United States Department of the Interior

FISH AND WILDLIFE SERVICE

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May 6, 2016

Cons: # 02ENNM00-2016-F-0300

Maria T. Garcia, Forest Supervisor
Santa Fe National Forest
11 Forest Lane
Santa Fe, New Mexico 87508

Dear Ms. Garcia:

Thank you for your request for formal consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973 (16U.S.C. § 1531 et seq.), as amended (Act). We received the Biological Assessment (BA) (May 1, 2015), which evaluates the impacts to the New Mexico meadow jumping mouse (*Zapus hudsonius luteus*) (jumping mouse) and its designated critical habitat from ongoing livestock management on the San Miguel, San Diego, and Cebolla/San Antonio Allotments, Jemez Ranger District, Santa Fe National Forest (Forest Service).

The proposed action is the continuation of livestock grazing for the San Miguel, San Diego, and Cebolla/San Antonio Allotments. You determined that the proposed action "may affect, is likely to adversely affect" the jumping mouse and its designated critical habitat and requested initiation of formal consultation.

This biological opinion (BO) relies on the revised regulatory definition of "destruction or adverse modification" of designated or proposed critical habitat from 50 Code of Federal Regulations (CFR) 402.02. As of February 11, 2016, the definition of "destruction or adverse modification" has been revised to align it with the conservation purposes of the Endangered Species Act of 1976, as amended (Act), and the Act's definition of "critical habitat" (81 FR 7214). Specifically the rule states: "Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features." The revised definition continues to focus on the role that critical habitat plays for the conservation of listed species and acknowledges that the development of physical and biological features may be necessary to enable the critical habitat to support the species recovery.

The current document constitutes the Service's BO based on our review of the proposed action and its effects on the jumping mouse and its designated critical habitat in accordance with section 7 of the Act.

CONSULTATION HISTORY

This BO is based on the information provided in your BAs, other information available to the Service, email conversations with your staff, data in our files, data presented in the final rule to list the jumping mouse as endangered and the designated critical habitat rule (Service 2014a; Service 2016) and the May 2014 Species Status Assessment Report (SSA Report) for the jumping mouse (Service 2014b). References cited in this BO are not a complete bibliography of all literature available on the jumping mouse. A complete administrative record of this consultation is on file at this office.

Table 1. Summary of the consultation history for the proposed action.

January 7, 2014	William Amy, (Santa Fe National Forest Wildlife Program Manager) and Steve Plunkett (Southwestern Regional Office (RO) Threatened, Endangered, and Sensitive Species Biologist) met with Eric Hein of your staff to discuss ongoing grazing.
January 16, 2014	Eric Hein, William Amy, Steve Plunkett, Jon Williams, and others met in the field at the occupied jumping mouse site along the Lower Rio Cebolla.
April 24, 2014,	Staff from the Santa Fe National Forest and Eric Hein met with permittees, during which Mr. Hein discussed the biology and habitat requirements of the jumping mouse.
August 12, 2014	The Santa Fe National Forest, the grazing permittees, and Service staff met at the request of Representative Lujan (D-NM).
August 19, 2014	Santa Fe National Forest staff met with FS RO staff, members of Service staff, and the grazing permittees at the Lower Rio Cebolla pasture of the San Diego allotment to discuss the current grazing operations, during which Service presented information about jumping mouse biology and habitat needs and listened to permittee concerns.
October 7, 2014	Forest Service met in the field with permittee Mike Lucero and representatives with the Service to ground truth the proposed temporary fence location on the Cebolla Riparian Pasture of the San Diego Allotment; making slight adjustments to accommodate topography and cattle movement.
May 1, 2015	Eric Hein and Sarah Bielski (Service) met with Chris Boone and Ramon Borrego (Forest Service) in the field at the occupied jumping mouse site along the Lower Rio Cebolla.
March 26, 2015	The Service reviewed an early draft of the biological assessment for the Jemez Ranger District.
April 30, 2015	The Service reviewed the draft of the biological assessment for the Jemez Ranger District.

August 19, 2015	Eric Hein met with Chris Boone and Ramon Borrego (Forest Service) to discuss/answer ongoing grazing consultation questions.
August 26, 2015	The Jemez Ranger District submitted supplementary information on grazing permits for the consultation.
August 27, 2015	The Service informed the Jemez Ranger District of permit non-compliance when livestock were observed within the Cebolla Riparian Pasture on the Cebolla/San Antonio Allotment.
October 6, 2015	Service personnel met with Forest Service Regional Office personnel to discuss the ongoing grazing consultation.
October 6, 2015	Forest Service submitted supplemental information for the Cebolla Riparian Pasture.
November 6, 2015	Service personnel met with Santa Fe National Forest personnel to discuss a new proposed action for the ongoing grazing consultation.
December 14, 2015	Service personnel met with Santa Fe National Forest personnel to finalize a new proposed action for the ongoing grazing consultation.
January 21, 2016	The Jemez Ranger District submitted a request for concurrence on a proposal to protect and improve habitat conditions for the jumping mouse within the San Diego and Cebolla San Antonio Allotments.
February 3, 2016	The Service concurred with the proposal to protect and improve habitat conditions for the jumping mouse within the San Diego and Cebolla San Antonio Allotments.
February 4, 2016	The Service issues a draft biological/conference opinion for the proposed action on the San Diego and Cebolla San Antonio Allotments.
March 4, 2016	Forest Service contacted the Service to set up a meeting to discuss the draft biological/conference opinion for the proposed action on the San Diego and Cebolla San Antonio Allotments.
March 16, 2016	Forest Service personnel and Service personnel meet to discuss changes in their proposed action and to no longer consider the conference opinion, since designated critical habitat for the Jumping Mouse is now final.
March 21, 2016	Forest Service and Service personnel continued discussion concerning the biological opinion and the take statement and triggers for reinitiation.
March 24, 2016	Forest Service submitted a Biological Assessment supplement to the Service via email.
March 26, 2016	Forest Service submitted shapefiles to accompany the Biological Assessment to the Service via email.
March 29, 2016	Forest Service and the Service held a conference call to discuss components of the biological opinion and request additional information.

April 4, 2016	Forest Service submitted additional maps and spreadsheets with the acres protected and not protected from the proposed action within occupied and unoccupied critical habitat to the Service.
April 8, 2016	The Service submitted a draft of the final biological opinion for a two-week review with applicants on the Section 7 consultation.
April 26, 2016	Service personnel met with both the Forest Service personnel and grazing permittees to discuss the biological opinion to provide comments on the proposed action.
May 2, 2016	Service emailed both Forest Service personnel and grazing permittees to comment on changes to draft biological opinion before finalization.

BIOLOGICAL OPINION

DESCRIPTION OF THE ACTION AREA

The action area is defined as all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action (50 CFR section 402.02). In delineating the action area, we evaluated the farthest-reaching physical, chemical, and biotic effects of the action on the environment. For this consultation, the action area includes the San Miguel, San Diego and Cebolla/San Antonio Allotments on the Santa Fe National Forest.

DESCRIPTION OF THE PROPOSED ACTION

The proposed action of this consultation is the continuation of ongoing livestock grazing as authorized through the Term Grazing Permits for the San Miguel, San Diego, and Cebolla/San Antonio Grazing Allotments on the Santa Fe National Forest. These five Term Grazing Permits (Table 2) are reviewed and validated through annual operating plans for these three grazing allotments over the full term of each permit. The life of the consultation varies for each allotment, but extends until each term grazing permit expires (Table 2). However, each permit may be renewed upon expiration under the same terms and conditions and for the full term of the expired or waived permit. The current utilization standards are 40 percent. Utilization standards are determined using the stubble height method. The minimum stubble height measurement that is acceptable for key species range from 10.1 centimeters (cm) (4 inches (in)) for most grasses, 15.2 cm (6 in) for fescues, and 20.3 cm (8 in) for riparian vegetation.

Table 2. Allotment permits and expiration dates for the San Diego and Cebolla/San Antonio Allotments.

Allotment	Permit Expiration Date
San Diego	12/31/2017
San Miguel	12/31/2023
Cebolla/San Antonio (permit 1)	12/31/2023
Cebolla/San Antonio (permit 2)	12/31/2021
Cebolla/San Antonio (permit 3)	12/31/2018

Ongoing Livestock Grazing: The grazing strategy for each allotment is implemented by using management prescriptions that are identified in the most current National Environment Policy Act (NEPA) document. Ongoing grazing within the allotments is being managed through Allotment Management Plans (AMPs), with adjustments that will protect jumping mouse occupied habitat and designated critical habitat from Forest Service regulated use. On February 3, 2016, we completed an informal consultation (Cons. # 02ENNM00-2016-I-0252; Appendix 1) that included conservation measures to minimize the impacts of livestock grazing on the jumping mouse and its designated critical habitat. These actions are hereby incorporated by reference and briefly summarized below.

On the San Diego Allotment, occupied jumping mouse habitat would be protected by a Forest closure order on 92.27 hectares (ha) (228 acres (ac)). The closure order will prohibit conducting any activity or entering the areas encompassing "occupied habitat" for the endangered jumping mouse, except those activities identified in the Forest Closure Order as being exempt. In addition, a permanent pipe fence would be constructed around the perimeter of occupied habitat. This fence would be in the same locations where temporary barbed wire exclosures are currently and include an additional 2.2 ha (5.5 ac) between the Lake Fork Corral and the large exclosure where Forest Road 376 crosses the Rio Cebolla. The fence will only be built based on the condition described below under additional conservation measure 2. Approximately 8 kilometers (km) (5 miles (mi)) of fence would be constructed on both Schoolhouse and Lake Fork Mesas. Lake Fork Corral, in the Lake Fork Pasture, would also be rebuilt.

