpoint (USDA Forest Service 2005a). For example, a “Very High” SIO refers to landscapes where the valued landscape character is intact with only minute, if any, deviations, providing for ecological changes only. A “High” SIO refers to landscapes where human activity occurs but is not visually evident, and thus the valued landscape character appears to remain intact. Any deviations that are present must repeat the form, line, color, texture, pattern, and scale of the landscape character such that it appears unaltered.

Impacts of No-Action Alternative

Under the No-Action Alternative, the CRMP would not be adopted. Existing state, federal, and agency regulations would therefore continue to guide management of this section of the river. Further, no user capacity would be implemented. However, use levels are not anticipated to impact scenery at the river corridor. Changes to river management, such as adoption of the CRMP, are not anticipated to alter scenery. Therefore, the No-Action Alternative is not anticipated to have any impacts on scenery.

Impacts of Proposed Action

The Proposed Action involves adoption of the CRMP. This would provide further guidance on management of this segment of the river, as well as setting user capacity levels and implementing permanent river boundaries.

The CRMP describes several potential management actions that could be implemented to improve the river corridor. Some proposed improvements include, for example, closing dispersed campsites and restoring them to natural conditions, as well as taking measures to control erosion. These and other actions, if implemented, could improve scenery. Although actions are proposed by the CRMP, adoption of the plan does not necessarily imply that these management strategies would be adopted. The Proposed Action is only administrative in nature, and no ground-disturbing activities or development is proposed. However, if any of the actions described in the CRMP are implemented, the Proposed Action would have minor, indirect positive impacts on the river.

Cumulative Impacts

The Proposed Action, adoption of the CRMP is administrative in nature. No ground-disturbing activities are proposed. Therefore, there would be no incremental or substantive cumulative impacts on scenery.

WILDLIFE

Wildlife species are addressed in several different categories in this section: threatened and endangered species, Inyo National Forest Species of Conservation Concern (SCC), and migratory birds. To determine which species could occur within the analysis area, species occurrence records for the area were reviewed, and the habitat requirements of each species were compared with the habitat present in the analysis area. The results of this analysis are summarized in Tables 10 and 11.

Resources used to identify rare, threatened, and endangered species within the study area included the USFWS Information, Planning, and Consultation (IPaC) system, SCC for Inyo National Forest (USDA Forest Service 2019a), the Biological Assessment for the Revision of the Inyo National Forest Management Plan (USDA Forest Service 2017), and information provided by FS staff (USDA Forest Service 2019b). These sources were reviewed to determine known populations of listed species in or near the river corridor, as well as suitable habitat within the river corridor. Suitable habitat was considered with respect to life cycle, reproductive phenology, and other relevant habitat requirements. The species identified in this analysis are found within the Forest and therefore have the potential to occur within the river corridor. Some but not all of the species identified through this analysis are known to occur in the

Owens River Headwaters WSR corridor, while others have the potential to occur based on habitat preferences and the availability of suitable habitat.

Affected Environment

Threatened and Endangered Species

There are documented occurrences of several threatened or endangered species in the Forest. These species could occur within the Owens River Headwaters corridor, but not all have been documented. The IPaC search identified the following species as potentially occurring within the Owens River Headwaters corridor: the endangered Sierra Nevada fisher (*Pekania pennanti*), the endangered Sierra Nevada bighorn sheep (*Ovis canadensis sierrae*), the endangered southwestern willow flycatcher (*Empidonax traillii extimus*), the threatened yellow-billed cuckoo (*Coccyzus americanus*), the endangered Sierra Nevada yellow-legged frog (*Rana sierrae*), the threatened Yosemite toad (*Anaxyrus canorus*), the threatened Lahontan cutthroat trout (*Oncorhynchus clarkii henshawi*), the endangered Owens pupfish (*Cyprinodon radiosus*), and the endangered Owens tui chub (*Gila bicolor* ssp. *snyderi*). During consultation for the update to the Land Management Plan for the Inyo National Forest, the USFWS acknowledged that neither yellow-billed cuckoo nor Owens pupfish occur within Inyo National Forest (USDA Forest Service 2017), despite being identified by the IPaC database. Therefore, these species were not included in this analysis.

Of those species identified, only three federally listed species reported to occur in the Forest were carried forward in this analysis. These include the endangered Sierra Nevada red fox (*Vulpes vulpes necator*), the endangered southwestern willow flycatcher, and the threatened Yosemite toad. A summary of all threatened, endangered, and candidate species considered is provided in Table 9.

Table 9. Summary of Threatened, Endangered, and Candidate Species Considered in This Analysis

Common name	Scientific name	Status	Occurs in Forest?	Suitable habitat in corridor?	Likelihood of occurring in corridor?
Species carried forward in analysis					
Sierra Nevada red fox	*Vulpes vulpes necator*	Endangered	Yes	Yes	Low
Southwestern willow flycatcher	*Empidonax traillii edastus*	Endangered	Yes	Yes	Likely
Yosemite toad	*Anaxyrus canorus*	Threatened	Yes	Yes	Confirmed presence
Species considered but not carried forward in analysis					
Sierra Nevada bighorn sheep	*Ovis canadensis sierrae*	Endangered	Yes	No, outside of range	Low
Sierra Nevada fisher	*Pekania pennanti*	Endangered	Yes	No	Low
Sierra Nevada yellow-legged frog	*Rana sierrae*	Endangered	Yes	No, outside of range	Low
Lahontan cutthroat trout	*Oncorhynchus clarkii henshawi*	Threatened	Yes	No, outside of range	Low
Owens tui chub	*Gila bicolor ssp. snyderi*	Endangered	Yes	No, outside of range	Low

The Sierra Nevada red fox was recently listed as endangered under the ESA in 2021. The red fox occurs primarily in conifer forests and rugged alpine areas at high elevations in the Sierra Nevada and Cascade Mountains. In the summer, its habitat varies much more widely, including alpine dwarf-shrub, wet meadows, red fir, montane chaparral, mixed conifer, hardwood-conifer, and more, typically above 6,000 ft. in elevation (Sierra Forest Legacy 2010). The Forest is collaborating closely with the California Department of Fish and Wildlife (CDFW) on red fox conservation. Surveys were conducted by CDFW from 2018 through 2021 to determine red fox presence and distribution within the Forest. Further, the Forest Management Plan provides guidance aimed at maintaining plant and animal diversity, ecosystem integrity, and protections for other at-risk species, all of which are likely to be beneficial to the red fox as well.

The southwestern willow flycatcher, one of three subspecies of willow flycatcher, is known to occur within the Forest, and it is likely to occur within the river corridor. This grayish green Empidonax flycatcher prefers habitat with dense riparian tree and shrub communities associated with rivers, swamps, or other wetlands (USFWS 2022). Although the river corridor does not intersect willow flycatcher critical habitat, there is potential habitat for this species within the river corridor. However, there is no known breeding habitat for the southwestern willow flycatcher within the river corridor (California Department of Fish and Wildlife 2007; USDA Forest Service 2017).

The federally threatened Yosemite toad is a medium-sized gray, tan, olive, or brown amphibian with dark mottles on its back and appendages that requires small to large waterbodies to breed. It is commonly found in wet meadow habitat, which is prevalent throughout the river corridor. The species is endemic to

a 150-mile span of the Sierra Nevada Mountains, from Ebbets Pass in Alpine County to Fresno and Inyo Counties, and it has been documented within the river corridor, at Glass Creek Meadow. This is one of few occurrences of Yosemite toad within the Forest that is outside of the USFWS designated critical habitat (USDA Forest Service 2017).

Forest Species of Conservation Concern

A number of Inyo National Forest SCCs are documented to occur in the river corridor or have the potential to occur there, based on their habitat preferences and the available habitat at the river. All SCCs that are known to occur or have the potential to occur within the river corridor are summarized in Table 10. The likelihood of occurrence is also provided in the table, determined based on past reports of the species and the availability of suitable habitat along the river. Several species of note are highlighted below.

