DRAFT ENVIRONMENTAL ASSESSMENT FOR

N.M. RANCH PROPERTIES, INC. (ARMENDARIS RANCH)

BOLSON TORTOISE

SAFE HARBOR AGREEMENT

SOCORRO AND SIERRA COUNTY

NEW MEXICO

Prepared by:

U.S. Fish and Wildlife Service

New Mexico Ecological Services Office

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RECOMMENDED CITATION

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1.0 PURPOSE AND NEED FOR ACTION

1.1 INTRODUCTION

On August 18, 2022, N.M Ranch Properties, INC. (Armendaris Ranch) (Permittee), submitted an application for an Enhancement of Survival (EOS) Permit and Safe Harbor Agreement (SHA) under section 10(a)(1)(A) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.) to the U.S. Fish and Wildlife Service (Service). The N.M. Ranch Properties, Inc. (Armendaris Ranch) Safe Harbor Agreement dated October 5, 2022, (Agreement) will result in restoration activities for the Bolson tortoise, *Gopherus flavomarginatus* (tortoise), through the release of currently captive-raised tortoises on the Armendaris Ranch in southern New Mexico. Tortoises will be released only on the Armendaris Ranch. The Agreement is incorporated herein by reference.

The enrolled ranch (Figure 1-2) includes 344,955 total acres (139,598 hectares [ha]) with some inholdings. Under this Agreement, the Permittee will work to enhance and maintain the enrolled property. This will be accomplished through maintenance/increase of population numbers and/or distributions; repatriation of pre-European habitat; insurance against catastrophic events; establishment of buffers for other protected areas; an improved understanding of the species natural history and habitat; and creation of areas for testing and implementing new conservation strategies. The Agreement and associated section 10(a)(1)(A) EOS permit will be for a duration of 50 years. The EOS permit will authorize incidental take associated with ongoing land use activities, watershed improvement activities, species related management and monitoring activities, and any future return to baseline

1.2 PURPOSE OF THE PROPOSED ACTION

The Service's purpose in considering the approval of the SHA and issuance of an EOS permit (Proposed Action) is to fulfill our authority under the Act, Section 10(a)(1)(A). Non-Federal applicants who voluntarily wish to contribute to the recovery of listed species can apply to the Service for an EOS permit which authorizes incidental take related to the conservation activities and ongoing land uses while providing regulatory assurances and an ability to return the property back to baseline condition without potential violations of Section 9 of the Act.

The purpose of the Federal action is to address the application for an EOS permit to authorize incidental take of the tortoise for Covered Activities within the enrolled property. If the SHA meets the issuance criteria described in Section 10(a)(2)(a) of the Act, 50 CFR 13.21 and 50 CFR 17.22(c) are met, then the Service may issue an EOS permit for the Covered Activities identified in SHA.

The purpose for which a draft Environmental Assessment (EA) is being prepared is to:

- respond to the Permittee's application for a section 10(a)(1)(A) EOS permit for the endangered Bolson tortoise related to conservation and restoration activities as well as ongoing activities on the enrolled property that have the potential to result in incidental take, pursuant to the Act section 10(a)(1)(A) and its implementing regulations (50 CFR Parts 13 & 17) and policies (USFWS 1999, 52686, and 69 FR 24084)

- implement restoration activities for the tortoise, through the release of currently captive-raised tortoises from the Ladder Ranch (head-starting facility) to the Armendaris Ranch in southern New Mexico

- ensure compliance with the Act, National Environmental Policy Act (NEPA), and other applicable Federal laws and regulations.

1.3 NEED FOR THE PROPOSED ACTION

Section 10 of the Act specifically directs the Service to issue a permit to non-Federal entities when the criteria in Section 10(a)(2)(A) are satisfied by the applicant. Once we receive an application for an EOS permit, we need to review the application to determine if it meets issuance criteria. We also need to ensure that issuance of the EOS permit and implementation of the SHA complies with other applicable Federal laws and regulations. In addition, the Service enforces other requirements of the Act in addition to Section 10. If we issue an EOS permit, we may condition the permit to ensure the permittee's compliance with all Act requirements.

In September 2022, the Permittee, submitted an application for an EOS Permit associated with an SHA under section 10(a)(1)(A) of the Act. If the application is approved and the Service issues a permit, the EOS permit would authorize the Permittee to incidentally take tortoises as a result of conservation and restoration activities identified in the SHA as well as ongoing activities on the enrolled property and any future return to baseline. The Service has prepared this draft EA to inform the public of our Proposed Action and the effects of the Proposed Action and its alternatives on the human environment, seek information from the public, and use information collected and analyzed to make better informed decisions concerning this EOS permit application.

1.4 DECISION TO BE MADE BY THE RESPONSIBLE OFFICIAL

The scope of the analysis in this draft EA covers all elements of the human environment that could be affected by the approval of this Agreement and issuance of a section 10(a)(1)(A) EOS permit, including anticipated future effects of implementation of the Agreement (including the incidental take authorization). The Service will review the Agreement and associated permit action for any significant environmental, economic, social, historical, or cultural impact, or for significant controversy (USFWS 1999 & 516 Departmental Manual 2, Appendix 2). The decisions to be made include which alternative to implement and whether the alternative to be implemented will have a significant impact on the human environment, which would require the preparation of an Environmental Impact Statement.

2.0 ALTERNATIVES

Pursuant to NEPA, an EA should include a discussion of alternatives to the Proposed Action and the impacts of both the Proposed Action and alternatives considered (Section 102(2)(e) of NEPA; 40 CFR 1501.5(c)(2e) [2020]). This section describes the Proposed Action and an alternative to that action, which is the No Action Alternative.