In the Cebolla San Antonio Allotment, approximately one mile of fence would be constructed off New Mexico (NM) State Highway 4 and across NM State Highway 126. In addition, 6.44 km (4 mi) of fence within the Road and Barley pastures on the east side of the Cebolla Riparian pasture will be installed and a cross-fence just north of designated jumping mouse critical habitat in the Cebolla riparian pasture. Two cattle guards would also be installed along this fence where it crosses Forest Roads 105 and CFF 199.

Jumping mouse habitat within these allotments is listed in Appendix 1. Based on surveys conducted in 2005 and 2006, jumping mice occupy habitat that occurs on the San Diego and the Cebolla/San Antonio Allotments. All other areas of critical habitat are believed to be unoccupied, but essential for the conservation of the jumping mouse.

Forest Service personnel will perform compliance checks weekly throughout the grazing seasons to ensure that breaches of exclosed riparian areas and closed grazing pastures within designated critical habitat are detected quickly and reported to the Service and permittee within 24 hours of detection. Additional checks will be performed when breaches are detected to ensure permittees remove livestock from exclosures and closed grazing pastures. These checks will be documented in the project record and provided to the Service after each grazing season. If livestock are found within the excluded riparian and areas closed to grazing, they will be reported to the permittee who will be instructed to remove the livestock and comply with the terms of the term grazing permit within 72 hours of official notification.

San Miguel Area: The San Miguel Allotment is approximately 8,869 ha (21,916 ac) with elevation that range from 2,225 meters (m) to 2,865 m (7,300 to 9,400 feet (ft.)). The allotment is dominated by ponderosa pine and mixed conifer at higher elevations with lesser amounts of pinyon juniper at the lower elevations of the allotment. Areas suitable for livestock grazing include grassland stringers and swales, open ponderosa pine forest, mixed conifer timber areas, and riparian corridors along the Rio de las Vacas.

The San Miguel Allotment contains three pastures that are within unoccupied designated critical habitat for the jumping mouse; Aspen, Lower Vacas Riparian, and the Diego pastures. This allotment does not contain occupied habitat. However, the Aspen and Lower Vacas Pastures contain one historical jumping mouse observation in each. The La Cueva pasture is the most south pasture; it is located outside but adjacent to unoccupied proposed critical habitat. This pasture may have potential suitable habitat, but will require further assessment. For all pastures, the Rio de las Vacas is the only source of water and it is within unoccupied proposed critical habitat. All pastures are being grazed within the 40% grazing utilization standards. The Diego and La Cueva are non-capable range pastures, that exhibit slopes of >60 %, canopy cover of > 80% and forage production of <100 pounds (lbs.)/ac. Therefore, these combined attributes deter livestock use and result in very light grazing pressure. However, the most important grazing management issue of this allotment is the fences. The 1998 Environmental Assessment proposed pasture fences throughout the allotment. These fences were to use existing allotment boundaries and natural barriers to provide infrastructure throughout the allotment in order to define the pastures and to implement a true grazing rotation. To date, these fences have not yet been constructed; therefore, livestock have access to the entire allotment.

To manage livestock and forage use, the permitee currently uses pasture areas located within natural barriers, plus salting and herding techniques to graze, but there is no true rotation grazing system and no way to structurally keep cattle within pastures and out of unoccupied proposed critical habitat. Overall, most of the herd is kept in Bales canyon, but because there has been no infrastructure in place, about 15 head occasionally work their way down to the Rio del las Vacas riparian corridor, to graze and water within unoccupied proposed critical habitat. Infrastructure in order to keep livestock out of unoccupied proposed critical habitat would require the development of drinking water sources because livestock would no longer have access to the Rio de las Vacas.

Based on both current grazing and proposed grazing management, approximately, 9.7 ha (24 ac) of the 22.6 ha (56 ac) of designated critical habitat within Aspen pasture for the jumping mouse would be excluded under the proposed action by way of fencing. The remaining 12.9 ha (32 ac) would be accessible to livestock grazing, which occur out of the riparian zone, but would be within the uplands habitat for the jumping mouse. Additional fencing would exclude most of the Lower Vacas Riparian pasture (approximately 62.3 ha (154 ac)), except for 0.4 or 0.8 ha (1 or 2 ac) to allow for a water gap. Approximately 41.7 ha (103 ac) of the 60.3 ha (149 ac), would be fenced off and excluded from grazing, and the remaining 18.6 ha (46 ac) would be considered non-capable or inaccessible for livestock grazing. Overall, within the San Miguel allotment, the current grazing management and proposed action will protect or have protection measures in place for 133.7 ha (330.41 ac) of 146.9 ha (363.08) of designated critical habitat.

San Diego: The San Diego allotment includes approximately 41,556 (ha) (102,687 ac) with flat mesa tops dissected by deep canyons. The elevations range from 1,767 to 2,773 m (5,800 to 9,100 ft.). General topography and vegetative components of the allotments consist of rolling hills, steep canyons, mesas, piñon juniper woodland, ponderosa pine, gamble oak, mixed conifer, riparian areas, streams, creeks, rivers, high elevation spruce fir, and alpine tundra. Areas suitable for livestock grazing include grassland stringers and swales, open ponderosa pine forest, mixed conifer timber harvest areas, and riparian corridors along the Rio Cebolla and Rio Guadalupe.

The San Diego allotment contains three riparian pastures that are within designated critical habitat for the jumping mouse; Fenton, Cebolla Riparian, and Guadalupe. These pastures are primarily utilized to gather and transition cattle to and from summer/winter pastures. For example, the Cebolla Riparian pasture is used for 3 weeks starting May 1, and 4 weeks in the fall usually October 15 up to November 30. The Cebolla Riparian and Fenton Pastures are considered occupied by the jumping mouse.

Currently, the Fenton Pasture 40.29 ha (99.58 ac) is closed to grazing with the option to use up to 15 days. However, the pasture has some unauthorized livestock use from the Lake Fork Mesa Pasture because there is no fencing or poor fencing on the adjacent private property. For the 2015 grazing season, the permittees voluntarily chose not to graze the Lake Fork Mesa Pasture. In 2010, fire burned through the occupied habitat of the Fenton Pasture. As a result, the upland habitat produces a lot of sedimentation from Spring Canyon during the monsoon season. In addition, the upland habitats are seeing the intrusion of Canada thistle (*Cirsium arvense*). Proposed fencing would reduce the amount of drift coming from Lake Fork Mesa and would create a more permanent barrier to manage the Cebolla Riparian and Fenton Pastures. In addition, there is a 4.16 ha (10.29 ac) of exclosure habitat within occupied habitat for the jumping mouse, which has been effective.

The Guadalupe Pasture 18.59 ha (45.93 ac) is open to grazing, however is it consider non-capable range and only experiences very light grazing pressure (10% utilization). Most use

by cattle is from trailing in the spring and then again in the fall to and from winter pastures. On occasion, there are unauthorized cattle from the San Miguel Allotment on this pasture because the gate is left open. However, a "close gate" sign will be placed on either side of the gate in 2016 to help address this problem. Unauthorized livestock use also occurs when the fence is destroyed along the river from high spring flows.

Three other pastures: Lake Fork Canyon, Jemez Corridor, and Virgin Canyon are outside of designated critical habitat, but they may contain potential suitable habitat. The Cebolla Riparian Pasture has a corral on the northeast side of the pasture that is the primary handling facility on this allotment. The corral is not located in designated critical habitat; however, the immediate surrounding vegetation is suitable habitat and is within 0.8 km (0.5 mi) from a capture site. Therefore, dispersal is possible because there is connectivity to the Lake Fork jumping mouse area from occupied habitat of the Cebolla Riparian Pasture, and is therefore considered to be occupied. This area is being fenced under the conservation measures (Appendix 1) and as described below under additional conservation measure 2 in this BO. Three exclosures within occupied jumping mouse habitat are proposed, where exclosures 1-3 are approximately 0.84, 21.1, and 7.3 ha (2.1, 52.2, and 18.1 ac), respectively. These exclosures are designed to keep cattle out of the occupied riparian areas; most have been effective, except for two incursions in 2015. In addition the proposed action, would expand the exclosure 1 by 2.2 ha (5.5 ac) and include additional drift fencing in the upland to deter cattle from entering the riparian zone. However, the condition on which the 2.2 ha (5.5 ac) of additional fencing on exclosure 1 is described below under additional conservation measure 2. Overall, within the San Diego allotment, the current grazing management and proposed action will protect or have protection measures in place for 38.0 ha (93.9 ac) of 176.3 ha (435.6 ac) of designated critical habitat.

The Virgin Canyon and Jemez Corridor Pastures are not grazed and will remain closed. These pastures have no connectivity to currently occupied areas or designated critical habitat. However, they both have historical jumping mouse occurrences.

The San Diego Allotment has approximately 9.6 km (6 mi) of potential jumping mouse habitat along the Rio Cebolla from Porter to Fenton Lake State Park. Outside of the exclosures identified above, the Forest Service has proposed to manage this pasture to restore and maintain the Primary Constituent Elements (PCEs) of designated critical habitat. The Forest Service will monitor the riparian habitat through the grazing season when livestock are present and transmit the monitoring results to the Service annually in their compliance report, due in January.

Cebolla/San Antonio: The Cebolla/San Antonio Allotment is approximately 10,590 ha (26,170 ac) with elevations that range from 2,316 to 2,987 m (7,600 to 9,800 ft.). The allotment is dominated by ponderosa pine and mixed conifer forest with some blue spruce present in cool air drainages and north aspects. Areas suitable for livestock grazing include grassland stringers and swales, open ponderosa pine forests, mixed conifer timber harvest areas, and riparian areas along the Rio Cebolla and Rio San Antonio.

The Cebolla/San Antonio Allotment contains 10 pastures that are within designated critical habitat for the jumping mouse. Six of these pastures are currently closed to grazing and three other pastures (Road, Horseshoe, and Barley) do not contain suitable habitat. All occupied habitat is closed to "all use" with a temporary Forest Closure Order. With the combination of closed pastures and a Forest Closure Order, most pastures within this allotment are currently protective of the mouse and designated critical habitat.