Glass Creek Meadow provides habitat for a high diversity of butterfly species, including nine species listed as SCCs for the Forest (USDA Forest Service 2019a). A Sierra marten (*Martes caurina sierra*) Summer Core Area is located immediately west of the corridor, and several martens have been observed near Glass and Deadman Creeks. In addition, it is likely that there is occupied greater sage grouse (*Centrocercus urophasianus*) habitat within the river corridor. Several species of aquatic springsnail have been documented in the river corridor as well. Surveys for Wong's springsnail (*Pyrgulopsis wongi*), which was originally thought to be limited to the Great Basin of California and Nevada (Hershler 1998), revealed that it was also present in Owens Valley. The river corridor supports the SCC, Owens Valley springsnail (*Pyrgulopsis owensensis*) as well.

Table 10. Forest Service Species of Conservation Concern Considered

Common name	Scientific name	Occurs in Forest?	Suitable habitat in corridor?	Likelihood of occurring in corridor?	Habitat
Species carried forward in analysis					
Sierra marten	*Martes caurina sierra*	Yes	Yes	High	Mature, dense conifer forests or mixed conifer-hardwood forests with a high percentage of canopy cover and large amounts of coarse woody debris.
Greater sage-grouse	*Centrocercus urophasianus*	Yes	Yes	High	Shrub steppe vegetation communities; several species of sagebrush required for survival.
Southwestern willow flycatcher	*Empidonax traillii extimus*	Yes	Yes	High	Large, dense riparian tree and shrub communities adjacent to wetlands and waterbodies.
Apache fritillary	*Speyeria nokomis apacheana*	Yes	Yes	High	Moist meadows, seeps, and stream sides with abundant wildflowers; primary host plant is the bog violet (*Viola nephophylla*).

Common name	Scientific name	Occurs in Forest?	Suitable habitat in corridor?	Likelihood of occurring in corridor?	Habitat
Boisduval's blue	*Plebejus icariodes inyo*	Yes	Yes	High	Open habitats including fields, forest clearings, and sagebrush; chapparal Lupine (*lupinus*) species serve as host plants.
Mono Lake checkerspot	*Euphydryas editha monoensis*	Yes	Yes	High	Riparian corridors in canyons between 5,000 ft. and 7,000 ft. in elevation; pinon-juniper woodland, mountain slopes, relatively wet meadows, and pine forests.
Sierra sulfur	*Colias behrii*	Yes	Yes	High	Subalpine and alpine meadows, usually above 9,000 ft.
Square dotted blue	*Euphilotes battoides mazourka*	Yes	Yes	High	Habitat poorly documented; known to inhabit a variety of open habitats including meadows, fields, forest clearings, and chapparal.
Owens Valley springsnail	*Pyrgulopsis owensensis*	Yes	Yes	High	Perennial seeps, headsprings, and upper reaches of spring runs.
Wong's springsnail	*Pyrgulopsis wongi*	Yes	Yes	High	Perennial seeps, headsprings, and upper reaches of spring runs.
Species considered but not carried forward in analysis					
Nelson desert bighorn sheep	*Ovis canadensis nelsoni*	Yes	No, Outside of Range	Low	Precipitous rocky, arid terrain; alpine meadows, woodlands, mixed-grass prairie, shrub-bunchgrass, and dry pinyon-juniper stands.
Bald eagle	*Haliaeetus leucocephalus*	Yes	No	Low	Habitats adjacent to large rivers, lakes, and reservoirs.
California spotted owl	*Strix occidentalis occidentalis*	Yes	No, Outside of Range	Low	Mature hardwood, conifer, and conifer-hardwood forests; occasionally chaparral habitats.
Great gray owl	*Strix nebulosa*	Yes	No, Outside of Range	Low	Spring ponds, agricultural ditches, and small streams in Deep Springs Valley.
Mount Pinos sooty grouse	*dendragapus fuliginosus howardi*	Yes	No, Outside of Range	Low	Desert riparian zones in Inyo County.

Common name	Scientific name	Occurs in Forest?	Suitable habitat in corridor?	Likelihood of occurring in corridor?	Habitat
Black toad	*Anaxyrus exsul*	Yes	No, Outside of Range	Low	Subalpine streams and seeps in Tulare and Inyo Counties.
Inyo Mountains salamander	*Batrachoseps campy*	Yes	No, Outside of Range	Low	Cool, clear, high elevation (above 7,500 ft.) mountain streams; only exist in a few select streams.
Kern Plateau salamander	*Batrachoseps robustus*	Yes	No, Outside of Range	Low	Poleta Cave at Westgard Pass in the Inyo-White Mountains.
California golden trout	*Oncorhynchus mykiss aguabonita*	Yes	No, Outside of Range	Low	California golden trout are native to two stream systems on the eastern side of the Kern River: Golden Trout Creek and the South Fork Kern River (Tulare County).
Cave obligate pseudo-scorpion	*Tuberochernes aalbui*	Yes	No	Low	Caves
Western pearlshell mussel	*Margaritifera falcata*	Yes	No, Outside of Range	Low	Free-flowing, cold steams with high water quality and breeding population of cutthroat trout.

Migratory Birds

The river corridor hosts a diverse community of bird species. Surveys conducted in 2010 and 2011 by Point Blue Conservation Science identified seventeen bird species along a transect near Deadman Creek. The dominant species included dark-eyed junco (*Junco hyemalis*), mountain chickadee (*Poecile gambeli*), and warbling vireo (*Vireo gilvus*) (Point Blue Conservation Science 2021). The upper watershed may also provide foraging habitat for the California spotted owl (*Strix occidentalis occidentalis*), located outside of the crest of San Joaquin Ridge. Northern goshawk occurs in abundance in the Forest. There are multiple northern goshawk nesting areas and Protected Activity Centers within and adjacent to the river corridor, near Deadman Creek and Glass Creek.

Impacts of No-Action Alternative

Under the No-Action Alternative, the river would continue to support populations of and habitat for federally threatened and endangered species, migratory birds, and SCCs. Existing management direction, such as The 2019 Land Management Plan for the Inyo National Forest and ESA, would continue to protect federally listed species, including the Yosemite toad, southwestern willow flycatcher, and the Sierra Nevada red fox. The existing FS policy 2670.32, which currently aims to avoid or minimize impacts to those species whose viability has been identified as a concern, would continue to direct management for SCCs (USDA Forest Service 2005b), and the forest land management plan provides

monitoring requirements for vegetation and SCC species including regular survey for new populations of SCC species. Currently, the Forest, in conjunction with California Department of Fish and Wildlife (CDFW), monitor and survey annually for Yosemite Toad. The Forest also partners and collaborates with university researchers, volunteer groups, and other stakeholders that conduct surveys to monitor a wide range of species. These groups share their data with the Forest to ensure they have sufficient data to make appropriate management decisions. Current Forest management also creates and maintains resilient and heterogeneous habitat for migratory birds by monitoring for invasive plant species that may impact native habitat and conducting prescribed burning in habitats that naturally require fire. Further, critical habitat for threatened and endangered species and other significant populations would continue to be managed under existing policies. Overall, the No-Action Alternative would have no impact on wildlife because species would continue to be protected by existing laws and policy.

Impacts of Proposed Action

Under the Proposed Action, in addition to current management direction, supplemental protections would be put in place to protect federally threatened and endangered species, SCCs, migratory birds, potential habitat for federally threatened and endangered species, and critical habitat for federally threatened and endangered species. This includes establishing a permanent river corridor boundary, user capacity thresholds, and additional management guidance. The establishment of a final boundary would provide additional protection of the river corridor from development, which could prevent disturbance to wildlife in the vicinity. Similarly, establishing user capacity thresholds would afford additional protections from recreational use.