This section presents details of the Proposed Action and the No Action Alternative. NEPA requires that Federal agencies consider a range of alternatives that could reduce the

environmental impacts of the project under consideration. The analysis of the environmental consequences of these alternatives is discussed in Section 4 of this document.

2.1 ALTERNATIVE 1: NO ACTION

In the No Action Alternative, the Service would not approve the Agreement nor issue the associated section 10(a)(1)(A) EOS permit. Therefore, while the private lands on the Armendaris Ranch are somewhat protected from residential development by existing Conservation Agreements, no permitted efforts would be made to coordinate improvement of conservation and restoration actions for the tortoise, release of currently captive-raised tortoises, restoration to pre-European range, or reestablishment of tortoise populations. The Permittee's conservation efforts that have occurred prior to the Agreement would continue. The No Action alternative provides the baseline for comparison of environmental effects of the preferred alternative.

2.2 ALTERNATIVE 2: ISSUANCE OF A 10(a)(1)(A) ENHANCEMENT OF SURVIVAL PERMIT FOR THE PARTICIPANT'S SAFE HARBOR AGREEMENT

The Proposed Action is the approval of the Agreement and issuance of the section 10(a)(1)(A) EOS permit. The Proposed Action is intended to contribute to the conservation and restoration of the tortoise.

Under this Agreement, the Permittee would be covered by the EOS permit for incidental take of tortoise resulting from enhancing or creating new habitat, protecting existing habitat, and/or allowing populations of the tortoise to be reestablished on their lands, as well as from ongoing existing activities and any future return to baseline.

Specifically, the management activities in the Agreement will assist in conservation for the tortoise. Implementation of the conservation activities would further improve and create breeding habitat and add redundancy to the overall population. There are no quantitative recovery criteria for the tortoise because it is an international species. However, with the Proposed Action, provisions will be made to potentially convert the foreign species into a domestically managed species and away from the International Affairs Program. Should this conversion take place, a tortoise recovery plan could be developed if the Agreement is successful. Net conservation benefit means the cumulative benefits of the conservation activities identified in a SHA that provide for an increase in a species' population and/or the enhancement, restoration, or maintenance of covered species' suitable habitat within the enrolled property, considering the length of the Agreement and any potentially off-setting adverse effects attributable to the incidental taking allowed by the enhancement of survival permit. Net conservation benefits must be sufficient to contribute either directly or indirectly to the recovery of the covered species (USFWS 1999).

The net conservation benefit is achieved by the Permittee's contributions to this species. Those contributions include providing staff, equipment, land, and captive propagation of an endangered species. Without the conservation actions of the Permittee, there would not be any conservation for the Bolson tortoise in the United States outside of zoos. Since this species is international, the majority of conservation work takes place in the Mapimí region of Mexico. If approved, the proposed SHA would contribute to increasing the survival of this species into the future by increasing the species population and habitat in the United States.

Biological Monitoring

Routine biological monitoring and management of tortoises will help to ensure the success of releases and that a net conservation benefit occurs as envisioned by this Agreement.

The primary responsibility for biological monitoring rests with the Permittee or appropriate proxies (e.g., State and Federal agencies, academia). If proxies are involved, the Permittee will grant access for this monitoring, provided that the appropriate proxy gives a minimum of 45-day notice and coordination is provided.

During Phase 1 of this Agreement, biological monitoring will occur at least annually and emphasize April through October when tortoises are active. Monitoring may include telemetry, interpretation of sign, and/or direct observations. Monitoring will focus on population status (i.e., size and trend), disease, and natural history (e.g., food habits, habitat use, movement patterns, burrow locations and use, and causes of mortality). During Phase II of this Agreement biological monitoring may include the techniques mentioned above and will occur less intensively and less frequently, but at a minimum of every 5 to 10 years.

Population Status

During Phase 1 of this Agreement the status of the bolson tortoise population will be determined annually by the number of individuals released, and by monitoring a subset of the population via radio-telemetry (or equivalent technologies that may emerge). During Phase 2 of this Agreement, monitoring may include telemetric monitoring but will focus on less intensive field actions, including estimating population status as a function of habitat occupied as determined by the distribution of tortoise scat and burrows. During Phase 2, the tortoise population will be monitored about every 5 years (to allow sufficient time for issues to emerge) and no longer than every 10 years.

Disease Monitoring

The disease status of animals will be assessed through direct observation, physical examination of individual tortoises, and assessment of biological samples (e.g., oral swabs). Disease monitoring will be as needed, but individuals will be sampled randomly every five years.

Natural History

During monitoring, attributes of bolson tortoise natural history will be recorded and assessed to ensure that habitat conditions are suitable for the tortoise. Attributes of interest include, but are not limited to, food habits, movement patterns, habitat use, and causes of mortality.

Annual reports summarizing the events of the year as pertains to this Agreement, including the results of monitoring efforts, if applicable, will be submitted to the New Mexico Ecological Services Office and the Service's Southwest Region Office (Albuquerque) by April 1 of each year. An exception will occur if this Agreement has been in effect for less than 6 months, in which case, no report need be submitted. Submission of the report will be the responsibility of the Permittee, who will work in conjunction with the Service to provide necessary information.

The conservation activities that are identified within the Agreement include:

1. Release, monitor, and manage more than 100 tortoises during the initial 2 to 5 years of

this Agreement to improve understanding of the species' natural history and establish the foundation from which viable populations (250 individuals on the ranch) could arise.