The Cebolla/San Antonio Allotment has two sections of potential jumping mouse habitat: 1) San Antonio Riparian Pasture that contains 11.3 km (7 mi) along San Antonio Creek from San Antonio Campground to the Valles Caldera Boundary; and 2) Cebolla Riparian Pasture that contains 9.6 km (6 mi) along the Rio Cebolla from Fenton Lake State Park to Hay Canyon. The Cebolla Riparian Pasture is grazed from June 1 to June 5 and from September 20 to September 25, whereas the San Antonio Riparian pasture is grazed from September 1 to September 5. The Cebolla Riparian Pasture will be open for grazing operation for up to 5 days. Cross fence will be installed to limit cattle use in critical habitat, and drift fence will help keep cattle from going into the Rio Cebolla and trailing will occur in the Cebolla Riparian pasture in the fall. The San Antonia Riparian Pasture will have two exclosures with fencing.

The Road Pasture allows for livestock grazing but it is non-capable range, blocked by natural barriers. In addition, it is primarily forested with ponderosa pine and does not contain any jumping mouse habitat. The historical jumping mouse occurrence on this pasture is located within the heavy mixed conifer vegetation, north of San Antonio Hot Springs, but its location is not precise. The location should likely be mapped lower in Section 20 (Frey pers. comm. 2014a). In addition, the mapping of historical occurrence on the San Antonio, at Thompsons Ridge within the San Antonio Riparian Pasture, does not conform to any known locality for the species, nor does the mapping location on the Rio Cebolla at the junction of Oat Canyon within the south end of the Road Pasture (Frey pers. comm. 2014a). The Barley Pasture is currently grazed up to 75 days per year and it is a primary forage producer for the allotment. This pasture contains two historical, but likely erroneous jumping mouse occurrences; these do not relate to any known record of the jumping mouse (Frey pers. comm. 2014b). The North Cebolla Pasture has potential suitable habitat outside of unoccupied designated critical, but this pasture is closed to grazing and will remain closed under the proposed action.

The Mushroom Pasture does not contain any designated critical habitat, but it is an important producer for the allotment and is currently only accessible by cattle trailing through designated critical habitat of the San Antonio Riparian and Horseshoe Pastures. The San Antonio Riparian and Horseshoe Pastures are critical for cattle movement during pasture rotations. However, there is no trailing or grazing on the San Antonio Riparian Pasture, north of the occupied habitat from State Hwy 126 to approximately 274 m (300 yards) south of the San Antonio Hot Springs. About 108.3 ha (270 ac) south of the hot springs is inaccessible to cattle, and two different exclosures 1.39 and 1.89 ha (3.44 and 4.67 ac) are fully excluding the riparian area. This stretch of the pasture is considered non-capable range. Overall, within the Cebolla/San Antonia allotment, the current grazing management and proposed action will

protect or have protection measures in place for 251 ha (640.24 ac) of 345.2 ha (853.04) of designated critical habitat.

In addition to the above discussion of the San Miguel, San Diego, and Cebolla/San Antonito allotments, the BA identified 74.05 ha (183 ac) of potentially suitable jumping mouse habitat that may lie outside of designated critical habitat. This is based on a geographic information system (GIS) analysis and a general knowledge of vegetative characteristics that may suit the biological requirements for the jumping mouse. These areas will need field verification and assessment to determine suitability. If it is later determined that these areas are currently suitable, the Forest Service would consult and propose management changes

Conservation (Protective) Measures

1. Unauthorized livestock use in incursions into mouse habitat will be reported to the permittee and the Service within 24 hours of their discovery. Included with the notification would be remedial measures being taken.

2. Effects of livestock incursions will be assessed using the Landscape Appearance Method (Bureau of Land Management (BLM) 1999) within 72 hours after livestock removal and the results of the assessment (i.e. landscape appearance utilization class) will be reported to the Service, within 24 hours of assessment.

3. If a reinitiation trigger is activated, the Forest Service will contact the Service within 72 hours of the assessment, to discuss if reinitiation of formal consultation is warranted and plan any emergency remedial action if necessary.

4. The Santa Fe National Forest will draft a Conservation Strategy for the jumping mouse by 2017 for the Service review and consideration.

5. The Santa Fe National Forest will conduct surveys for the jumping mouse in 2016 using standardized protocols. Future surveys will be identified in the Conservation Strategy and implemented accordingly.

6. The Santa Fe National Forest will provide additional fencing and management measures detailed in the New Mexico Meadow Jumping Mouse Occupied and Critical Habitat Protection Project 2016.

7. Most suitable occupied habitat where the species has been captured since 2005-06, is fenced to prevent livestock entry. In addition, all occupied habitat has been closed to all use by a Forest Closure Order. Both decisions will remain in effect until October 2, 2016.

8. Due to the Utilization Standard not being met in the Cebolla Riparian Pasture of the Cebolla/San Antonio Grazing Allotment during 2015 grazing season, this pasture will only be used for minimum necessary for allotment function during the 2016 grazing

season, to allow for resources recovery and provide habitat for the jumping mouse. Monitoring for the 2016 season will include permit compliance, stubble height monitoring, and vegetation component monitoring for jumping mouse habitat.

9. Use within the Cebolla Riparian Pasture will only include gathering of livestock for up to 5 days (09/25/2016-09/30/2016). This use will be based upon the outcome of 2016 monitoring. Gathering in the fall will consist of pushing cattle from the Road and Barley pastures to the upper portion of the Cebolla Riparian Pasture (above McKinney Lake) where they will stage outside of critical habitat. Once cattle are gathered, they will take approximately half a day to trail through the lower portion of the Cebolla Riparian Pasture within critical habitat to the Cebolla corral, and then shipped out. There will be up to 150 head of cattle (30-50 head/day) for up to 5 days during this gathering and trailing operation.

Additional Conservation Measures Proposed by the U.S. Forest Service and the Allotment Permittees to Promote Development and Retention of Critical Habitat Primary Constituent Elements:

1. Grazing will be authorized in the Fenton Pasture of the San Diego Allotment (15 days in the spring and 15 days in the fall as stated in the Term Grazing Permit and current Annual Operating Instructions) in such a way as to maintain the New Mexico meadow jumping mouse PCEs. When livestock are authorized in the pasture the Forest Service will conduct weekly vegetation monitoring checks on the pasture including the vegetation components of the PCEs to ensure compliance with this BO. To ensure permit compliance, compliance checks will be made weekly throughout the grazing season. As part of this monitoring effort, the Forest Service will establish three permanent photo-monitoring plots within the critical habitat boundary. Photos will be taken prior to cattle entry and monthly thereafter until cattle leave in the fall. Photos will be provided to the Service as part of the routine reporting required by this BO (Term and Condition 1.1).

   a. If vegetation and photo monitoring for two consecutive grazing seasons documents maintenance of New Mexico meadow jumping mouse PCEs fencing between the Fenton pasture and the Cebolla Pasture will not be needed. If it has been demonstrated that the New Mexico meadow jumping mouse PCEs have not been maintained then fencing between the pastures will commence as described in the informal consultation (Cons. # 02ENNM00-2016-I-0252; Appendix 1).

2. Grazing will be authorized outside of livestock exclosures in the Cebolla Riparian Pasture of the San Diego Allotment (in the spring and fall as stated in the Term Grazing Permit and current Annual Operating Instructions) in such a way as to maintain the New Mexico meadow jumping mouse PCEs. When livestock are authorized in the pasture the Forest Service will conduct weekly vegetation monitoring checks on the 2.2 ha (5.5 ac) of occupied habitat outside the exclosure near the gathering corral including the vegetation components of the PCEs to ensure compliance with this BO. To ensure permit compliance, compliance checks will be made

weekly throughout the grazing season. As part of this monitoring effort, the Forest Service will establish three permanent photo monitoring plots within the critical habitat boundary and/or in the 2.2 ha (5.5 ac) of occupied habitat outside the exclosure. Photos will be taken prior to cattle entry and monthly thereafter until cattle leave in the fall. Photos will be provided to the Service as part of the routine reporting required by this BO (Term and Condition 1.1).

a. If vegetation and photo monitoring in the Cebolla Riparian Pasture outside of exclosures for 2 consecutive grazing seasons documents maintenance of New Mexico meadow jumping mouse PCEs, additional fencing in the Cebolla Pasture 2.2 ha (5.5 ac) will not be needed. If it has been demonstrated that the New Mexico meadow jumping mouse PCEs have not been maintained in this area then additional fencing will commence as described in the informal consultation (Cons. # 02ENNM00-2016-I-0252; Appendix 1).

Conservation Strategy for New Mexico Meadow Jumping Mouse

In addition to current actions to protect and restore occupied and designated critical habitat for the jumping mouse, the Forest Service has initiated the development of a Conservation Strategy for jumping mouse habitat. The Conservation Strategy will guide management of jumping mouse habitat on the Santa Fe National Forest. The Conservation Strategy is intended to assist in the recovery of the species and to promote development and maintenance of habitat through the identification of management actions. The overall goals of the Conservation Strategy are to reduce habitat fragmentation, increase habitat connectivity, and increase the size of jumping mouse populations. Objectives for the Strategy will be based upon the 2014 Service SSA Report and Recovery Outline (Service 2014b, 2014c). The Forest Service is proposing to work with the development of the Conservation Strategy, the identification of areas capable of contributing to the Conservation Strategy objectives, and in the future, the design and implementation of specific management actions.

Specifically, these objectives are: 1) Expansion of currently occupied habitat areas to reach patch sizes and other requirements for redundant and resilient jumping mouse populations. 2) Enhancement and/or restoration of unoccupied habitat within designated critical habitat boundaries. 3) Identification of potentially suitable habitat areas outside of designated critical habitat to be surveyed for new populations and/or to confirm presence/absence in areas historically occupied by the jumping mouse. 4) Management and monitoring to facilitate data gathering on vegetative response to various management actions and their effectiveness in providing suitable habitat (i.e. dense riparian herbaceous vegetation) for the jumping mouse.