Management strategies under the Proposed Action would further the existing protection of wildlife resources. These continued management strategies include project planning to consider conservation of suitable habitat components over the long term, including avoidance and/or minimization of additional land disturbance activities that could cause direct or indirect adverse effects to federally listed wildlife species. Existing management strategies, including regular monitoring and management directives as described above, would continue to occur to protect habitats and wildlife resources.

The Proposed Action would also have limited impacts on migratory birds. Although some project actions may have indirect short-term adverse effects on some individual birds, eggs, or nests, adverse effects at the population level are not anticipated due to the amount of habitat within and adjacent to the river corridor and across the Forest. Current Forest management, as well as management guided by the CRMP, creates and maintains both migratory bird habitat heterogeneity (including early and late-seral habitats), as well as habitat resilience to ecosystem stressors, such as abnormal high severity fire, insect and disease infestation, and prolonged drought. The potential for indirect adverse effects to migratory bird species has been reduced through adherence to Forest Plan standards and guidelines. These include riparian reserve buffers; rangeland management standards; limited ground disturbance; maintenance of canopy closure; snag/down woody debris retention and other measures. The Proposed Action is not anticipated to have significant, long-term adverse impacts to migratory birds.

The FS would also continue to manage ongoing recreation activities within the river corridors in compliance with existing consultations for ongoing activities as described above. Currently, Yosemite toad are monitored annually by the Forest and CDFW, and Sierra Nevada red fox are surveyed/monitored

by CDFW. Monitoring has indicated that no signs of recreational impacts to these species are occurring, and there are no capacity limitations in place. Recreational use would not increase due to implementation of capacity limitations, and ORV traffic would decrease from trail closures, restoration, and use limitations. The implementation of a monitoring program and capacity limitations to ensure that recreational use does not impact wildlife species and the implementation of capacity limitations are anticipated to benefit wildlife species by decreasing the current level of recreational impacts.

The Proposed Action, adoption of the CRMP, is administrative in nature, and no ground-disturbing activities are proposed. Therefore, the Proposed Action would not result in any direct impacts on wildlife species within the river corridor. However, the administrative actions outlined in the CRMP would strengthen protections for federally threatened and endangered species, SCCs, migratory birds, potential/occupied habitat for federally threatened and endangered species, and critical habitat for federally threatened and endangered species.

Cumulative Impacts

The No-Action Alternative would have no new impacts on wildlife and therefore would not contribute to the impacts of other actions. Consequently, there would be no cumulative impacts on wildlife under the No-Action Alternative. The Proposed Action would strengthen wildlife protections through the establishment of permanent river corridor boundaries, user capacity thresholds, and improved project planning considerations for threatened and endangered wildlife species, SCCs, and migratory birds. The stronger protections afforded by the Proposed Action would produce indirect, positive impacts on wildlife. However, there would be no incremental or substantive cumulative impacts on wildlife, as the Proposed Action is administrative in nature.

BOTANY

Affected Environment

The river corridor hosts a diverse array of plant species, with habitats ranging from the subalpine meadows of upper Glass Creek to sagebrush and sandy flats with minimal vegetation in the lower portion of Deadman Creek. Glass Creek Meadow is a locally important hiking destination for subalpine meadow and wildflower viewing. The meadow contains a high diversity of wet meadow-associated plant species compared to the surrounding area.

The quality of plant habitat in the river corridor is generally good, although there is some lodgepole pine (*Pinus contorta*) encroachment into Glass Creek Meadow. Although lodgepole pine is native to the region, it is known to quickly establish itself in disturbed or burned areas, and it is not typical of the subalpine prairie habitat present in Glass Creek Meadow.

Recreation at the river corridor, such as firewood collection, dispersed camping, OHV trails, and road use, may be impacting the condition of riparian vegetation. Trail impacts on Deadman and Glass Creeks in designated wilderness are currently unknown but may include some trampling of vegetation.

Special Status Plant Species

There are a number of special status plant species known to occur within the river corridor. There is one known population of the SCC plant, western single-spike sedge, on Deadman Creek, east of US Highway 395. There is the potential for additional SCC plant species associated with the river corridor. Little grapefern (*Botrychium simplex*) has been documented in Glass Creek Meadow, suggesting that other rare *Botrychium* species may occur elsewhere along the river corridor. Additional SCC species overlapping the river corridor include Mono Lake lupine (*Lupinus duranii*) and whitebark pine (*Pinus albicaulis*). However, these are both upland species not directly associated with the river (USDA Forest Service 2019a). There are a low number of rare species present compared to some other riparian systems, but more currently unknown rare species might be found if additional botanical surveys were conducted.

Table 11. Special Status Plant Species Known in the Owens River Watershed

Common Name	Species	Listing
Western single-spike sedge	*Carex scirpoidea* ssp. *pseudoscirpoidea*	G5T5
Little grapefern	*Botrychium simplex*	G5
Mono Lake lupine	*Lupinus duranii*	G2/S2
Whitebark pine	*Pinus albicaulis*	G3G4, FWS proposed threatened

Invasive Plant Species

The California Department of Food and Agriculture (CDFA) maintains a list of noxious weeds, with ratings based on the degree to which containment or eradication of the plants is required. A rating of Level A dictates that eradication or containment is required at the state or county level, whereas eradication of Level B plants is left to the discretion of the County Agricultural Commissioner. Finally, eradication or containment of Level C plants, the weeds of lowest concern, is only required when they are found in a nursery, or at the discretion of the County Agricultural Commissioner (CDFA 2015). The California Invasive Plant Council (Cal-IPC) also assigns threat levels to invasive plants, ranking species as either high, moderate, or limited threats (Cal-IPC 2006). These classifications are based on the level of ecological impacts, rate of dispersal, and speed of establishment of each invasive species.

The river corridor appears to be generally free of invasive plants at higher elevations. However, two invasive plant species, cheatgrass (*Bromus tectorum*) and bull thistle (*Cirsium vulgare*), occur near the lowest end of the corridor, east of US Highway 395. Both plants have a CDFA rating of Level C, the category of lowest concern. However, the Cal-IPC threat levels for bull thistle and cheatgrass are moderate and high, respectively, as summarized in Table 12. There are likely more nuisance, low-priority invasive species along the corridor, but no high-priority, noxious weeds currently pose a threat to the WSR.

Table 12. Invasive Plant Species in the River Corridor

Common Name	Scientific Name	CDFA Rating	Cal-IPC Level
Bull thistle	*Cirsium vulgare*	C	Moderate
Cheatgrass	*Bromus tectorum*	C	High

Impacts of No-Action Alternative

Under the No-Action Alternative, existing regulations and policies, such as the ESA, would continue to guide management and protect federally listed species within the river corridor. The existing management direction would continue to guide the status and management of SCC plant species such as western single-spike sedge. Existing guidance would also continue to dictate the approach toward invasive species management. Overall, the No-Action Alternative would have no impact on the botanical resources within the corridor.

Impacts of Proposed Action

Under the Proposed Action, a CRMP would be implemented to protect botanical resources in river corridor. SCC plant species such as western single-spike sedge would continue to be managed based on existing policies and regulations. However, the CRMP would add additional protection for botanical resources by establishing a final boundary, user capacity thresholds, and additional management guidance. The establishment of a final boundary would result in additional protections for the river corridor from development, which could prevent trampling of vegetation and damage to botanical resources. Similarly, establishing user capacity thresholds would afford additional protections from recreational use.

The CRMP, combined with project-specific planning, would benefit the conservation of plant habitat over the long term. The Proposed Action would also help enhance habitat for SCCs within the riparian corridor. Thus, the Proposed Action is anticipated to have indirect beneficial impacts on botany.

Cumulative Impacts

The No-Action Alternative would have no new impacts on plant life or habitats and therefore would not contribute to the impacts of other actions. Consequently, there would be no cumulative impacts on plants under the No-Action Alternative. The Proposed Action would strengthen protections on plants and habitats through the establishment of permanent river corridor boundaries, user capacity thresholds, and improved project planning considerations for threatened and endangered plant species. The stronger protections afforded by the Proposed Action would produce indirect, positive impacts on plant life. However, there would be no incremental or substantive cumulative impacts on plants or habitats, as the Proposed Action is administrative in nature.