2. Provide timely reports to the Service (within 30 days) on species mortalities, injuries, or diseases observed on the enrolled lands.

3. Notify the Service 60 days in advance of any planned land management activity that the Permittee reasonably anticipates will result in the take of the species on the enrolled lands; and provide the FWS the opportunity to capture and/or relocate any potentially affected tortoises.

4. Notify the Service of any change 60 days in advance to the enrolled property's management, including prior notification for returning the enrolled property to baseline conditions; and identify the actions that would result in changed management or return to baseline.

5. Provide annual monitoring and reporting on compliance with this Agreement.

6. Allow access by the Service, or other agreed-upon party, to the enrolled lands upon 30-day written notice for purposes of carrying out monitoring and management activities. Permittee or its representative shall have the right to accompany Service during such access, and the scope of such access shall be agreed upon in advance by Service and Permittee in writing. In the event of an emergency, the Service may enter the premises to care for the tortoise at any time.

The management activities identified above are expected to provide a net conservation benefit for the tortoise through better understanding of natural history requirements; repatriation of the species in pre-historic habitat; maintenance/increase of population; insurance against catastrophic events; establishment of buffers for other protected areas; improved understanding of the species' natural history; and creation of areas for testing and implementing new conservation strategies.

3.0 AFFECTED ENVIRONMENT

The affected environment is the plan and permit area and the resources (e.g., biological, physical, cultural) potentially impacted by the Proposed Action and alternatives. The affected environment includes portions of the Armendaris Ranch and includes all areas covered by the permit where the Covered Activities and conservation actions would occur.

A summary of our assessment of the affected environment is provided in Table 1 below. This draft EA presents a detailed analysis of those resources that would be subject to short- or long-term effects if an EOS permit is issued authorizing take of the tortoise, which include the biological environment (vegetation; wildlife; and listed, proposed, and candidate species), and the physical environment (land use). Potential impacts to the physical environment (noise and visual resources), cultural resources, and other resources (i.e., geology and soils, water resources, air quality, hazardous materials/waste, recreation, socioeconomic resources, and transportation) would be both minor and similar under the two alternatives being considered; therefore, they are not discussed further. The tortoise spends most of the time in its burrow with

few biological requirements. This species is not believed to outcompete other fossorial species, due to the minimal biological requirements for survival.

Armendaris Ranch

The Armendaris Ranch encompasses an area of around 344,955 total acres (139,598 ha) and spans Sierra and Socorro counties in New Mexico (Figure 1-2). The property is managed for bison production, recreational wildlife use, as well as habitat restoration and imperiled species conservation.

The Armendaris sits at the northern extent of the Chihuahuan Desert, an ecoregion identified by the World Wildlife Fund in global assessment of biodiversity as one of the most important arid ecoregions on Earth (Olson and Dinerstein 1998). Many of this area's plants, fish, and reptile species exhibit localized patterns of endemism, with a high turnover of species with distance - the hallmark of a biologically rich ecoregion.

The baseline population condition (i.e., zero free ranging tortoises) are the habitat conditions that the Permittee started with and can end with because this gives the Permittee maximum flexibility to continue operations while simultaneously helping conserve the tortoise. The individuals that are held in captivity are not part of the baseline conditions. The population on the Armendaris Ranch is set to zero. We currently do not have any wild populations in the United States.

Table 1. Resources Considered and Rationale for Exclusion or Inclusion in Detailed Analysis.

Resource	Not Present	Present, Excluded from Detailed Analysis	Present, Included in Detailed Analysis	Rationale
Biological Environment				
Vegetation			X	Alternative 2 (Preferred) would result in both temporary and permanent impacts to vegetation (see Section 4.1.1).
Wildlife			X	Alternative 2 may affect locally occurring wildlife, likely resulting in both temporary and permanent impacts to wildlife (see Section 4.1.2).
Listed, Proposed, and Candidate Species			X	Alternative 2 may affect state- and/or federally listed, proposed, or candidate species, including the Northern aplomado falcon (see Section 4.1.3).
Physical Environment				
Air Quality		X		Each of the two alternatives would have limited temporary effects on air quality; these impacts would occur during livestock (bison) operations, maintenance of ranch infrastructure required to manage livestock, including the maintenance of tanks, roads, and fences; activities related to ecotourism and hunting. These activities would occur whether the Action is permitted or not and are part of the baseline conditions. These temporary and minor effects would be distributed throughout the Plan Area and the 50-year permit term, spreading out impacts over time and space. As such, air quality is excluded from further analysis.
Geology		X		Each of the two alternatives would have limited temporary