ANALYTICAL FRAMEWORK FOR THE JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this BO relies on four components in our evaluation for each species: 1) the Status of the Species, which evaluates

the species' range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the Environmental Baseline, which evaluates the condition of the species in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the species; (3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the species; and, (4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the species.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the species' current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the species in the wild.

The jeopardy analysis in this BO places an emphasis on consideration of the range-wide survival and recovery needs of the species and the role of the action area in the survival and recovery of the species as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Adverse Modification Determination

In accordance with policy and regulation, the adverse modification analysis in this BO relies on four components: 1) the Status of Designated Critical Habitat, which evaluates the range-wide condition of designated critical habitat for the species in terms of primary constituent elements, the factors responsible for that condition, and the intended recovery function of the designated critical habitat overall; 2) the Environmental Baseline, which evaluates the condition of the designated critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; 3) the Effects of the Action, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the PCEs and how they will influence the recovery role of affected designated critical habitat units; and, 4) Cumulative Effects, which evaluates the effects of future, non-Federal activities in the action area on the PCEs, and how they will influence the recovery role of affected designated critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed Federal action on the designated critical habitat are evaluated in the context of the range-wide condition of the designated critical habitat, taking into account any cumulative effects, to determine if the designated critical habitat range-wide would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the species.

STATUS OF SPECIES/DESIGNATED CRITICAL HABITAT

New Mexico Meadow Jumping Mouse

The jumping mouse was proposed as an endangered species with critical habitat on June 20, 2013 (78 FR 37363; 78 FR 37328). On June 10, 2014, the jumping mouse was listed as endangered (Service 2014a). Final designated critical habitat was published on March 16, 2016 (Service 2016). In addition to the summary information provided below, we completed a species status assessment report (SSA Report) for the jumping mouse in May 2014, which is hereby incorporated by reference (Service 2014b). A Recovery Outline was also completed concurrent with the final rule listing the species as endangered (Service 2014c). The SSA Report provides a thorough assessment of jumping mouse biology and natural history and assesses demographic risks (such as small population sizes), threats, and limiting factors in the context of determining viability and risk of extinction for the species. In the SSA Report, we also compile biological data and a description of past, present, and likely future threats (causes and effects) facing the jumping mouse.

The jumping mouse is a small mammal whose historical distribution likely included riparian wetlands along streams in the Sangre de Cristo and San Juan Mountains from southern Colorado to central New Mexico, including the Jemez and Sacramento Mountains and the Rio Grande Valley from Española to Bosque del Apache National Wildlife Refuge, and into parts of the White Mountains in eastern Arizona.

The jumping mouse life history (short active period, short life span, low fecundity, specific habitat needs, and low dispersal ability) makes populations highly vulnerable to extirpations when habitat is lost and fragmented. Based on historical (1980s and 1990s) and current (from 2005 to 2014) data, the distribution and abundance of the jumping mouse has declined significantly range-wide. The majority of extirpations have occurred since the late 1980s to early 1990s, as we found about 70 formerly occupied locations are now considered extirpated. Since 2005, there have been 31 documented remaining populations spread across the 8 conservation areas (2 in Colorado, 15 in New Mexico, and 14 in Arizona). Nearly all of the current populations are isolated and widely separated, and all of the 31 populations located since 2005 have patches of suitable habitat that are too small to support resilient populations of jumping mice. In addition, 11 of the 31 populations documented since 2005 have been substantially compromised since 2011 (due to water shortages, grazing, or wildfire and post-fire flooding), and these populations could already be extirpated (see Service 2014a for a detailed discussion).

Because the jumping mouse requires such specific suitable habitat conditions, populations have a high potential for extirpation when habitat is altered or eliminated. We found that there has been a significant reduction in occupied localities likely due to cumulative habitat loss and fragmentation across the range of the jumping mouse. The past and current habitat loss has resulted in the extirpation of historical populations, reduced the size of existing populations, and isolated existing small populations. Ongoing and future habitat loss is expected to result in

additional extirpations of more populations. The primary sources of past and future habitat losses are from grazing pressure (which removes the needed vegetation) and water management and use (which causes vegetation loss from mowing and drying of soils), lack of water due to drought (exacerbated by climate change), and wildfires (also exacerbated by climate change). Additional sources of habitat loss are likely to occur from scouring floods, loss of beaver ponds, highway reconstruction, residential and commercial development, coalbed methane development, and unregulated recreation.

ENVIRONMENTAL BASELINE

Under section 7(a) (2) of the Act, when considering the effects of the action on federally listed species, the Service is required to take into consideration the environmental baseline. Regulations implementing the Act (50 CFR § 402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal actions in the action area that have undergone formal or early section 7 consultation, and the impacts of State and private actions that are contemporaneous with the consultation in progress.

New Mexico meadow jumping mouse

Status of the species and designated critical habitat within the action area

In combination with other factors, livestock grazing has contributed to altering many ecosystem functions and processes associated with these allotments, resulting in the fragmentation and isolation of jumping mouse habitat. Current livestock numbers and management of the allotments has resulted in altered herbaceous riparian vegetation and reduced development of grass seed heads, which are both necessary to provide cover from predators and food for the jumping mouse. This situation has resulted in adverse effects to jumping mice by reducing the amount of suitable habitat and the number of extant populations. Drought likely has a major influence on the status and distribution of the jumping mouse because the reduction of water has reduced the amount of suitable habitat available (Frey 2005; Frey and Malaney 2009). As precipitation decreases, surface water retreats and the adjacent soils become drier and unable to support the herbaceous riparian vegetation required by the jumping mouse. Nevertheless, no livestock management changes have been enacted or proposed to manage jumping mouse habitat through years of drought.

The SSA Report for the jumping mouse includes information on the status of the species in the action area (Service 2014b). Targeted surveys for the jumping mouse in 2005 and 2006 documented individuals within four areas, along the Rio Cebolla and San Antonio Creek (Frey 2005; Frey 2007). The known occupied sites in the Jemez Mountains located since 2005 are associated with the Rio Cebolla and San Antonio Creek. These areas contain saturated soils that contain suitable vegetation structure and height because they are located within livestock exclosures or are in areas with extensive beaver activity that creates complexes of channels,

pools, and shallowly flooded areas that may prevent livestock from entering suitable jumping mouse habitat. Because no surveys have been conducted since 2005 and 2006, the following areas are considered occupied by the species because they contain suitable habitat.

San Antonio Creek, Santa Fe National Forest, Sandoval County. In 2005, a single jumping mouse was captured at this locality (Frey 2005). This site is located at the south end of San Antonio Campground. The capture location was described as a wet meadow that contained a small seep with beaver dams that impounded water with beaked sedge throughout (Frey 2005). Frey (2005) noted marshy conditions at the capture site, with a high soil moisture index (9.5 out of 10; an index measured using a soil moisture probe inserted 40 millimeters (mm) (1.57 in) in the ground) and mean vertical cover (72.9 cm (28.7 in)) (Frey 2005). Based on surveys and museum records from 1985 to 2005 and recent visual surveys, much of the habitat was likely historically occupied (Morrison 1985; 1992; Frey 2005). In 2005, surveys were conducted in some areas of San Antonio Creek, but the species was not captured within any other area (Frey 2005). However, it is unknown whether the jumping mouse persists throughout San Antonio Creek. During June 2012 and 2013, very little herbaceous riparian vegetation was present at the 2005 capture location and conditions did not appear to be suitable for jumping mice (Service 2012; 2013). Patches of sedge (*Carex* spp.) were present, but plants were dried and stunted. No water was visible in the meadow or beaver ponds and scattered cattle sign (cow chips) also observed (Service 2012; 2013). There were no saturated soils or marshy conditions described by Frey (2005). In 2015, it was discovered that the site had been wetted by acequia that connected to San Antonio Creek at the northern end of the campground, rather than a small seep on the southeast hillside. An irrigation structure is still present where the acequia connects to San Antonio Creek, but the structure is capped and nonfunctional (Service 2015).

Rio Cebolla at Lake Fork Canyon, Santa Fe National Forest, Sandoval County. In 2005, two jumping mice were captured within the livestock/vehicle exclosure that contained well-developed riparian habitat dominated by sedges, diverse forbs, grasses, and a small patch of alder (Frey 2005). This 1.4 ha (3.5 ac) locality is above the bridge on Forest Road 376. Soils were moderately saturated at capture sites, with a soil moisture index averaging 7.65 of 10 and a mean vertical cover 87.1 cm (34.3 in) (Frey 2005). In 2012 and 2013, the area did not appear to be currently suitable. Cattle grazing eliminated much of the herbaceous vegetation, leaving mostly bare, dry soils (Service 2012; 2013). The area was fenced in October 2014 and has revegetated since 2013. It appears to be currently suitable for the jumping mouse (Service 2015).