RECREATION

Affected Environment

The river has outstandingly remarkable recreation values, according to a 2021 RA. The river corridor offers a diverse array of year-round recreational opportunities. These include camping, fishing, OHV driving, day hiking, and mule deer hunting. When there is sufficient snow, visitors can also enjoy snowmobiling, cross-country skiing, and some backcountry ski touring. There are four recreational service providers in the river corridor as well. These include a jeep tour company, two camping trailer drop-off providers, and a unique service that provides both guided trail rides and filming opportunities with horses.

There are five camping locations within the river corridor: Big Springs Campground, Glass Campground, Deadman Campground, a group campsite that can accommodate up to fifty people, and a number of dispersed campsites. The campgrounds are easily accessed via US Highway 395, and they are also accessible by OHV. Some campsites are large enough to accommodate recreational vehicles (RVs) and OHV trailers and are therefore unique in the area, as most nearby campgrounds cannot accommodate such large vehicles. There are also a few hiking trails along Glass Creek Meadow, Deadman Creek, and Lower Glass Creek, as well as several signed OHV routes. Visitors can enjoy beautiful, sweeping views, and they may also visit the unique Obsidian Dome, a popular sightseeing destination in the area.

Impacts of No-Action Alternative

Under the No-Action Alternative, the CRMP would not be adopted, and management of the river would continue to be governed by existing regulations. OHV use in the river corridor would continue to be monitored, as part of a California State Parks OHV restoration grant. However, if the CRMP is not adopted, no user capacity would be implemented for the river. User capacity is the maximum number of visitors per day, estimated from current use levels, that can use the river without causing deterioration of river values or condition. The CRMP specifies the user capacity for the river and sets triggers for adaptive management action to limit use levels if they become too high. The CRMP also requires regular monitoring of use levels to determine when capacity is exceeded.

If the CRMP is not adopted, general visitor use levels at the river would not be monitored as frequently, beyond the OHV monitoring currently happening, and there could be fewer mechanisms in place to limit the number of visitors. If the user capacity is exceeded and management action is not taken, the recreation ORV could suffer. An excess of visitors to the river segment could result in overcrowding, an increase in waste and debris, and additional human disturbance, all of which could degrade recreational experiences at the river. Thus, under the No-Action Alternative, there may be minor, indirect negative impacts on recreation.

Impacts of Proposed Action

Under the Proposed Action, adoption of the CRMP, user capacities would be set for the river, with associated triggers for adaptive management action. Separate user capacities were estimated for the combined recreational and scenic segments and for the wild segments, based on current use levels at the two sets of river segments. The recreational and scenic segments of the river are much more accessible than the wild segments, and all five of the camping areas are located within the recreational and scenic sections of the river corridor. User capacity for the combined recreational and scenic segments was estimated at 950 visitors per day. The user capacity of the wild segments, which are less accessible and offer fewer recreational opportunities, was approximately eighteen visitors per day, or two intergroup encounters per hour.

If either of these capacities are exceeded for a certain period of time, there could be detrimental impacts on recreation due to overcrowding, increased human disturbance, and higher levels of waste and debris. Upon adoption of the CRMP, use levels at these river segments would be monitored once every three years to determine whether user capacity has been reached or exceeded.

The CRMP outlines two triggers for adaptive management action for the combined recreational and scenic segments, and two separate triggers for the wild segments. Adaptive management actions are triggered for the recreational and scenic segments if specific campsite occupancy conditions are met. These are described in further detail in Table 8. Examples of adaptive management actions that would be triggered if these conditions are met include educating visitors about low impact camping practices, increasing monitoring frequency, and implementing additional signage or enforcement to keep visitors from camping outside designated areas.

Adaptive management actions are triggered at the wild segments when the number of intergroup encounters per hour on the Glass Creek Meadow Trail reaches two or more for a specified amount of time. The management actions set off by the two triggers for this section of the river include, for example, increasing monitoring frequency, ensuring that trail access points are appropriately sized, and implementing restrictions such as a permit reservation system.

The adaptive management actions triggered at the recreational and scenic river segments, as well as the wild segments, could counteract the negative impacts of overuse at each section of the river. The Proposed Action would therefore have minor, indirect beneficial impacts on recreation.

PREHISTORIC/TRIBAL CULTURAL VALUES

Affected Environment

The river has outstandingly remarkable prehistoric and tribal cultural values, as found in the 2021 Resource Assessment and ongoing consultation with the Mono Lake Kutzadika'a Tribe. Archaeological sites along the corridor are considered historic properties eligible for listing on the National Register of Historic Places (National Register) for their potential to inform our understanding of patterns of past human behavior and resource use of this area. The properties identified to date are predominately lithic scatters made up of materials procured from the nearby obsidian sources at Lookout Mountain and Obsidian Dome, and locales for processing resources associated with the riverine environment. The unique intersection of the geologic features where obsidian could be accessed, and the vital resource of water made this an area with a long history of habitation and use. Additional archaeological investigation of the historic properties within the corridor will likely produce temporally diagnostic evidence showing long-term use of these locations from the pre-European contact period through the ethnohistoric period.

Ethnographic and historic documentation also support the river corridor as an important place for the Native American tribal communities in this region. The corridor is within the shared cultural boundary of the Traditionally Associated Tribes of Yosemite National Park, including the Tuolumne Band of Me-wuk Indians, the Western Mono, and the Southern Sierra Miwuk who reside on the west side of the Sierra Nevada Crest, and the Owens Valley Paiute and the Mono Lake Kutzadika'a who reside on the east side of the crest. The headwaters corridor is the known linguistic boundary between the Owens Valley Paiute and the Mono Lake Kutzadika'a, a culturally important way to establish traditional territories. Early historic maps of the river identify an overlapping and bisecting trail system between Mono Lake to the north and Long Valley to the south. The Mono Lake Kutzadika'a assert:

"This area has important cultural values that sustained our people prior to Euromerican arrival and still serve Tribal needs in the present. These cultural resource values are integral to the springs and creeks in this area…"

Organized walks along the corridor still occur to this day, serving a critical function in the community to reaffirm cultural identity and connect the Mono Lake people back to their traditional lands and lifeways. The tribal cultural values within the corridor are defined by the tribe and accordingly, their condition is assessed by the tribe. While specific values remain confidential and known only to the Mono Lake Kutzadika'a Tribe, the tribe has expressed concern for visitor use levels, water quality and quantity, motorized recreation, and authorized mineral extraction as potential impacts to the ORV. These concerns indicate a desired condition in the corridor that would maintain the untrammeled visual and auditory qualities of the natural river environment.

Impacts of No-Action Alternative

Under the No-Action Alternative, there would be no changes to the location, setting, use, or condition of the existing prehistoric archaeological resources within the river corridor. The management of the prehistoric river values would continue to be governed by existing law, policy, and regulation, including but not limited to: the National Historic Preservation Act of 1966,(NHPA, 54 U.S.C. § 300101), as amended; the Archaeological Resources Protection Act; and Forest Service Manual 2360. These would continue to provide protection and consideration for historic properties eligible for or listed on the National Register, as well as resources of archaeological interest greater than 100 years of age, and places of importance identified by the tribes. Sites within the corridor will be monitored as necessary within the constraints of program management and Forest priority. Existing threats to prehistoric resources within the river corridor, such as damage due to weather events, OHV use, deterioration of materials, and vandalism, would continue at the present levels, though the risk for resources within the wild segments would remain low because of their remote locations.