				effects on Geology. Impacts would primarily be limited to the physical footprint of aboveground facilities need to carryout livestock (bison) operations, maintenance of ranch infrastructure required to manage livestock, including the maintenance of tanks, roads, and fences; activities related to ecotourism and hunting. These activities would occur with or without the Action's implementation and are part of the baseline conditions. Therefore, impacts to Geology would be minor, localized, and spread throughout the Plan Area. As such, impacts to geological resources are excluded from further analysis.
Hazardous Materials/Waste	X			Limited quantities of hazardous materials would be associated with construction and maintenance activities for each of the two alternatives. Their use would be temporary and controlled by Federal laws and required management plans and project documents. As such, hazardous materials/waste are excluded from further analysis.
Land Use		X		Each of the two alternatives would result in no change, either temporary or permanent impacts to land use. The same activities will continue regardless of the Agreement.
Noise		X		Each of the two alternatives would result in the same ambient amount of noise to carryout ranch operations. Baseline conditions are considered. As such, Noise is excluded from further analysis.
Soils		X		Each of the two alternatives would have limited temporary effects on Soils. Impacts would primarily be limited to the physical footprint of aboveground facilities need to carryout livestock (bison) operations, maintenance of ranch infrastructure required to manage livestock, including the maintenance of tanks, roads, and fences; activities related to ecotourism and hunting. These activities would occur with or without the Action's implementation and are part of the baseline conditions. Therefore, impacts to Soils would be minor, localized, and spread throughout the Plan Area. As such, impacts to Soils are excluded from further analysis.
Visual Resources		X		Each of the two alternatives would result in a negligible impact of Visual Resources to carryout ranch operations. Tortoises spend up to 95% of their time in burrows and would not impact Visual Resources. As such, Visual Resources is excluded from further analysis.
Water Resources		X		Each of the two alternatives would have the same amount of activity related to water resources. Impacts would primarily be limited to the water storage of aboveground facilities need to carryout livestock (bison) operations, maintenance of ranch infrastructure required to manage livestock, including the maintenance of tanks, roads, and fences; activities related to ecotourism and hunting. These activities would occur with or without the Action's implementation and are part of the baseline conditions. The tortoise mainly gets water from vegetation and environment (see Safe Harbor Agreement).
Other Resources				
Cultural Resources		X		Cultural Resources may be found on the ranch; however, we do not expect the permitted action will affect any cultural resources because the release sites were chosen away from any resources that could be impacted. Release sites were vetted for this reason and the tortoise has high site fidelity, in which they remain close to where they were released. Ranching operations will continue without the Action permitted. As such, Cultural Resources

				is excluded from further analysis.
Recreation		X		Recreation activities occur on the Armendaris Ranch and are part of the baseline conditions. Release site locations were internally vetted to reduce any impacts to recreational opportunities, but at the same time provide conservation for the tortoise, which spends up to 95% of their time in burrows. As such, Recreation is excluded from further analysis.
Socioeconomics		X		Each of the two alternatives would likely have beneficial socioeconomic impacts. Socioeconomic impacts are currently associated with ecotourism and hunting from revenue of visitors. Viewing of the tortoise would provide another Socioeconomic beneficial impact to the local community that could be both short and long-term. We may expect additional ecotourism to the ranch due to the tortoise, but it may be highly regulated. Long-term impacts to the economy would primarily be associated with state, county, and local tax payments due to visitation and viewing of the tortoise. As such, long-term socioeconomic impacts are beyond the scope of this assessment and excluded from further analysis.
Transportation		X		The following baseline condition activities occur on the Armendaris Ranch: livestock (bison) operations, maintenance of ranch infrastructure required to manage livestock, including the maintenance of tanks, roads, and fences; activities related to ecotourism and hunting. We do not expect a decrease in transportation. There could be a potential increase in transportation, yet the ranch is highly regulated. We do not expect the permitted transportation to differ greatly from the permitted scenario. As such, Transportation is excluded from further analysis.

3.1 VEGETATION

The affected environment consists mainly of Chihuahuan Desert ecoregion, which is broken down into other Chihuahuan subcategories. The Armendaris Ranch is on the northern extent of the Chihuahuan Desert, and its associated plant community can be found in the Covered Area.

Armendaris Ranch

Approximately a third of the Armendaris is composed of the Apacherian-Chihuahuan Semi-Desert Grassland and Steppe vegetative community, which is characterized by a diverse suite of warm-season, perennial grasses with scattered stem succulents and shrubs. Another third of the property reflects the Chihuahuan Creosote bush, Mixed Desert and Thornscrub ecological system, which is characterized by creosote bush (*Larrea tridentata*), mixed with desert scrub, with grasses common but at lower cover levels than shrubs. A significant expansion of this desert scrub system in the Chihuahuan Desert's northern extent is thought to be the result of recent invasion of creosote bush into former desert grasslands over the last 150 years. The combined effects of increased drought, overgrazing by livestock, and/or decreases in fire frequency over the last 70-250 years (Buffington and Herbel 1965, Ahlstrand 1979, Donart 1984, Dick-Peddie 1993, Gibbens et al. 2005). Common grass species include black gramma (*Bouteloua eriopoda*), hairy gramma (*Bouteloua hirsute*), Rothrock's gramma (*Bouteloua rothrockii*), sideoats gramma (*Bouteloua curtipendula*), blue gramma (*Bouteloua gracilis*),

plains lovegrass (*Eragrostis intermedia*), bush muhly (*Muhlenbergia porter*), curly-leaf muhly (*Muhlenbergia setifolia*), James' galleta (*Pleuraphis jamesii*), tobosa grass (*Pleuraphis mutica* or *Hilaria mutica*), and alkali sacaton (*Sporobolus airoides*), succulent plant species of *Agave*, *Dasylirion*, and *Yucca*, and tall-shrub/shorttree species of mesquites (*Prosopis)* and various oaks (*Quercus*).

3.2 WILDLIFE

Wildlife present within the affected environment includes those species common to semi-arid Chihuahuan desert, and include: desert box turtle (*Terrapene ornata*), American badger (*Taxidea taxus*), desert mule deer (*Odocoileus hemionus crooki*), mountain lion (*Felis concolor*), black bear (*Ursus americanus*), bobcat (*Lynx rufus*), kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), javelina (*Dicotyles tajacu*), desert bighorn sheep (*Ovis canadensis nelsoni*), scaled quail (*Callipepla squamata*), Gambel's quail (*Lophortyx gambeli*), burrowing owl (*Athene cunicularia*), curve-billed thrasher (*Toxostoma curvirostre*), mourning dove (*Zenaida macroura*), prairie rattlesnake (*Crotalus viridis*) American bison (*Bison bison*) and oryx (*Oryx gazella*).