Lower Rio Cebolla, 0.9 km (0.6 mi) southwest of Forest Road 376 Bridge, Santa Fe National Forest, Sandoval County. In 2006, three jumping mice were captured within an area of recent beaver activity that was composed of a network of channels, ponds, and wet meadow/marsh conditions (Frey 2007). The first capture site contained riparian habitat dominated by tall, dense stand of sedges, mixed with cutleaf coneflower and grasses (Frey 2007). Soils were saturated, with a soil moisture index averaging 10 out of 10, with a mean vertical cover 92.2 cm (36.3 in) (Frey 2005). The second capture site was just above a small

beaver dam and contained tall, dense stand of sedges, with adjacent patches of cattail and willow herb (*Epilobium ciliatum*) (Frey 2007). Soils were saturated, with a soil moisture index averaging 10 out of 10 and a mean vertical cover of 74.4 cm (29.3 in) (Frey 2007). The third capture site was along the edge of a wide channel that had bur marigold (*Bidens cernua*) growing as an emergent within a patch of mixed rushes, diverse forbs, watercress, willow herb, and grass (Frey 2007). The general area containing these capture sites occurs along the lower Rio Cebolla, forming a long, broad valley. In 2007, cattle grazing occurred in uplands of the Rio Cebolla valley, but no sign of grazing was found at the jumping mouse capture sites within the wetland associated with beaver dams, even though the sites were not protected from livestock grazing by fencing (Frey 2007; Frey and Malaney 2009). Frey and Malaney (2009) reported that habitat at capture sites in the wetland was similar to localities within livestock exclosures. In 2007, the extensive and complex channels, ponds, and flooded areas created by beaver, likely served to naturally inhibit cattle; perhaps, because of their reticence to walk in saturated mud and the presence of forage in the adjacent uplands (Frey 2007; Frey and Malaney 2009). Therefore, the jumping mouse habitat was probably maintained not only because of the extensive beaver activity, but also because grazing pressure was not heavy and animals were not forced to graze disproportionately in the riparian zone (Frey 2007). In 2012, habitat conditions appeared currently suitable at these capture sites along the lower end of the Rio Cebolla (Service 2012). No cattle were present in the valley, but old sign was abundant throughout the uplands. Nevertheless, in 2013, habitat conditions appeared marginal due to heavy livestock grazing throughout the riparian zone, which was showing signs of bank collapse and bare soils (Service 2013). The area was fenced in October 2014 and has revegetated since 2013. It appears to be currently suitable for the jumping mouse (Service 2015). Nevertheless, there was no active beaver sign and only a few remnant beaver ponds with cattails beginning to spread around the edges.

Rio Cebolla above junction with Rio de las Vacas, Santa Fe National Forest, Sandoval County. In 2005, one jumping mouse was captured at this 1.8 ha (4.5 ac) locality (Frey 2005). The riparian zone was narrow and dominated by sedges, grasses, forbs, and alder, with no sign of beaver activity (Frey 2005). The soil moisture index at the capture site averaged 8.8 out of 10, with a mean vertical cover 60.5 cm (23.8 in) (Frey 2005). In 2012, habitat conditions appeared marginally suitable at this location. However, a newly constructed beaver dam was observed 150 m (492 ft.) downstream, creating additional suitable habitat within a reasonable movement distance of the previous capture location (Service 2012). In 2013, buck and poles fences were down throughout the area and stream banks had collapsed in many sections (Service 2013). The area was fenced in October 2014 and has revegetated since 2013. It appears to be currently suitable for the jumping mouse (Service 2015).

Rio de las Vacas, Santa Fe National Forest, Sandoval County. The jumping mouse likely does not currently occur within the Rio de las Vacas drainage. In 2005, surveys were conducted in some areas of the subunit, but no jumping mice were captured (Frey 2005). Nevertheless, we think much of the habitat was historically occupied because individuals were detected as recently as 1989 (Morrison 1985; 1992; Frey 2005).

Outside of the areas described above, segments lacking continuous suitable habitat are considered unoccupied because they do not contain sufficiently dense riparian herbaceous vegetation to support jumping mice (i.e., the segments lack the specialized microhabitat features). Moreover, any jumping mice that might disperse from the occupied segments into adjacent unoccupied segments would likely perish from predation or starvation from the lack of sufficient vegetation cover or food sources.

Designated Critical Habitat

Designated critical habitat in the action area consists of riparian areas associated with current (since 2005) and historical documentation of individual jumping mice along San Antonio Creek campground and north to the border of the Valles Caldera National Preserve (Subunit 3-A), along the Rio Cebolla from the confluence with the Rio de las Vacas north to where the Rio Cebolla crosses Forest Road 376 (parts of Subunit 3-B), and along the Rio de las Vacas (Subunit 3-C) from about 0.8 km (0.5 mi) north of Forest Road 94 adjacent to Burned Canyon and extends downstream about 23.3 km (14.5 mi) to the confluence with the Rio Cebolla Subunit. Within the action area, there are 114.5 ha (283.1 ac) of occupied designated critical habitat and 553.9 ha (1,368.7 ac) of unoccupied designated critical habitat on the Forest Service excluding private land inholdings. Occupied habitat was calculated by delineating an area 0.8 km (0.5 mi) upstream and downstream from 2005 and 2006 capture locations and 100 m (32.8 ft.) each side of the water's edge.

Subunit 3-A; San Antonio Creek

This subunit begins along the northern part of San Antonio Creek where it exits the boundary of the Valles Caldera National Preserve and follows the creek about 11.5 km (7.1 mi) through mostly Forest Service lands where it meets private land immediately downstream of the San Antonio Campground. The stream segment surrounding the 2005 capture location (Frey 2005) is considered occupied; however, it is unknown whether the jumping mouse persists throughout the upstream segment of San Antonio Creek. The occupied area is located within a wet meadow near the southwestern part of San Antonio Campground (Frey 2005). The occupied area is centered on the capture location plus an additional 0.8 km (0.5 mi) segment upstream and downstream of this area where the physical and biological features are found. The upstream segment does not currently contain continuous suitable habitat, but has perennial flowing water with saturated soils (Frey 2005) and a high potential of being restored to suitable habitat.

Subunit 3-B; Rio Cebolla

This subunit extends from an old beaver dam about 0.6 km (0.4 mi) north of Hay Canyon downstream about 20.7 km (12.9 mi) where it meets the Rio de las Vacas. The stream segments surrounding the 2005 and 2006 capture locations (Frey 2005; Frey 2007) are considered occupied; however, it is unknown whether the jumping mouse persists throughout the other segments of the Rio Cebolla. Many of these segments do not currently contain

continuous suitable habitat, but they all have perennial flowing water with saturated soils (Frey 2005; Frey 2007) and a high potential of being restored to suitable habitat. In 2015, the Cebolla Riparian Pasture, from just north of the day use area to McKinney Pond, riparian conditions were significantly degraded and no suitable jumping mouse habitat remained (stream bank collapse; overutilization of riparian vegetation (stubble height about 2.54 cm (1 in); shrubs were heavily browsed; and the historic beaver pond at Hay Canyon had filled from sedimentation and is covered with Kentucky bluegrass (Service 2015). The headwaters of McKinney Pond are also heavily grazed (Service 2015). This pasture had approximately 90 head of unauthorized cattle grazing from at least July 7 to September 17. This suggests to that the cattle were never removed.

The action area only includes the Rio Cebolla from the confluence with the Rio de las Vacas north to where the Rio Cebolla crosses Forest Road 376. The occupied areas occurs at three general locations along downstream area of the lower Rio Cebolla: within Lake Fork Canyon inside a livestock exclosure above the bridge on Forest Road 376; within a network of channels, beaver ponds, and wet meadows about 0.9 km (0.6 mi) southwest of Forest Road 376 bridge; and about 2.7 km (1.7 mi) north of the confluence of the Rio Cebolla and the Rio de las Vacas (Frey 2005; Frey 2007). The occupied areas are centered on the three capture locations plus an additional 0.8 km (0.5 mi) segment upstream and downstream of these areas where the physical and biological features are found. The remaining unoccupied areas within Subunit 3-B are found both upstream and downstream of the occupied areas.

Subunit 3-C; Rio de las Vacas

This subunit starts about 0.8 km (0.5 mi) north of Forest Road 94 adjacent to Burned Canyon and extends downstream to the confluence with Subunit 3B. Although much of the habitat was historically occupied with individuals detected as recently as 1989 (Morrison 1985; 1992; Frey 2005), no jumping mice were captured during surveys in 2005 (Frey 2005). The entire subunit is considered unoccupied at the time of listing. This subunit has perennial flowing water with saturated soils and a high potential of being restored to suitable habitat. It has the potential for natural recolonization of jumping mice populations through individuals that naturally disperse. This subunit would provide connectivity to Subunit 3B and allow for possible expansion of jumping mice from that currently occupied subunit, which is contiguous with Subunit 3C, into historically occupied habitat along the Rio de las Vacas drainage. We found this entire stream section would provide further connectivity to the adjacently occupied habitat within Subunit 3B and increase the length and size of the suitable habitat. All of the areas within Subunit 3C are considered essential to the conservation of the jumping mouse.

Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the New Mexico meadow jumping mouse consist of the following:

(i) Riparian communities along rivers and streams, springs and wetlands, or canals and ditches that contain:

(A) Persistent emergent herbaceous wetlands especially characterized by presence of primarily forbs and sedges (*Carex* spp. or *Schoenoplectus pungens*); or

(B) Scrub-shrub riparian areas that are dominated by willows (*Salix* spp.) or alders (*Alnus* spp.) with an understory of primarily forbs and sedges; and

(ii) Flowing water that provides saturated soils throughout the New Mexico meadow jumping mouse's active season that supports tall (average stubble height of herbaceous vegetation of at least 61 cm (24 in) and dense herbaceous riparian vegetation composed primarily of sedges (*Carex* spp. or *Schoenoplectus pungens*) and forbs, including, but not limited to one or more of the following associated species: spikerush (*Eleocharis macrostachya*), beaked sedge (*Carex rostrata*), rushes (*Juncus* spp. and *Scirpus* spp.), and numerous species of grasses such as bluegrass (*Poa* spp.), slender wheatgrass (*Elymus trachycaulus*), brome (*Bromus* spp.), foxtail barley (*Hordeum jubatum*), or Japanese brome (*Bromus japonicas*), and forbs such as water hemlock (*Circuta douglasii*), field mint (*Mentha arvense*), asters (*Aster* spp.), or cutleaf coneflower (*Rudbeckia laciniata*); and

(iii) Sufficient areas of 9 to 24 km (5.6 to 15 mi) along a stream, ditch, or canal that contain suitable or restorable habitat to support movements of individual New Mexico meadow jumping mice; and

(iv) Adjacent floodplain and upland areas extending approximately 100 m (330 ft.) outward from the boundary between the active water channel and the floodplain (as defined by the bankfull stage of streams) or from the top edge of the ditch or canal.