If the CRMP is not adopted, the qualities of the Mono Lake Kutzadika'a tribal cultural values would continue in a similar trajectory. The tribe has expressed concerns related to maintaining a natural river environment that allows for the continuation of use at acceptable thresholds without degrading the special qualities of the river corridor. The management of existing recreation would continue without the benefit of visitor use and motorized vehicle limitations. Water quality and quantity concerns identified would continue to be monitored as required by federal law but may not be protected or further enhanced from current conditions. The program of monitoring the river corridor requested by the tribe would not be implemented.

Impacts of Proposed Action

Implementation of the Proposed Action would not result in any direct impacts on prehistoric or tribal cultural resources within the river corridor. The Proposed Action is administrative, and no ground disturbing activities or development within the river corridor is proposed. Therefore, there would be no changes to the existing conditions, access, or use of the existing prehistoric or tribal cultural resources.

Indirectly, the Proposed Action would result in an overall benefit to the prehistoric and tribal cultural resources within the river corridor due to long-term protection measures outlined in the CRMP. While the

existing threats to these resources would continue, as discussed under the No-Action Alternative section, thresholds would be in place to implement management actions if daily use of the river corridor approaches or exceeds the established user capacity. These management actions would provide the Forest with additional tools to protect these resources from threats due to visitor use, such as trampling and vandalism, or OHVs. These thresholds and management actions would provide additional long-term protections for these resources when compared to existing conditions and the No-Action Alternative. Overall, the prehistoric cultural resources would retain their historic integrity and would remain eligible for listing in the National Register. The monitoring and regularly scheduled field trips between the Mono Lake Kutzadika'a and the Forest will assist in identifying management needs and provide a collaborative program for enhancing and protecting the tribal cultural ORVs.

Cumulative Impacts

The Proposed Action, adoption of the CRMP, is administrative in nature. No ground-disturbing activities are proposed. Therefore, there would be no incremental cumulative impacts to prehistoric or tribal cultural resources.

OTHER DISCLOSURES

Civil Rights and Environmental Justice

The Mono Lake Kutzadika'a Tribe has expressed concern for existing visitor use levels, water quality and quantity, motorized recreation, and authorized mineral extraction as potential impacts to the Prehistoric/Tribal Cultural ORV, as described above. However, per earlier discussion of the consultation and involvement of Native American Tribes and the sections of the project analysis, a CRMP would improve protection of heritage resources important to the Tribes. Further, there are no known direct, indirect, or cumulative effects on Native Americans, minority groups, women, or civil rights.

EJ is defined by the EPA as the fair treatment and meaningful involvement of all people, regardless of race, color, faith, national origin, or income, in the development, implementation, and enforcement of environmental laws, regulations, and policies. To the extent practical and permitted by law, all populations are provided the opportunity to comment before any decisions are made and to share in the benefits of government programs and activities affecting human health and the environment. Executive Order 12898 requires federal agencies to identify and address any disproportionately high adverse human health or environmental effects on EJ communities. An EJ community is generally defined as any low-income community or community of color, as these communities have historically experienced disproportionate impacts of pollution and environmental degradation. The consideration of EJ communities in environmental planning and project development aids in the prevention of the unequal treatment of vulnerable EJ communities that can lead to adverse effects on public health and quality of life.

To identify potential EJ communities near Cottonwood Creek, EJ screening was performed on a study area that included the WSR corridor and a 1-mile radius around the proposed river boundary. This search was conducted using the EPA webtool EJSCREEN on March 2, 2022. Some potentially vulnerable EJ communities were identified in the surrounding area, based on demographic data from U.S. Census Bureau Block Groups. However, the Proposed Action is administrative in nature and does not involve any ground-disturbing activities. Adoption of the CRMP would therefore not have disproportionately high or adverse effects to EJ communities in this area compared to non-EJ communities. Further, scoping has

raised no issues or concerns associated with the principles of EJ. The Proposed Action is not anticipated to have any adverse impacts on human health or the environment, nor is it anticipated to result in substantial environmental hazards, or effects to differential patterns of consumption of natural resources. All interested parties will continue to be involved in commenting on the project and the decision-making process.

Congressionally Designated Areas

This EA discusses why the Proposed Action is needed, as well as the effects of the project on Congressionally designated areas including the Owens River Headwaters WSR and the Owens River Headwaters Wilderness. No Congressionally designated areas would be adversely affected by the Proposed Action, which is administrative in nature. No significant irreversible or irretrievable commitment of resources would occur upon adoption of the CRMP because its purpose is to protect and enhance the values of the area.

Prime Farm and Forest Lands and Wetlands

The Secretary of Agriculture issued Memorandum 1827 to protect prime farmlands, rangeland, and forest land. Prime forest land describes only non-federal land and is therefore not applicable to lands within the National Forest System, including the WSR corridor. The National Forest lands within the project area would be managed with consideration of impacts to private lands. The project area does not contain any prime farmlands or rangelands. Thus, the Proposed Action is in compliance with the Farmland Protection Act and Departmental Regulation 9500-3, Land Use Policy.

On May 24, 1977, Executive Orders 11988 and 11990 were both issued. Executive Order 11988 (Floodplain Management) outlines guidance related to floodplains, defined as low, flat areas adjacent to water bodies and subject to a one percent or greater chance of flooding in any given year. The Order directs agencies and other project planners to avoid occupancy and modification of floodplains where possible, provide measures to reduce the risk of flood-related loss, and evaluate project impacts on floodplains. The WSR corridor does not fall within a Federal Emergency Management Agency (FEMA) floodplain and therefore the Floodplain Management guidance does not apply.

Executive Order 11990 (Protection of Wetlands) provides protections for wetlands, outlining measures to avoid or reduce impacts related to the destruction and development of wetlands. The Proposed Action, adoption of the CRMP, does not include any development or destruction of wetlands, as no ground-disturbing activities are proposed. Some of the management actions described in the CRMP may benefit existing wetlands, through protection and improvement of water quality and the free-flowing condition of the river. Thus, the Proposed Action complies with Executive Order 11990.

There would be no direct, indirect, or cumulative adverse effects to prime farmlands, rangelands, prime forest lands, floodplains, or wetlands as a result of the Proposed Action.

Compliance with Other Policies, Plans, Jurisdictions

The alternatives are consistent with the goals, objectives, and direction of the Forest Plan, the accompanying final environmental impact statement, and the record of decision. Implementation of the No-Action Alternative or the Proposed Action would be consistent with all relevant Federal, State, and

local laws, regulations, and requirements designed for the protection of the environment, including the Clean Air and Clean Water Act.

Section 106 of the National Historic Preservation Act

Consultation with the California State Historic Preservation Officer (SHPO) was initiated in December 2020 pursuant to Section 106 of the NHPA, as amended, and its implementing regulation found at 36 CFR § 800. The CRMP is considered an "undertaking" as defined at 36 CFR 800.3 and requires analysis regarding the effect of the proposed plan on historic properties. The Area of Potential Effects (APE) for the proposed undertaking is the congressionally defined corridor as identified above. As part of the initial consultation with SHPO, BLM Ridgecrest Field Office designated the Inyo National Forest as Lead Agency for the purposes of NHPA Section 106, pursuant to 36 CFR 800.2 (a)(2) for the Owens River Headwaters and Cottonwood Creek WSRs. In response dated February 16, 2021, the SHPO elected to participate in the development of the CRMP and any related documents.

As agreed between agencies and concurred by the SHPO, the *Programmatic Agreement Among the USDA Forest Service, Pacific Southwest Region (Region 5), California State Historic Preservation Officer, Nevada State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Processes for Compliance with Section 106 of the National Historic Preservation Act for Management of Historic Properties by the National Forests of the Pacific Southwest Region* (Region 5 PA) is the appropriate mechanism to comply with Section 106. Wild and Scenic River Plans are specifically identified as a Class B Screened Undertaking that will have little to no potential to cause effects to historic properties present in the APE [Region 5 PA, Appendix D 2.3 (a)]. The identification of historic properties (36 CFR 800.4) included background research and records reviews conducted for APEs of each river corridor by agency personnel and permitted consultants with VHB. The results of the reviews are summarized as part of the prehistoric and historic values of the CRMP and in Forest Service document R2022050402542 (Blythe Haverstock 2022). Although present in both river corridors, this planning effort will have no effect to historic properties eligible for listing or listed in the National Register. Future activities that may be proposed within the WSR corridors will require additional Section 106 review, including, but not limited to field inventory and consultation with the SHPO and tribes.