3.3 LISTED, PROPOSED, AND CANDIDATE SPECIES

The Service has determined that the following listed, proposed, or candidate species may occur in the affected Proposed Action area:

Species	**Status**
Mexican wolf (*Canis lupus baileyi*)	Experimental
Northern aplomado falcon (*Falco femoralis septentrionalis*)	Experimental
New Mexico meadow jumping mouse (*Zapus hudsonius luteus*)	Endangered
Southwestern willow flycatcher (*Empidonax traillii extimus*)	Endangered
Mexican spotted owl (*Strix occidentalis lucida*)	Threatened
Chiricahua leopard frog (*Rana chiricahuensis*)	Threatened
Piping plover (*Charadrius melodus*)	Threatened
Western yellow-billed cuckoo (*Coccyzus americanus*)	Threatened
Narrow-headed gartersnake (*Thamnophis rufipunctatus*)	Threatened
Gila trout (*Oncorhynchus gilae*)	Threatened
Rio Grande cutthroat trout (*Oncorhynchus clarkii virginalis*)	Candidate
Rio Grande silvery minnow (*Hybognathus amarus*)	Endangered

Alamosa springsnail (*Tryonia alamosae*)	Endangered
Chupadera springsnail (*Pyrgulopsis chupaderae*)	Endangered
Socorro springsnail (*Pyrgulopsis neomexicana*)	Endangered
Socorro isopod (*Thermosphaeroma thermophiles*)	Endangered
Pecos sunflower (*Helianthus paradoxus*)	Threatened
Todsen's pennyroyal (Hedeoma todsenii)	Endangered
Wright's marsh thistle (*Cirsium wrightii*)	Proposed Threatened

Only one of these species (see below) is found in the area where the tortoise habitat is found or where tortoises will be released. The riparian or montane nature of the above species excludes further consideration in the areas on the Armendaris Ranch because the property where the tortoises are released is Chihuahuan desert and the aforementioned species do not utilize this habitat type. The following species may occur in the habitat where the tortoise would be found.

Northern aplomado falcon: The falcon was listed as endangered without critical habitat on February 25, 1986, and on July 26, 2006, a nonessential experimental population (NEP) was established (51 FR 6686, USFWS 2006). To facilitate the reestablishment of the aplomado falcon in New Mexico and Arizona, the Service designated the aplomado falcon in these two States a Nonessential Experimental Population (NEP) under section 10(j) of the Act (USFWS 2006, 2014). In 2006, the first New Mexico reintroductions were conducted on the privately owned Armendaris Ranch. Between 2006 and 2011, a total of 337 aplomado falcons were reintroduced at sites in southern New Mexico, including several sites on the Armendaris Ranch, on nearby lands managed by the Bureau of Land Management Las Cruces District Office (BLM LCDO), the state of New Mexico, and White Sands Missile Range. Adults are characterized by rufous (rust) underparts, a gray back, a long and banded tail, and a distinctive black and white facial pattern. Aplomado falcons are smaller than peregrine falcons and larger than kestrels. In New Mexico, the range of the aplomado falcon apparently receded westward in the early 1900s, with birds being reported primarily from the southwestern counties (Bailey 1928, Ligon 1961). The main prey for the falcon is other bird species.

Bolson Tortoise

Summarized information regarding the tortoise can be found in the Agreement (p. 5-7) and is incorporated here by reference.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 ALTERNATIVE 1: NO ACTION

Under the No Action Alternative, the Service would not approve the Agreement for the tortoise nor issue a section 10(a)(1)(A) EOS permit to authorize incidental take associated with conservation activities specified in the Agreement as well as ongoing activities. No conservation activities would be undertaken to improve the understanding of the tortoise habitat; maintenance/increase of tortoise population numbers or distributions; repatriation of pre-European historic habitat; insurance against catastrophic events; establishment of buffers for other protected areas; improve understanding of the species natural history; and creation of areas for testing and implementing new conservation strategies. No action would be taken for the enhancement and survival of the tortoise.

Specifically, management of existing sites would be consistent with current land uses with the majority of these sites managed in association with livestock grazing. Land use of vegetation communities would be related to existing land uses, namely livestock ranching. Construction of new livestock ponds, wells, and pipelines would continue at the existing rates, based upon funding and the need for new sites for livestock operations.

Construction of fences to exclude livestock from all or portions of livestock tanks and natural aquatic sites would occur within the covered area at existing levels to accommodate the needs of livestock operations. Any modifications to existing grassland habitat, like the development of silt traps on existing livestock ponds, would occur to meet the needs of the property owner. Modification of existing grassland habitat for the tortoise is not likely to occur for the conservation of this species under this alternative. Grassland habitat modification may still occur to facilitate management of livestock or recreation needs.

4.1.1 VEGETATION

No change in the current condition of vegetation communities, from those described in section 3.1 above, are expected under this alternative. Conservation of the tortoise on non-Federal lands would not necessarily be part of the considerations in any management of existing vegetation within the affected area. Grassland bird species are conserved on this property. Any protection of vegetation that provides habitat for the tortoise would be incidental to existing land uses or through the desires of the landowner. Vegetation conservation is part of livestock (bison) management, as well as providing hunting opportunities for species on the ranch and ecotourism. These ranch activities will continue whether or not the Proposed Action is permitted.