(3) Critical habitat does not include manmade structures (such as buildings, fire lookout stations, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on April 15, 2016.

EFFECTS OF THE ACTION

Effects of the action refer to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Indirect effects are those that are caused by the proposed action and are later in time, but are still reasonably certain to occur.

The jumping mouse is restricted to riparian and wetland habitats using herbaceous microhabitats that are generally found as narrow strips of habitat between the edge of flowing water and shrubs (Frey 2007). The jumping mouse has been and continues to be negatively

affected by domestic livestock grazing. Livestock grazing affects jumping mice when it eliminates or reduces herbaceous plants and litter or alters the composition and structure of herbaceous riparian habitats used by the subspecies (Fleischner 1994; Belsky *et al.* 1999; Frey 2005; Frey and Malaney 2009). Grazing results in the loss of vegetative cover and depletion of food resources needed by individual jumping mice (*Zapus hudsonius*) (Fagerstone and Ramey 1996). Cattle, and sometimes elk (*Cervus elaphus*), have contributed substantially to alterations of riparian ecosystems (Beschta *et al.* 2012), including throughout the Jemez Mountains (Forest Service 2003). Grazing within riparian areas can also result in soil compaction, herbaceous removal, physical damage to plants, and changes in fluvial processes (Trimble and Mendel 1995; Poff *et al.* 2011).

The short life span of the jumping mouse, coupled with the comparatively low fecundity of the species, make it vulnerable to serious adverse effects from livestock grazing. Any effect that eliminates or greatly reduces reproduction or survival would severely deplete recruitment and persistence of jumping mice. Because the species is only active 3 to 4 months of the year, effects to dense herbaceous riparian vegetation from livestock grazing and trampling can be extremely detrimental.

The exceptionally specialized habitat requirements are prone to modification from livestock and may only be met when herbaceous wetland vegetation is protected and achieves full potential growth (Frey 2007). Disproportionate use of riparian areas occurs in the Jemez Mountains due to their productivity and sources of perennial water. On these allotments, when livestock graze in riparian areas, the required vertical cover for the jumping mouse will not be met. Because the Forest Service will construct fences along jumping mouse designated critical habitat, grazing will be limited to water gaps and occasional livestock use when cattle enter the area because the fences are down. Grazing will directly reduce vegetative cover in the water gaps through removal of plants (ingestion through grazing) and trampling (crushing).

Grazing within jumping mouse habitat affects individual mice by reducing the availability of food resources (Morrison 1987; Morrison 1990; Frey 2005; 2011). Timing of livestock grazing on these allotments coincides with the active season of the jumping mouse. The jumping mouse has a short active season, hibernating about eight or nine months each year (Morrison 1990; VanPelt 1993; Frey 2005). Grazing particularly reduces the amount of food available to jumping mice in the late summer just prior to hibernation, which can limit the accumulation of sufficient fat reserves needed to survive. The species is extremely sensitive to habitat alterations because it must enter hibernation with enough fat reserves to survive the winter and to successfully survive and breed the following spring (Morrison 1990). Whitaker (1972) found that meadow jumping mice (*Zapus hudsonius*) that enter hibernation with a low body mass do not survive. Therefore, factors that reduce the availability of grass seeds and other foods can lower overwinter survival (Whitaker 1972; Morrison 1990) and result in reduced population sizes and eventually extirpation of populations when suitable riparian habitats are grazed by livestock.

The Rio Cebolla and San Antonio Creek are extremely important streams and are a crucial part in the survival and recovery of jumping mouse. Because jumping mouse habitat is fragmented and isolated, long-term conservation of the jumping mouse requires more than just the maintenance of status quo for the rivers. It requires restoring the system to the point where floodplains rebuild with fine-soiled banks and terraces, which provide habitat for dense riparian vegetation, and the base-flow channel narrows with steeply sloping or overhanging banks.

Although jumping mouse habitat is dynamic and with protection should develop into suitable habitat within several years, slow rates of population growth inherent to the subspecies' biology necessitate long-term commitments to habitat protection. This means permanent protection from livestock grazing that removes, significantly alters, or precludes the development of dense riparian herbaceous vegetation.

Current forage utilization guidelines for these allotments are 40 percent, meaning 60 percent of forage should remain as residual herbaceous vegetation. The current utilization standards are 40 percent, which equate to a minimum stubble height measurement for key species that range from 10.1 cm (4 in) for most grasses, 15.2 cm (6 in) for fescues and 20.3 cm (8 in) for riparian vegetation. These standards are inadequate to provide suitable jumping mouse habitat. Moreover, within riparian habitat where cattle have grazed, the streambanks are trampled and collapsing. Current grazing practices on the Santa Fe National Forest has resulted in the removal of dense riparian herbaceous vegetation that historically provided jumping mouse habitat and likely contributed substantially to the loss of historical populations. Importantly, the construction of fences and frequent monitoring will protect habitat and allow natural restoration to proceed unimpeded by livestock.

The Forest Service has proposed significant management changes on these allotments (Appendix 1). Fencing will facilitate the expansion of jumping mouse habitat and limit further extirpation of current populations that would have otherwise occurred, due to the small isolated nature of occupied habitat. The design and installation of effective fencing barriers will limit livestock grazing and protect riparian habitats from damage. The proposed fencing and management changes will greatly assist in improving habitat and connectivity of these systems because they are long-term commitments. As a result of the proposed fencing and changes in livestock management, dense herbaceous riparian vegetation is expected to develop and be maintained in riparian areas that are protected for the foreseeable future.

Habitat loss from livestock grazing has also resulted in fragmentation of jumping mouse populations, which is the separation of extensive habitats into smaller, isolated patches. Fragmentation has two negative components: loss of total habitat area and isolation of remaining habitat patches. In fact, livestock grazing has frequently resulted in the extirpation of jumping mouse populations (Morrison 1991; Frey 2005; 2011). It is probable that this pattern was related to little or no long-distance movements or dispersal of jumping mice from lack of connectivity between patches of suitable habitat within specific stream reaches. Consequently, when livestock grazing results in loss of suitable habitat, movements and

dispersal between populations of jumping mouse are unlikely to occur because movements and dispersal occur almost exclusively along riparian areas with appropriate habitat (Frey 2011). Fencing and other protective measures to restore and maintain jumping mouse habitat will restore additional areas that are currently unsuitable to allow for population expansion and provide connectivity between riparian areas to make re-occupancy possible if localized extirpations occur from natural causes (e.g., flooding, fire, or drought).

Herbivory by livestock can also disrupt beaver populations (Baker *et al.* 2005; Small *et al.* 2014) because grazing can reduce or eliminate adequate herbaceous and riparian plants that provide food for beaver. A secondary benefit to riparian communities associated with beaver activity is that human and livestock use can be limited due to the difficulty in traversing these areas of flooded wetlands. Beaver loss has continued along the Rio Cebolla and San Antonio Creek. Fencing will assist in the restoration of herbaceous riparian vegetation and shrubs, which may also facilitate the natural expansion of beaver within the Rio Cebolla and San Antonio Creek.

Based on the best available science, SSA Report, and listing, we have determined areas considered occupied are where the jumping mouse is reasonably certain to occur. The jumping mouse may be found on additional livestock grazing allotments on the Jemez Ranger District that have not been surveyed or have had insufficient survey effort to document absence. This will likely be evaluated through future surveys over the next several years to inform the Conservation Strategy. In the interim, any jumping mouse populations or suitable habitat within these areas will likely be subjected to adverse effects from ongoing livestock grazing. However, there are no known jumping mouse populations beyond those analyzed in this BO.

The proposed action will assist in the maintenance and restoration of jumping mouse habitat to support the survival and recovery of the species. We anticipate that 40 percent utilization standards within upland habitat will not adversely affect the jumping mouse, nor result in habitat loss and/or fragmentation, loss of food resources during the active season or residual vegetation after hibernation.

Interdependent and Interrelated Actions

We also must consider the effects of interdependent and interrelated actions of this proposed action to the jumping mouse and its habitat. Interrelated actions are actions that are part of a larger action, and are dependent on the larger action for their justification. Interdependent actions are actions that have no independent utility apart from the action under consideration.

Under the proposed action, we anticipate unauthorized grazing may occur infrequently within exclosures when fences are down or gates are inadvertently left open. These effects are considered interrelated and interdependent with ongoing grazing. Therefore, we anticipate that some jumping mice will be adversely affected by trampling, the loss of protective cover, or a reduction in the amount of food available.

In conclusion, the Forest Service is initiating long-term conservation measures within these river systems to ensure protection of riparian habitats and watershed that will assist in the survival and recovery of the jumping mouse. Without these measures, the survival and recovery of the jumping mouse would be in peril. The proposed action along with the constructed fences, will assist in the maintenance and restoration of jumping mouse habitat. This action will limit trampling of streambanks and alteration of dense herbaceous riparian vegetation that would have adverse effects on the species, especially because there is a strong tendency for livestock to congregate in riparian habitat. The proposed action will also ensure that sufficient food is available for jumping mice to accumulate fat reserves prior to hibernation. Although the proposed action will not fence all jumping mouse designated critical habitat (e.g., in locations adjoining the occupied habitat exclosures south Forest Road 376 and designated critical habitat along San Antonio Creek), frequent monitoring will inform the Jemez Ranger District of unauthorized livestock use and enable rapid response. This would ensure these areas provide the necessary features for the species. If these features are not being maintained, then consultation will be reinitiated. Limiting grazing within jumping mouse habitat will also benefit the jumping mouse by increasing the amount of forage and cover for the species. The proposed action of protecting riparian habitat from livestock grazing will restore and maintain important hiding and escape cover from potential predators, which may lead to greater survival and increased dispersal capabilities.