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APPENDIX A: DRAFT EA COMMENT ANALYSIS

DRAFT EA COMMENT ANALYSIS

The Draft EA was posted in the Inyo Register on March 15, 2022. Comments concerning the Draft EA were identified from participants' correspondence. Written correspondence received from the following individuals and organizations form the basis for addressing the comments.

All correspondence has been reviewed by the interdisciplinary team in order to address the comments. The following table lists the comments received and responses. The interdisciplinary team considered these comments while completing the Final EA.

Table 1. Draft EA Comments

Comment	Commenter	Response to Comment
The final plans must: ▪ Must analyze current and projected groundwater extraction from the watersheds of Deadman, Glass and Dry Creeks. Points of groundwater extraction that must be considered include Mammoth Mountain Ski Area, recreational housing tracts and campgrounds, as well as the state road maintenance yard at Crestview. ▪ Must cite the Best Available Science from published research, not unpublished work that attempts to justify groundwater mining. ▪ The proposed User Capacity Limits do not represent recreational use over multiple years and grossly overestimate the carrying capacity of the Wild and Scenic River. Further, recreational capacity should focus on facilities and management actions that will create sustainable use of the river corridor into the future. ▪ Should also include standards, guidelines and management actions that protect the river corridor from water contamination, and activities that contribute to erosion, sedimentation, and riparian vegetation loss. ▪ Should incorporate an annual monitoring plan that would include annual surveys for recreational use, instream flows, water quality and quantity, wildlife, and historic and prehistoric sites. ▪ Should include descriptions of previous restoration or project work in the corridor that would inform management.	J. Baker, C. van Warmerdam, F. Chynoweth, M. Warner, M. Mata, T. Davis, D. Olson, A. Grimsted, D. Boucher	▪ Monitoring program modified to include collection of data for future analysis. Such an analysis will require a significant cost and will require the collection of data to begin the process of predicting the effects of climate change and projected increases in upslope groundwater withdrawals. ▪ There is no existing research specific to the analysis of flow at Big Springs or its contributing hydrology. FS only has data from consultants that justify groundwater withdrawals. ▪ User capacity addresses annual recreational use of the WSR corridor. Capacity determinations are based on observed use levels, existing campgrounds and campsites, and current resource conditions. Monitoring thresholds are set to identify the need for new management actions when use increases. Potential management actions cover a range of options depending on what conclusions are drawn from monitoring. ▪ Management standards, guidelines, and actions are included in the CRMP in the Management Direction section. ▪ A monitoring plan is included in the CRMP that addresses these items. It is designed to identify potential effects to ORVs, river values, and user capacity while

Comment	Commenter	Response to Comment
		recognizing the reality of very limited resources to conduct extensive monitoring. ■ Previous restoration work is described in the Baseline Conditions section of the CRMP.
For the management plans to be effective, they must consider and address lands and facilities, recreation, and current and future actions and use the Best Available Science to make determinations about management.	J. Baker	This CRMP is programmatic in nature and establishes the ORVs and capacity limit, as well as sets a strategy for monitoring and implementation.
Commenter hopes that WSR designation will exclude all off-road vehicle usage in Deadman, Glass Creek, and Big Springs campgrounds.	J. Parker	The ORH WSR was designated in 2009. The Travel Management planning process completed by the Inyo NF in 2009 designated roads and trails open to specific types of motor vehicles. The CRMP does not change which roads and trails are open to motor vehicles.
No camping should be allowed in the wilderness area outside of developed sites	L. Hidy	Due to the very low level of use within the wild segment of ORH, the FS does not intend to prohibit camping in this area. The Management Direction in the CRMP includes containing dispersed camping areas to mitigate potential negative effects.
User Analysis focuses too greatly on designated campground use while discounting day use and dispersed use	P. McFarland	Dispersed camping is accounted for in the capacity analysis. Observation by local recreation managers indicates that most day use in the area is associated with campers.
The statement that “Ranchers downstream of Big Springs report that its discharge is relatively constant from year to year, indicating that the aquifer feeding Big Springs is large enough that discharge is little affected by interannual variation in precipitation or groundwater withdrawals” does not provide evidence as to the size, dynamics, or sustainability of a complex hydrogeologic system, nor does it support a “no impact” conclusion from unquantified groundwater pumping. This unsupported “groundwater pumping” conclusion should be removed from the CRMP at both occurrences, as it attempts to brush off future analysis and consideration of possible impacts. Alternatively, more data are needed to defend the	P. McFarland, S. Barak	This statement and the groundwater pumping statements have been revised to note that this information is based on historical evidence and are unlikely to be a good predictor of conditions relative to the effects of future climate change.

Comment	Commenter	Response to Comment
conclusion that groundwater pumping on Mammoth Mountain does not affect flow at Big Springs.		
The parking area at the main Glass Creek trailhead needs to be evaluated; simple delineation using natural materials and signage would be helpful here.	P. McFarland	This action has been moved from a potential future management action to the "Management Actions" section.
Include a management action to install signage along the WSR corridor noting that these stream sections are, in fact, part of the National Wild & Scenic River system.	P. McFarland, FOI	This action has been added to the "Management Actions" section.
The CRMP and Resource Assessment do not provide reasonable up-to-date estimates of watershed recharge volumes and do not recognize the geochemical link between groundwater on Mammoth Mountain and Big Springs. Fails to provide crucial information regarding current and planned increases in groundwater extraction from the Ski Area in light of the current drought and the impacts of reduced snowpacks, shorter winter seasons, and a decline in groundwater recharge from snowmelt.	S. Barak	The CRMP is a programmatic document that is not intended to address project-specific concerns with a detailed approach, and thus is not the appropriate effort under which to analyze prohibiting groundwater extraction.
The statement that the aquifer is so large that discharge is "little" affected by interannual variation in precipitation is just plain wrong. Substantive data are needed to characterize the Upper Owens River watershed hydrology, recharge and groundwater resources to determine the impacts of groundwater extraction as winters become warmer and less precipitation falls as snow.	S. Barak	This statement and the groundwater pumping statements have been revised to note that this information is based on historical evidence and are unlikely to be a good predictor of conditions relative to the effects of future climate change. Language has also been added to discuss the groundwater extraction in the region and its potential effects.
The CRMP should analyze available data that are more recent than the 1990s and 1980s sources used.	S. Barak	There are no research documents specific to determining the effects of groundwater extraction to the discharge at Big Springs that FS is aware of. Research on this topic would be costly and likely why the only analyses completed to-date have been by consultants to support groundwater withdrawals at MMSA and Mammoth Lakes.
Motorized activity should be kept to a bare minimum because of its detrimental effects on wildlife and the environment. Where allowed, it should be regulated and regulations enforced. Further action should be proposed to redirect OHV crossings from crossing the WSR	D. Olson, Cal Wild	The 2009 Travel Management Decision determined open and closed roads through analysis in an EIS. The one wet crossing of Owens River Headwaters has been armored and is monitored. All other crossings are on forest roads across bridges or culverts.