4.1.2 WILDLIFE

No change in the current condition of wildlife, as described in section 3.2 above, is expected under this alternative. Stock ponds are found throughout the ranch and will be repaired when necessary. These ponds provide water for a host of species in the Chihuahuan Desert. Insects, toads, and mammals will utilize these waters. Livestock will use these water sources as well as game species throughout the Armendaris Ranch. Desert big horn sheep as well as upland game

birds will also utilize the water sources. Conservation of desert species is part of the ranch's management strategy.

4.1.3 LISTED, PROPOSED, AND CANDIDATE SPECIES

No change in the current condition for listed, proposed, or candidate species, as described in section 3.3, is expected under this alternative. Several listed species are found at the Armendaris Ranch. There are other listed, proposed and candidate species that Turner Endangered Species Fund (TESF) helps to conserve, such as the Mexican wolf and Chiricahua leopard frog. In particular, the Aplomado falcon is a grassland species that is conserved on the property, due to the Permittee's actions. We expect the same conditions to continue for this and other species.

Facilities are found on the property to help with other threatened or endangered species, such as the Chiricahua leopard frog, and we expect these efforts to continue. Conservation of the tortoise on non-Federal lands would not necessarily be part of the considerations in any management of listed, proposed, or candidate species within the covered area, unless through some other agreement such as a Habitat Conservation Plan, SHA, or a Candidate Conservation Agreement with Assurances.

Incidental take of listed, proposed, and candidate species breeding facilities from the capture, handling, holding, moving, and reestablishment efforts will be authorized under separate Section 10(a)(1)(A) Research and Recovery Permits with appropriate terms and conditions to minimize impacts to existing populations and individuals.

4.2 ALTERNATIVE 2: N.M. RANCH PROPERTIES, INC. SAFE HARBOR AGREEMENT (PREFERRED)

The action under this alternative would be the approval of the Agreement and issuance of the section 10(a)(1)(A) EOS permit to the Permittee. Implementation of the Agreement would follow the approval of the Agreement and permit issuance.

4.2.1 VEGETATION

There will be an increase in the frequency of human visitation at the release sites with surveying and monitoring activities, as well as veterinarian care that will impact the surrounding vegetation. The Participant proposes to undertake conservation activities that will restore and maintain natural range vegetation through prescribed conservation activities that are ongoing. Invasive species pose a major threat to all lands; therefore, the Permittee will work to eliminate these threats on the enrolled property by sanitizing vehicles and equipment prior to visiting release sites or by having equipment for the sole use of this project.

Indirect effects of issuing the EOS permit and implementing the Agreement are likely to consist of both short-term negative and long-term beneficial impacts on vegetation in the enrolled property. A short-term negative impact of increased herbivory of vegetation around the release sites may occur until the released individuals disperse and find new burrows to colonize. A potentially beneficial long-term impact may include reducing fuel loading that would decrease wildfire spread and removal of decadent grasses.

Construction of new tanks or silt traps on existing livestock ponds would result in short-term disturbance of vegetation. This would be the result of the implementation of the Proposed Action. Although, new stock tanks are part of the No Action Alternative, it would be necessary to potentially manipulate livestock behavior so tortoises are not harmed. It may be necessary to have livestock in the direct area of the tortoise to reduce fuel loading, and to promote new vegetation growth, but this would be conducted during the tortoise brumation (hibernation) period. There is a possibility of bison stepping on and crushing a tortoise or collapsing a burrow, however, it would be rare because tortoises spend 95% of their time in complex burrow structures (Morafka 1982). The tortoises dig deep and long burrows, up to 6 feet (2 meters (m)) deep and 24 feet (8m) long (Swingland and Klemens 1989). Consequently, it may be necessary to remove livestock away from tortoise release areas to stimulate vegetation growth. The frequency of new livestock tank construction is anticipated to be similar to that under the No Action Alternative, because the Participant will establish livestock tanks in response to the needs of their livestock management, and the Participant will also consider the needs of the tortoise. The short-term impact of establishing a new tank would congregate the livestock reducing vegetation. We expect conservation activities to be highly structured to reduce the time and intensity of livestock impacts to vegetation. In addition, the areas of disturbance associated with implementing the Agreement are relatively small, usually less than an acre and are not likely to result in a significant change to vegetation types or distribution.

The impacts from livestock (bison) grazing and the implementation of the Agreement on the vegetation around these tanks and periodic maintenance of these sites would remain unchanged or may be decreased with partial fencing and the development and implementation of new ranch management plans, which would result in improvements in vegetation cover on the participating property.

Reasonably foreseeable actions, like ranching operations, are likely to cause similar changes to native plant communities within and surrounding the project area. While we anticipate an immediate slight decrease in vegetation temporarily due to human, tortoise, and livestock impacts, these impacts are expected to be minor over the life of the permit because of the Permittee's capabilities to manage for the tortoise and the long duration of the permit will allow for vegetative communities to recover. The conservation ethic of the Participant and the management of the Proposed Action on the Armendaris Ranch will ultimately be beneficial to the vegetation. The small size (usually less than an acre) of stock tanks and impacts from construction are insignificant because of the vast habitat (344,955 acres) that is available to the tortoise. The impacts of implementing the proposed Agreement on vegetation communities would be long-term beneficial by allowing better manipulation of the desired plant community. The issuance of an EOS permit and approval and implementation of the Agreement is not expected to result in significant effects to vegetation.