Designated Critical Habitat

Because nearly all designated critical habitat will be fenced as part of a previous action or managed to restore and maintain the PCEs, the conservation value of proposed jumping mouse designated critical habitat will be met. The PCEs, particularly dense riparian vegetation, are not expected to be adversely impacted, except within small areas of unoccupied designated critical habitat where water breaks are placed between livestock exclosures or in designated areas where livestock will cross from one pasture to another. Within the water breaks and crossing areas, livestock will continue to trail and stage because they have a strong tendency to congregate in riparian habitat. Soil compaction, trampling of streambanks, and modification of riparian communities will persist within these small areas; however, these will be placed in locations that do not currently have adequate PCEs present to limit any further impacts to designated critical habitat.

Current forage utilization guidelines for these allotments are 40 percent, meaning 60 percent of forage should not be removed by livestock. The current utilization standards are 40 percent, which equates to a minimum stubble height measurement for key species that range from 10.1 cm (4 in) for most grasses, 15.2 cm (6 in) for fescues and 20.3 cm (8 in) for riparian vegetation. These standards are inadequate to provide suitable PCEs within designated jumping mouse critical habitat. Moreover, within riparian habitat where cattle have grazed, the streambanks are trampled and collapsing. Current grazing practices on the Santa Fe National Forest have resulted in the removal or alteration of the PCE dense riparian herbaceous vegetation that historically provided jumping mouse habitat. Importantly, the

construction of fences and frequent monitoring will protect designated critical habitat and allow natural restoration of PCEs to proceed unimpeded by livestock. Approximately, 57% of designated critical habitat within San Miguel, San Diego, and Cebolla/Antonio Allotments will be protected because of current grazing and proposed grazing management as described in the biological assessment and supplemental information.

Interdependent and Interrelated Actions

We also must consider the effects of interdependent and interrelated actions of this proposed action to the jumping mouse and its habitat. Interrelated actions are actions that are part of a larger action, and are dependent on the larger action for their justification. Interdependent actions are actions that have no independent utility apart from the action under consideration.

Under the proposed action, we anticipate unauthorized grazing may occur infrequently within exclosures when fences are down. These effects are considered interrelated and interdependent with ongoing grazing. The Forest Service has proposed a minimum of weekly inspections and other irregular visits to identify and remedy these situations. When livestock are found within exclosures, the Forest Service will inform the permittee within 24 hours to remove the livestock and repair the fence within 72 hours. Nevertheless, it is possible that livestock could graze these areas for several days between inspections. Therefore, we anticipate that some PCEs will be adversely affected by trampling and consumption of riparian vegetation can cause the loss of protective cover, or a reduction in the amount of food available. We estimate that no more than 0.4 (ha) (1.0 ac) of designated critical habitat may be adversely affected by high impacts or up to 5 ha (12.45 ac) of designated critical habitat may be adversely affected by light impacts during short-term incursions into excluded areas depending on the number of livestock and duration of time livestock stay in the excluded areas (BLM 1999). In addition, small, unprotected areas and trail ways will be adversely affected by trampling, the loss of protective cover, or a reduction in the amount of food available but this is not anticipated to appreciably reduce the function of designated critical habitat.

The proposed action includes specific measures that were recommended in the Recovery Outline (Service 2014c). Therefore, implementation of the proposed action is not expected to diminish the function and conservation role of designated critical habitat to the recovery of the jumping mouse. Therefore, given approximately 57% of designated critical habitat within San Miguel, San Diego, and Cebolla/Antonio Allotments will be protected from grazing and the remainder 35% will be grazed within the 40% grazing utilization standards, we determine that the proposed action will not reduce the Unit's functionality to support recovery of the jumping mouse or impede the Unit's ability to contribute to the recovery of the species within the watershed. The proposed action of managing ongoing livestock grazing will not prevent Unit 3 from contributing to the species' redundancy and resiliency within the watershed and throughout its entire range.

Additionally, the enhancement of designated critical habitat areas through restoration and improved connectivity will contribute to the recovery of the species. Therefore, the proposed

action will not appreciably reduce the ability of the jumping mouse to survive and recover along the Rio Cebolla or San Antonio Creek, within Critical Habitat Unit 3, or range-wide.

In conclusion, the Forest Service is initiating long-term conservation measures within these riparian ecosystems to ensure protection of riparian habitats and watershed that will assist in the survival and recovery of the jumping mouse. Without these measures, the survival and recovery of the jumping mouse would be in peril. The proposed action will assist in the maintenance and restoration of PCEs within designated jumping mouse critical habitat. This action will limit trampling of streambanks and alteration of dense herbaceous riparian vegetation that would have adverse effects on the PCEs, especially because there is a strong tendency for livestock to congregate in riparian habitat. Although the proposed action will not fence all designated jumping mouse critical habitat (e.g., in locations adjoining the occupied habitat exclosures south Forest Road (FR) 376 and designated critical habitat along San Antonio Creek), frequent monitoring will ensure these areas provide the necessary PCEs of designated critical habitat. If the PCEs are not being maintained, then consultation will be reinitiated.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Future livestock grazing is reasonably expected to occur within the action area and will contribute as cumulative effects to the proposed action. These activities regularly affect jumping mouse populations by reducing the suitability of habitat through the elimination of food or cover resources. Careful management is needed to address the reduction, alteration, or elimination of vertical cover of dense herbaceous riparian vegetation, which renders the habitat too sparse for use by the jumping mouse or may disrupt normal behaviors. Beyond livestock grazing, we are not aware of any future State, local, or private actions expected to occur within the action area that would not require some type of Federal permitting or review due to potential impacts to waterways, wetlands, or the habitats of federally listed species.

We also anticipate that jumping mouse habitat will be negatively affected by climate change occurring now and into the future, which may amplify the lack of available water within streams and springs resulting from lower precipitation trends and drought (see also SSA Report; Service 2014c). For example, increased and prolonged drought associated with changing climatic patterns is likely to adversely affect jumping mouse habitats by reducing water availability and potentially shrinking the amount of herbaceous riparian vegetation as water recedes. However, we lack sufficient certainty to accurately predict how climate change will ultimately affect jumping mouse populations.

CONCLUSION

Jeopardize the continued existence of, is defined as, to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species (50 CFR § 402.02).

Recovery calls for improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a) (1) of the Act (50 CFR § 402.02).

This BO relies on the revised regulatory definition of "destruction or adverse modification" of designated or proposed critical habitat from 50 Code of Federal Regulations (CFR) 402.02. As of February 11, 2016, the definition of "destruction or adverse modification" has been revised to align it with the conservation purposes of the Endangered Species Act of 1976, as amended (Act), and the Act's definition of "critical habitat" (81 FR 7214).

After reviewing the current status of the jumping mouse, the environmental baseline for the action area, the effects of the proposed action and the cumulative effects, it is the Service's BO that the action, as proposed, is not likely to jeopardize the continued existence of the endangered jumping mouse. We also find that the effects are not likely to destroy or adversely modify designated critical habitat. Consequently, we do not expect the effects of the proposed action to impede the survival or recovery of the jumping mouse. We make these findings for the following reasons:

1. We anticipate the small amount of low to moderate quality jumping mouse habitat and PCEs that will be impacted by the proposed action through water gaps and trailing.

2. We anticipate minor, temporary, direct and indirect effects to areas currently occupied by jumping mice through occasional unauthorized use, which will be minimized by frequent inspections and monitoring.

3. The likelihood that the survival and recovery of the jumping mouse will be compromised due to the implementation of the proposed action is extremely remote. This is because most of the impacts to suitable habitat will be random events and are anticipated to be short-term from frequent inspections and monitoring.

4. The species will ultimately benefit from the proposed action. The project would have a net gain of habitat and connectivity over existing conditions.

5. The forage/range guidelines of 40 percent utilization in grazed designated critical habitat must be monitored, reported, and maintained for this consultation to remain valid.

6. The Forest Service adjusted their proposed action and committed to initiating a series of protective and recovery actions designed to reduce direct and indirect threats and improve the status of the jumping mouse.

We do not believe the likelihood of survival and recovery of the jumping mouse will be compromised due to the implementation of the proposed action because improved habitat quality and quantity are anticipated as the PCEs in riparian areas are predominantly restored and maintained due to fencing and changes in management.

The conclusions of this BO are based on full implementation of the project as described in the Description of the Proposed Action section of this document, including any Conservation Measures that were incorporated into the project design.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. "Take" is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. "Harm" is further defined (50 CFR 17.3) to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined (50 CFR 17.3) as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined, as take is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.

Under the terms of section 7(b) (4) and section 7(o) (2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Forest Service so that they become binding conditions of any grant or permit issued to an applicant/permittee, as appropriate, for the exemption in section 7(o)(2) to apply. The Forest Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Forest Service: (1) fails to assume and implement the terms and conditions or (2) fails to require the (applicant) to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Forest Service must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [see 50 CFR 402.14(i)(3)].

AMOUNT OR EXTENT OF TAKE

Based on the best available information concerning the jumping mouse, the habitat needs of the species, the project description, and information furnished by the Forest Service, take is considered likely, given surveys that documented presence of the species, the project's proximity to water, vegetation structure, as well as historical records of occurrence within nearby high quality habitats. Based upon the proposed action, it is estimated that temporary changes in the habitat characteristics needed by the species will occur as a result of the project. The Service anticipates that ongoing livestock grazing will result in the incidental take of an undetermined number of jumping mice associated with a maximum of 0.4 to 5 ha (1 to 12.45 ac) of jumping mouse habitat based on severity of grazing per year, as described below, through livestock use of unprotected areas or when livestock enter exclosures more than two times per year, as described below, through downed fences or open gates.

We anticipate that in most cases, take as a result of the proposed action will be in the form harassment of the jumping mouse through effects that disturb or alter habitat from livestock grazing. Some individual jumping mice may be injured or food and cover resources affected as a result of the implementation of the proposed action, but we anticipate this number to be small because the Forest Service will conduct regular monitoring of exclosures and livestock will be removed quickly.