Comment	Commenter	Response to Comment
The CRMP brings into question whether the 2020 user data provides an adequate assessment of recreation capacity and use. One commenter recommended that finalization of the CRMP be delayed and include more accurate and up to date data in order to provide the best possible picture of what visitor use is outside the previous timeframe. Given the data gathering/methodology to support this analysis, the statement that "most day use in the area is focused on the campgrounds and dispersed campsites" (CRMP, p24) is unsupported by any evidence or discussion and should be removed. The focus on developed campground occupancy is both misplaced and misleading.	Cal Wild, FOI	Recreation use was measured on trails and in campgrounds. The number of campsites was used to estimate maximum use where direct measurement of use was not possible. Professional judgement by on-the-ground managers was used to understand patterns of use in the area. Trail counter data collected during the fire closure were not used to calculate capacity. The data are accurate and current as of 2020.
The CRMP should propose actions to identify the source of the bacteria pollution in Glass Creek or mitigate or eliminate either pollution problem.	Cal Wild	The CRMP includes a monitoring action for the Forest Service to conduct annual water quality monitoring above and below Glass Creek campground and the recreation residence tract.
The CRMP should include the following standards: Reduce the size or relocate the Glass Creek Campground if it continues to be a source of riparian vegetation impacts and water pollution. Prohibit OHV crossings of any designated river segment regardless of classification to reduce erosion, sedimentation, and vegetation impacts. See previous comments about water quality.	Cal Wild	1. Management of Glass Creek campground is included in the management actions. 2. There is only one wet crossing. It is hardened and is monitored as part of state-funded OHV ground operations grants.
The CRMP should add these management and potential future management actions: ■ Investigate all potential sources of bacteria and sediment pollution, including the existing campgrounds, recreational residence tract, CalTrans Crestview Maintenance Yard, and visitor uses. ■ Consider establishing a RV dump for the Glass Creek Campground to reduce illegal dumping of waste that may contribute to bacteria pollution in Glass Creek. ■ Reroute or potentially close OHV crossings that contribute to erosion, sedimentation, and loss of riparian vegetation. ■ Establish a system of camping permits or tracking for all campgrounds (even those that are free) to better collect user data.	Cal Wild	1. The CRMP includes monitoring at campgrounds, Glass Creek recreation residence tract, dispersed campsites, and OHV use. 2. There is no evidence of need for an RV dump station at this location. The local managers and hosts have not observed a problem here. 3. The one wet crossing of Owens River Headwaters has been armored and is monitored. All other crossings are on forest roads across bridges or culverts. The ORH WSR was designated in 2009. The Travel Management planning process completed by the Inyo NF in 2009 designated roads and trails open to specific types of motor vehicles. The CRMP does

Comment	Commenter	Response to Comment
▪ Conduct a hydrology study to determine the potential impacts of Dry Creek groundwater extraction on flows in the WSR (including Big Springs). ▪ Altering the culvert or relocating camp sites in the Upper Deadman Creek campground should be a definitive management action and not a potential management action. ▪ Consider relocating out of the riparian zone and extending the informal trail that heads upstream from Glass Creek Campground to connect with the existing Glass Creek Meadows Trail.		not change which roads and trails are open to motor vehicles. Management actions in the CRMP also address this concern. 4. Campground use levels provide a sufficient proxy for overall use. The Inyo National Forest has limited capacity to conduct monitoring and must select indicators that are realistic and sufficient. 5.FS acknowledges that a hydrology study would be advantageous but also very costly. In the interim, available hydrologic data will be collected for future analysis and consideration for future actions related to additional groundwater extraction and the effects of climate change. 6. These possible actions require further analysis to determine necessity. 7. This is already included in the Management Actions section of the CRMP.
The following actions should be added to the monitoring plan: ▪ Annually conduct water quality monitoring for bacteria pollution and sediment. ▪ Annually monitor riparian vegetation to determine impacts of recreational use. ▪ Annually monitor the Yosemite toad population in Glass Creek Meadows and where found in Deadman Creek to determine impacts of recreational use. ▪ Annually monitor the western singlespike sedge population on Deadman Creek and conduct surveys for other potential SCC plant species. ▪ Annually monitor riparian vegetation and the bird species its supports. ▪ Conduct a survey for aquatic spring snails, including Wong's and Owens Valley spring snails. ▪ Annually assess campground use to better quantify potential visitor impacts on the WSR. ▪ Establish permanent flow monitors to annually assess potential flow impacts from climate	Cal Wild	▪ Water quality monitoring is already included in the Monitoring Plan section of the CRMP (see Table 5). ▪ Vegetation monitoring is already included in the Monitoring Plan section of the CRMP (see Table 5). ▪ The Land Management Plan for the Inyo National Forest (2019) provides a monitoring plan for vegetation and SCC species including regular surveys for new populations of SCC species. Monitoring and surveys for Yosemite Toad are conducted annually by the Forest in conjunction with California Department of Fish and Wildlife (CDFW). ▪ The Forest partners and collaborates with multiple university researchers, volunteer groups, etc., that regularly

Comment	Commenter	Response to Comment
variability and from upstream groundwater extraction.		survey/monitor for a wide range of species including spring snails. ■ See response to #2, 3 & 4. ■ See response to #2, 3 & 4. ■ Campground monitoring and OHV use tracking is already included in the Monitoring Plan section of the CRMP (see Table 5). ■ A USGS stream gage (#10265100) is already present below Big Springs.
The CRMP should consider a variable width corridor that encompasses the 58 spring/seep systems in the Deadman Creek headwaters, of which 95 percent appear perennial.	Cal Wild	The corridor boundary was expanded in the ORH headwaters to include all but the highest elevation springs; the remainder of the spring/seep systems are protected within designated wilderness.
In the Planning Context, WSRA section discussing Section 7 determinations, please include language to further clarify that "any water resources project" also includes "dams; water diversion projects; fisheries habitat and watershed restoration/enhancement projects; bridges and other roadway construction/reconstruction projects; bank stabilization projects; channelization projects; levee construction; recreation facilities."	FOI	Language has been added to the CRMP to further clarify water resources projects.
Add language to the "Land Use and Access in the River Corridor" section acknowledging popular recreational uses of this area – fishing (especially from Big Springs downstream to the terminus of the corridor), dispersed camping, hiking, auto touring and winter recreation - as supported by later discussion (see CRMP, p18). Also acknowledge the total designated motorized vehicle route mileage which falls within the designated river corridor and enumerate all designated route river crossings, be they bridges, culverts or in-stream river crossings. This information is an important baseline for future land use and access management.	FOI	Language has been added to the CRMP including the additional recreational opportunities that the commenter identified, as well as the total designated motorized vehicle route mileage. The 2009 Travel Management Decision specifies open and closed roads through analysis in an EIS. The one wet crossing of Owens River Headwaters has been armored and is monitored. All other crossings are on forest roads across bridges or culverts. Road crossings are shown on the project maps.
To protect ORVs and address the apparent knowledge gap in hydrologic function, the CRMP should be amended to include standards that directly address the need for better understanding of this unique hydrologic system when evaluating any	FOI, P. McFarland	Projects proposed in the bed or banks of a designated (or Congressionally authorized study) river require a Section 7 determination under the Wild and

Comment	Commenter	Response to Comment
future or ongoing project, including proposals for groundwater mining within the Headwaters groundwater basin. Specifically: ▪ Ensure apparent knowledge gaps will be filled when analyzing new or re-issued permits for water projects that may impact the WSR. ▪ Ensure protection of groundwater-dependent spring systems within the WSR corridor through proponent-funded, peer-reviewed scientific study for all water related projects proposed within the Deadman, Glass and Dry creek watersheds. Minimize and mitigate any identified potential impacts to WSR resources through proponent-funded monitoring and scientifically-supportable water quantity limits. ▪ Studies designed to better understand the complex hydrologic system of the Headwaters WSR must be required as part of any future NEPA consideration on a proponent-funded, cost-recovery basis. ▪ If these studies indicate a need for future monitoring to ensure protection of the WSR water quality and quantity, such monitoring should be included on a cost-recovery basis.		Scenic River Act (WSRA). Section 7 of the act requires evaluation of the effects of proposed water resources projects on a river's values. Even if the proposed project is outside of the designated river corridor, a Section 7 analysis may be done if the project would unreasonably diminish the river values present at the date of designation. Such project-specific analyses may include studies such as groundwater modelling.
Commenter questioned why a Scenic section of Glass Creek from the end of 03S26K extending upstream to the Wilderness boundary is rated "Medium." Requests that FS amend the SIO designation for this section to High or Very High to reflect the on-the-ground conditions.	FOI	SIO determinations were made during the forest planning process completed in 2019.
Figure 8 should include Glass Creek, Upper & Lower Deadman, Hartley and Big Springs campgrounds which are referenced in the text. Additionally, please use a more discerning roads layer to identify state highways, county roads and Forest-designated routes as unique route systems.	FOI	Figure has been revised
To support the management action related to dispersed campsites, please add an annual monitoring action to quantify the number and extent of dispersed campsites within the WSR corridor.	FOI	Campsite monitoring is already conducted in the ORH Wilderness as part of Forest Plan wilderness character monitoring. For the recreation segment, monitoring of campground and dispersed campsite occupancy is proposed to occur every three years, unless a trigger is reached and action is taken to increase the monitoring frequency. Campground use