4.2.2 WILDLIFE

There will be an increase in the frequency of human visitation to the release sites with surveying and monitoring activities as well as veterinarian care that may impact the surrounding wildlife. The Participant proposes to undertake conservation activities that will restore and maintain natural wildlife communities. Indirect effects of issuing the EOS permit and implementing the Agreement are likely to consist of both short-term negative and long-term beneficial impacts on wildlife on the enrolled property because the amount of habitat available is immense.

Displacement of other reptile or mammal species caused by the issuance of this permit and implementation of the Agreement would negatively impact wildlife on the enrolled property. Box turtles (*Terrapene ornata*), and other fossorial reptile and mammal species may be displaced if tortoises take up residence in their burrows. However, this is unlikely because the tortoise behavior suggests they will construct their own single burrow. Surveys and monitoring will occur to understand if the tortoise may use established reptile/mammal burrows to the exclusion of their original resident. This will aid in understanding this potential impact to other species. Other species burrows that could be used would be burrowing owls, prairie dogs, pack rats, and potentially any other burrowing animal or reptile and vice versa. However, release sites were chosen to minimize impacts to the existing wildlife community. We expect displacement of fossorial species to be minimal as the tortoises will often dig a new burrow and the amount of displacement is insignificant (Morafka 1982). Indirect effects are likely to consist of increased forage needs, water needs, and cover resources (burrows) for the tortoise. A long-term beneficial effect would result from the increased cover resources (burrows) and wildlife diversity of this area.

New water sources developed to manipulate livestock behavior around the tortoise release sites are a consequence of this alternative and can impact wildlife species. Creation of new water sources can temporarily change wildlife patterns and behaviors.

Reasonably foreseeable actions, like ranching operations, are likely to cause similar changes to wildlife communities within and surrounding the project area. We expect ranching operations to continue to disrupt wildlife patterns and behaviors due to livestock needs. While we anticipate some impacts due to human, tortoise, and livestock, these impacts are expected to be minor over the life of the permit because of the declining need of human intervention with the tortoise. The Permittee's management of the Proposed Actions will ultimately be beneficial to wildlife because it will increase diversity of a locally extirpated pre-European historic animal. The impacts of the Proposed Action may be negative in the short-term, but it has long-term positive benefits for other native species by increasing wildlife diversity. The issuance of an EOS permit and approval and implementation of the Agreement is not expected to result in significant effects to wildlife.

4.2.3 LISTED, PROPOSED, AND CANDIDATE SPECIES

No direct impacts to listed, proposed, and candidate species are anticipated from the issuance of the permit and implementation of the Agreement under this alternative. Indirect impacts to listed, proposed, and candidate species would generally occur when implementing the conservation activities identified in the Agreement, such as construction activities, the reestablishment of tortoise, or returning sites to baseline conditions.

Aplomado Falcon

No direct impacts to the falcon are expected. This bird of prey's food source is strictly other bird species. There may be an indirect impact in the vegetation community, but it is not expected to be at the scale large enough to impact this species. This impact will be at the local community level.

Bolson Tortoise

The Proposed Action would likely result in a long-term benefit to the tortoise by improving range conditions and reestablishing additional populations on the enrolled property. Changes in management of the tortoise are proposed to minimize impacts from ongoing land uses by implementing the conservation activities under this Agreement and maintaining baseline conditions identified for the tortoise. These changes would promote restoration of the tortoise and incidental take is likely to be minor relative to the anticipated net conservation benefit of the Agreement.

N.M. Ranch Properties activities include management of livestock (bison), maintenance of ranch infrastructure required to manage livestock, including the development and maintenance of tanks, roads, and fences; activities related to ecotourism and hunting; and limited solar energy generation. Any take resulting from normal activities will tend to be minimal and is expected to consist mainly of accidentally collapsing burrows and/or striking/killing tortoises with vehicles. The potential short-term impacts of livestock management on existing range communities are related to the need to upkeep fences and waters for the bison population. Reduced vegetation and monsoonal precipitation may lead to some burrows being inundated with water. In the event of a flood, if a release site is determined to be unsuitable, the tortoise would be removed and translocated until conditions improve. This is typically done through natural drying of a site. In addition, under this alternative there are measures to reduce impacts to tortoises through salvage and reestablishment. Any new light construction to manipulate livestock towards the tortoise could potentially impact the species, such as partial fencing of well and playa communities, as it may be necessary to manage range conditions. Development of new wells and pipelines, as a direct consequence of this alternative, could have similar impacts as other construction when associated with range communities. However, any activity that would improve the persistence of existing species on the ranch would outweigh any short-term impacts related to construction.

The remaining potential actions associated with this alternative are the reestablishment of tortoise populations. Reestablishment of tortoises in appropriate sites is a major conservation activity of this alternative. Reestablishments will be accomplished with individuals from existing captive populations. They will be placed in unoccupied habitats or to augment existing populations on non-Federal lands within the enrolled property. Reestablishments are proposed to assist in meeting restoration goals. Therefore, these actions would be beneficial to the continued existence of the tortoise in New Mexico and to their eventual recovery.

The potential for the Permittee at the end of their participation to return a site to baseline conditions would have an impact on the tortoise. The negative impacts of removing population sites reestablished under the proposed Agreement would be outweighed by the reestablishment of population sites above the current baseline for the tortoise, the reproduction and dispersal of individuals from these reestablishment sites to adjacent Federal lands, and their contribution towards recovery for the 50-year term of the Agreement and associated EOS permit. This Agreement could also encourage similar restoration actions on private lands within the historic range of the tortoise. Overall, we expect the direct impacts to the tortoise to be beneficial. Reasonably foreseeable actions are likely to cause similar changes to the tortoise within and surrounding the project area. Any incidental take will be minimized and is expected to be minor. Precautions have been implemented to reduce impacts, such as the siting of the release locations.