We anticipate that incidental take of the jumping mouse will be difficult to detect because the species has small body size and detection of an injured individual will be extremely difficult. For these reasons, it is not reasonable to express the amount of anticipated take of in terms of the number of individuals. Moreover, we conclude there is a causal link between jumping mice and suitable microhabitat conditions (e.g., tall, dense riparian vegetation primarily composed of sedges and forbs) because the jumping mouse requires specialized habitat requirements to support its life-history needs. As a result, jumping mice would not be found in areas that lack suitable habitat. Because the jumping mouse is intimately tied to its habitat, take is unlikely to occur in areas that do not contain suitable physical and biological features of habitat. As a result, we are using suitable habitat within exclosures (33.6 ha (83 ac)) that contains tall, dense riparian vegetation primarily composed of sedges and forbs as a surrogate, setting a clear standard for determining when the extent of take has been exceeded. This metric is appropriate because suitable jumping mouse habitat is composed of dense herbaceous riparian vegetation, which is an element of wetland habitat that is anticipated to be altered or disturbed if livestock temporarily enter exclosures.

Assumption: within exclosures, take is not expected, but could occur on rare occasion of unauthorized use. Take may also occur outside of exclosures in occupied areas (0.8 km (0.5-mi) radius of capture location) where livestock use is either not authorized or is authorized for a very limited extent (i.e., within the 0-5% utilization class), where they may concentrate due to topography or livestock management practices. Although we do not know where these areas of concentration will be, it is likely that some small level of habitat alteration resulting in take will occur as a result of the proposed action. In these cases take would likely be in the

form of reduced habitat suitability that may affect individual mice (and much needed recruitment) by reducing food, cover, or increased potential for predation due to loss of cover or need to move.

Take may be authorized on a graduated scale reflecting the amount of hectares (acres) and severity of impact based on unauthorized use of livestock grazing in exclosure areas and closed grazing areas. The following scenarios are defined by the number of allowable hectares (acres) of take related to unauthorized livestock grazing using the Landscape Appearance Method (BLM 1999). Take may occur in the following scenarios:

1) 0-5 % herbaceous utilization class (no evidence of grazing use or negligible use), up to 15% of the total 33.6 ha (83 ac) in any given exclosure area per year; or

2) 6-20% herbaceous utilization class (appearance of very light grazing), up to 5% of the total 33.6 ha (83 ac) in any given exclosure area per year; or

3) Over 20% herbaceous utilization class, up to 0.4 ha (1 ac) per exclosure area per year; or

4) More than two incursions of unauthorized livestock are found in any of the exclosures protecting occupied jumping mouse habitat.

If this amount of take (as stated above) is exceeded, then as provided in 50 CFR Section 402.16, reinitiation of formal consultation would be required.

EFFECT OF THE TAKE

In the accompanying BO, the Service determined that this level of anticipated take is not likely to jeopardize the continued existence of the jumping mouse. We have based this determination on the small amount of habitat to be temporarily impacted and because we expect that connectivity will be improved through livestock management and fencing. The fencing will be installed prior to onset of the 2016 grazing season to minimize and prevent entry and grazing by livestock.

REASONABLE AND PRUDENT MEASURES

The reasonable and prudent measures, and implementing terms and conditions are designed to minimize the effects of incidental take that might otherwise result from the action. In addition to the Conservation Measures already proposed as part of the project description, the Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the jumping mouse:

1. The Forest Service will monitor all aspects of ongoing grazing within the action area to assure project completion and success.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Forest Service and their employees, contractors, or subcontractors must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring. These terms and conditions are nondiscretionary.

The following Terms and Conditions are established to implement Reasonable and Prudent Measure 1.

1.1 The Forest Service will perform compliance checks weekly throughout the grazing season and reported weekly to the Service via phone or email.

1.2 If livestock gain entry into exclosures, the Forest Service will contact both the Service and permittee within 24 hours of their discovery.

1.3 If livestock gain entry into exclosures, the Forest Service will analyze (transect analysis of impact area) and report to the Service the extent of habitat impacted to ensure that it does not exceed the authorized take limits with 72 hours of removal of cattle (resource measurement).

1.4 The Conservation Measures and management actions that limit livestock impacts to jumping mouse habitat shall be discussed with all permittees to ensure that ongoing livestock does not impact jumping mouse habitat outside of exclosures beyond what is authorized in this BO.

1.5 The Forest Service shall ensure that exclosures and other fences are functional and maintained prior to livestock entry for the grazing season and throughout the grazing season.

1.6 All unauthorized activities (i.e., impacts outside of the proposed action) shall be immediately reported to the Service.

1.7 The Forest Service shall provide an annual post-grazing season report documenting how the project complied with the proposed action (i.e., implementation monitoring).

1.8 The Forest Service shall work with the Allotment Permittees to reduce and eventually eliminate incursions into jumping mouse exclosures. During the first three years of the term of this BO a baseline of mean annual incursions shall be documented by the Forest Service. During the next 5 years, the Forest Service shall work with the permittees to reduce the number of incursions by 50% and then 75% over the following 3 years.

1.9 The Forest Service shall minimize the effects of herding, trailing, and trampling and

report measures taken in their annual post-grazing season report.

1.10 To lessen or eliminate detrimental effects to riparian areas, the Forest Service shall take advantage of opportunities to trail livestock on the existing road system while moving cattle to and from grazing pastures.

Review requirement: The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the level of incidental take is exceeded, such incidental take would represent new information requiring review of the reasonable and prudent measures provided. The Forest Service must immediately provide an explanation of the causes of the taking and review with the New Mexico Ecological Services Office the need for possible modification of the reasonable and prudent measures.

Disposition of dead or injured listed animals

Upon finding dead, injured, or sick individual endangered or threatened species, initial notification must be made to the nearest Service Law Enforcement Office. In New Mexico, contact the Law Enforcement Office (505-346-7828) or the New Mexico Ecological Services Field Office (505-346-2525). Written notification must be made within 5 calendar days and include date, time, and location, photograph, and any other pertinent information. Care must be taken in handling sick or injured animals to ensure effective treatment and care and in handling dead specimens to preserve biological material in the best possible condition. If feasible, remains of intact specimens of listed species will be submitted to educational or research institutions holding appropriate State and Federal permits. If such institutions are not available, information noted above will be obtained and the carcass left in place.

Arrangements regarding proper disposition of potential museum specimens will be made with the institution before carrying out of the action. A qualified biologist should transport injured animals to a qualified veterinarian. Should any listed species survive treatment, we should be contacted regarding final disposition of the animal.

Certain project activities may also affect species that are protected under the Migratory Bird Treaty Act (MBTA) of 1918, as amended (16 U.S.C. sec. 703-712) and/or bald and golden eagles protected under the Bald and Golden Eagle Protection Act (BGEPA). The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Service. BGEPA prohibits anyone, without a permit issued by the Service, from taking (including disturbing) eagles, and including their parts, nests, or eggs. If you believe migratory birds will be affected by the project, we recommend you contact our Migratory Bird Permit Office, P.O. Box 709, Albuquerque, NM 87103, (505) 248-7882, or permitsR2mb@fws.gov. For more information regarding the MBTA, please visit the following websites: http://www.fws.gov/migratorybirds and http://www.fws.gov/migratorybirds/mbpermits.html.

CONSERVATION RECOMMENDATIONS

Section 7(a) (1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding the development of information. The recommendations provided here relate only to the proposed action and do not necessarily represent complete fulfillment of the agency's section 7(a) (1) responsibility. In order for the Service to be kept informed of activities that either minimize or avoid adverse effects or that benefit listed species or their habitats, the Service requests notification of the implementation of the conservation recommendations below. The Service recommends the following conservation recommendations be implemented:

New Mexico Meadow Jumping Mouse

1. We recommend that the Forest Service complete comprehensive jumping mouse surveys within areas that have not been surveyed since 2005 and 2006, but also in areas that contain suitable habitat. Surveys should also be conducted within areas where riparian vegetation is restored to document project success. This information will greatly assist all parties in gaining a better understanding the current status and whether habitat restoration leads to additional populations of the species. The Service discourages the Forest Service from assuming potential habitat is unoccupied until up-to-date surveys have been conducted. Therefore, the Forest Service should assume future projects in potential habitat may adversely affect jumping mice and should consult with the Service before implementing new projects.

2. We recommend that the Forest Service investigate the water rights associated with the closed acequia in San Antonio Campground with the goal obtaining or using water to rewet the 2005 jumping mouse location. The findings of this investigation should be sent to the Service.

3. Fix the fencing on the Fenton Pasture to exclude livestock accessing the area from the Lake Fork Mesa Pasture.

REINITIATION - CLOSING STATEMENT

This concludes formal BO on the proposed action on the effects of ongoing livestock management on the San Diego and Cebolla/San Antonio Allotments, Jemez Ranger District, Santa Fe National Forest. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

We are also including reinitiation triggers related specifically to the jumping mouse to ensure that its status declines no further on these allotments. Reinitiation of formal consultation is required if any of the following occur:

1) Forty percent utilization in the uplands is exceeded;

2) The conservation measures are not fully implemented by grazing season 2016 for electric fences and 2017 for permanent fences, including the written report delivered to us not later than January 2017 and by every January in subsequent years;

3) Unauthorized livestock are found to have altered or degraded more than take levels outlined above of suitable habitat within any of the exclosures;

4) Unauthorized livestock grazing within closed grazing areas protecting jumping mouse habitat more than twice in one grazing season (change in proposed action reinitiation trigger). If any of these instances occur, the Santa Fe National Forest shall contact the Service to determine if reinitiation of formal consultation is required.

In future communications regarding this consultation please refer to consultation #02ENNM00-2012-F-0038. If you have any questions, please contact Melissa Mata of my staff at the letterhead address or at (505) 761-4743.

Sincerely,

WALLY MURPHY

Digitally signed by WALLY MURPHY
Date: 2016.05.06 13:07:53 -06'00'

Wally Murphy
Field Supervisor

cc:
Director, New Mexico Department of Game and Fish, Santa Fe, New Mexico

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Appendix 1