Comment	Commenter	Response to Comment
		serves as a proxy for overall use of the recreation segment and is linked to triggers that would address growing use in the segment. In addition, dispersed campsite monitoring currently occurs as resources or partners are available as part of the OHV program.
Must cite the Best Available Science from published research, not unpublished work that attempts to justify groundwater mining. The environmental analysis must include information on potential water pollution sources and propose management actions that address water quality problems. The Forest Service has a responsibility to proactively protect and enhance the water quality of the Owens River Headwaters Wild and Scenic River.	J. Baker, C. van Warmerdam	There are no research documents specific to determining the effects of groundwater extraction to the discharge at Big Springs that FS is aware of. Research on this topic would be costly and likely why the only analyses completed to-date have been by consultants to support groundwater withdrawals at MMSA and Mammoth Lakes. Water Quality monitoring is proposed and if results reveal that problems exist, then an appropriate action and response plan can be developed.
The EA did not adequately analyze groundwater extracted by users such as Mammoth Mountain Ski Area, housing, etc.	A. Grimsted	Language has been added in the Hydrology section describing the groundwater extraction at MMSA and Mammoth Lakes for informational purposes.
Fails to provide crucial information regarding current and planned increases in groundwater extraction from the Ski Area in light of the current drought and the impacts of reduced snowpacks, shorter winter seasons and a decline in groundwater recharge from snowmelt.	S. Barak	Monitoring is proposed. Analysis of the potential impacts from increased groundwater extraction and climate change is not within the scope of this document and FS acknowledges that this would be beneficial but very costly to perform.
Include the Sierra Nevada red fox as a wildlife ORV because of the documented occurrence of the fox in 1988 along Deadman Creek and the fact that the habitat has not degraded substantially since.	CBD	Wildlife is already an ORV and the CRMP includes the Sierra Nevada red fox in the discussion of this ORV, as one of the reasons the area is outstandingly remarkable.
CRMP should justify why limiting user capacity to current use is unreasonable and describe the level of impact of the current use as a baseline	CBD	An alternative that set user capacity at current use levels, rather than at the estimated user capacity, was added to the EA as an alternative considered but dismissed from detailed analysis.

Comment	Commenter	Response to Comment
"Redesigning OHV crossings [of the river] if monitoring indicates significant impacts" should be a Management Action rather than a Potential Future Management Action.	TU/BHA	Retained this action as a Potential Future Management Action because this action will be considered in the future as one of the possible options to address impacts. However, it may not be the only, or the most effective, option depending on the specific impacts and location, which is why it is included as "potential.:
Per scoping comments, analyze how capacity in wild segment will not impact the Yosemite toad and Sierra Nevada red fox. EA does not analyze impacts to the toad from the proposed action. Also analyze how capacity will not impact seasonal mule deer migration and not impact diversity of butterfly species.	CBD	Yosemite Toad are monitored annually by the Forest and CDFW, and Sierra Nevada red fox are surveyed/monitored by CDFW. Monitoring has indicated that no signs of recreational impacts to these species are occurring. Currently, there are no capacity limitations in place. Recreational use would not increase due to implementation of capacity limitations, and OHV traffic would decrease from trail closures, restoration, and use limitations. The institution of monitoring and implementation of capacity limitations to ensure that recreational use does not impact wildlife species and the implementation of capacity limitations are anticipated to benefit wildlife species by decreasing the current level of recreational impacts. A statement detailing these efforts has been added to the EA.
Active mining and motorized trails are not compatible within the Owens River Headwaters WSR corridor and Riparian Conservation Areas because they degrade the qualities for which the areas were created	Mono Lake Kutzadika'a Tribe (Tribe)	There are currently no active claims in the corridor; however, the rivers are not withdrawn from mineral entry in the legislation. Nevertheless, future proposals would be evaluated for their potential to degrade ORVs and river values as part of the NEPA process. Decisions about OHV routes and roads remaining open or closed were made in the Travel Management planning process completed by the Inyo NF in 2009.

Comment	Commenter	Response to Comment
		This process designated roads and trails open to specific types of motor vehicles. The CRMP does not change which roads and trails are open to motor vehicles. Closures and mitigation measures in the Travel Management decision and Deadman Creek WRAP have been implemented. Continued implementation and maintenance is incorporated into the CRMP.
There are cultural resource values present that would contribute to the ORVs for Owens, including cultural values prior to Euromerican arrival and that serve present tribal needs. These resources are integral to the springs and creeks in the area.	Tribe	Based on consultation with the Mono Lake Kutzadika'a, a Tribal Values ORV was added to the CRMP. The Forest will continue consultation with tribes to address their concerns and incorporate their input.
Need for Proposal should add tribal needs to list, as tribal is neither private nor public	Tribe	Language has been added to this section of the EA.
Capacity is overestimated and could undermine the protective measures the plan is trying to achieve	Tribe	The CRMP provides a programmatic-level management direction, management actions and monitoring strategy. The capacity limits established include triggers that are designed to be conservative and proactive and implement management strategies intended to preserve the ORVs before the capacity levels are reached.
Add potential actions to take to potential monitoring items table, similar to the capacity monitoring items	Tribe	The CRMP provides a programmatic-level management direction, management actions and monitoring strategy. The management actions are a list of potential strategies to implement if the monitoring finds action is needed to protect a river value. If the threat to a river value is from visitor use, the triggers in the capacity monitoring table exist to detect that threat early.
Revise statement about corridor use being relatively low, in light of recent increase in visitation in Mono County	Tribe	This language has been revised in the EA.
Clarify how Proposed Action would protect groundwater, including monitoring	Tribe	Language has been added to the EAs to clarify that Sec 7 of the WSRA would protect groundwater.

Comment	Commenter	Response to Comment
		Projects proposed in the bed or banks of a designated (or Congressionally authorized study) river require a Section 7 determination under the Wild and Scenic River Act (WSRA). Section 7 of the Act requires evaluation of the effects of proposed water resources projects on a river's values. Even if the proposed project is outside of the designated river corridor, a Section 7 analysis may be done if the project would unreasonably diminish the river values present at the date of designation. Such project-specific analyses may include studies such as groundwater modelling. Further, the CRMP includes a monitoring action to "continue documenting water quality metrics at existing monitoring locations…" which could include the existing stream gage below Big Springs.
Clarify what is meant by potential EJ communities; was the Tribe one of those communities? Census data does not always identify Native American communities well	Tribe	The EJScreen ACS Summary report does search for "American Indian" populations, though does not specify by tribe. The percentage from the report came back at 0% within a 1-mile radius of the project area with a margin of error +/- 138
After addressing comments please release the documents for "additional public comment"	CBD	Per 40 CFR 1503.1, agencies are not required to release documents for additional public comment following the public comment period on the draft NEPA document. The final EA will be released and include how the agencies responded to public comments received.