Ranch activities will continue with some change, which gives an endangered species a chance at recovery. A return to the baseline population condition (i.e., zero free ranging tortoises) is available if the Permittee chooses. The issuance of an EOS and approval and implementation of the Agreement is not expected to result in significant effects to tortoise.

Other listed, proposed, or candidate species:

We do not expect any potential impacts to other special-status species as an indirect result of capture, monitoring, transportation, and reestablishment of the tortoise because of the high site fidelity of this species to remain near its burrows that it digs itself. If reasonably foreseeable actions may impact a future listed, proposed, or candidate species, a separate Section 10 permit, an amendment to this permit, or other coverage under the Act may be necessary. Any impacts would be analyzed as part of a future process and these impacts would be a separate action.

5.0 PUBLIC INVOLVEMENT

5.1 AGENCY INVOLVEMENT

The Agreement and this draft EA were reviewed by the TESF. The Service will seek input from potentially affected tribal governments within and surrounding the Plan Area during the public comment period on the Agreement and this draft EA. We will respond to and address comments from tribal governments before reaching a final decision. The New Mexico Department of Game and Fish was contacted and given a copy of the Agreement and will be given a chance to review pertinent documents along with other agencies.

5.2 PUBLIC REVIEW

In accordance with NEPA, this draft EA, as well as the Agreement and other application materials, will be circulated for public review and comment. A 30-day public comment period will be initiated with the publication of the Notice of Availability in the Federal Register. Comments received on this draft EA will be incorporated into and appended to the final EA.

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Figure 1. Map of the Area Covered by the Agreement - Affected Environment

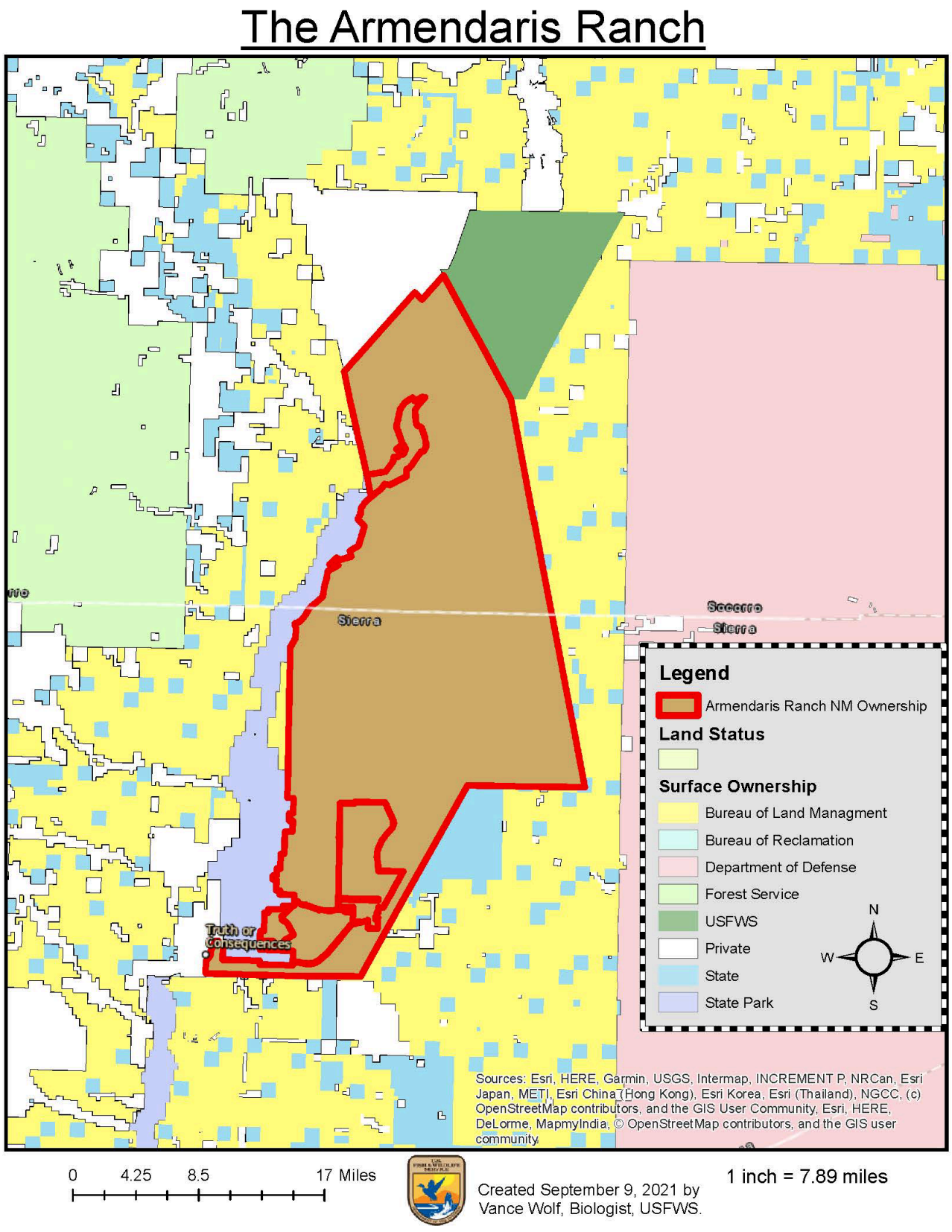

Figure 2. The position of the Armendaris Ranch in New Mexico and within Sierra and Socorro counties.