N.M. RANCH PROPERTIES, INC. (ARMENDARIS RANCH) BOLSON TORTOISE SAFE HARBOR AGREEMENT

Prepared by:

U.S. Fish and Wildlife Service

New Mexico Ecological Services Office

& Turner Endangered Species Fund

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RECOMMENDED CITATION

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1. INTRODUCTION

This Safe Harbor Agreement (Agreement) is made and entered into by N.M Ranch Properties, Inc. (Permittee); and the U.S. Department of the Interior, Fish and Wildlife Service (FWS); hereinafter collectively called the "Parties." The purpose of this Agreement is to provide abundant, suitable, secure habitat for a Bolson tortoise (*Gopherus flavomarginatus*) (tortoise) population and facilitate population restoration activities for the tortoise, through the release of captive-raised tortoises on the Permittee's Armendaris Ranch located in Sierra and Socorro counties in southern New Mexico. The tortoises to be released are part of an ongoing captive breeding program spearheaded - since 2006 - by the Turner Endangered Species Fund (TESF) and located on the Armendaris Ranch and its affiliated Ladder Ranch in Sierra and Socorro counties in New Mexico. The Ladder Ranch has the "headstart" facility where hatchling growth is accelerated prior to release on the Armendaris Ranch. Tortoises will not be released on the Ladder Ranch but will be held in enclosures there. Therefore, the Ladder Ranch is not considered in the enrolled property. This Safe Harbor only concerns the Armendaris Ranch where released tortoises and their progeny will be allowed to occupy suitable habitat. Release of tortoises will be authorized during the Agreement with appropriate coordination with and permitting from the New Mexico Department of Game and Fish (NMDGF). This Agreement follows the FWS's Safe Harbor Agreement final policy (64 FR 32717), final regulations (64 FR 32706), amendments (69 FR 24084) and implements the intent of the Parties to follow the procedural and substantive requirements of section 10(a)(1)(A) of the Endangered Species Act (ESA).

This Agreement covers the endangered tortoise. The tortoise was listed as endangered under the ESA on April 17, 1979, as a species native to Mexico and foreign to the United States. The tortoise was listed as a CITES Appendix II species on July 1, 1975, and elevated to Appendix I on June 28, 1979 (IUCN 2022). The critically imperiled tortoise is not known to have inhabited New Mexico since prior to European colonization. Its prehistoric distribution ranged westward to southwestern Arizona, eastward to the Trans-Pecos region of Texas, northward to Oklahoma, and southward to Aguascalientes, Mexico (Morafka et al. 1989). Its current range represents less than 10% of this region and is limited to a relatively small area of north-central Mexico in the States of Chihuahua, Coahuila, and Durango. The tortoises propagated by the Permittee have been held in captivity since prior to the listing of the species under the ESA. Consequently, the prohibitions of the ESA do not apply to these tortoises or their progeny.

The enrolled property (Figures 1-3) includes approximately 344,955 acres (139,598 hectares [ha]) on the Armendaris Ranch in Chihuahuan Desert/Arizona-New Mexico Mountains ecosystems between the Black Range and San Andres Mountains in south-central New Mexico (see Figures 1 and 2).

Ranch activities include bison ranching, nature tourism, hunting and other recreation, limited solar energy generation, guest lodging, and maintenance activities. These ranch activities are currently ongoing and will continue, regardless of whether the Agreement is approved or not. It is noteworthy that bison ranching as practiced by the Permittee strives to maintain healthy grasslands under all conditions, including drought, and that these management strategies will benefit the grassland habitats required by the tortoise.

Under this Agreement, during the initial 2 to 5 years of execution, the Permittee intends to release, monitor, and manage more than 100 tortoises to establish a foundation from which viable populations (250 individuals or more) could become established at the Armendaris Ranch. After that, releases will cease, monitoring and management intensity will lessen, and the populations will be allowed to mature to viability through minimal management. This approach for restoring viable populations of long-lived individuals that are slow to mature is indicated by the quality of habitat and high level of security offered by the ranch.

When signed, this Agreement will serve as the basis for the FWS to issue a 10(a)(1)(A) Enhancement of Survival (EOS) permit to cover ongoing land use activities, tortoise management and monitoring activities (see sections 6 and 8), and the take of tortoises in the event of future return of the Permittee's enrolled lands to the baseline population condition (i.e., zero free ranging tortoises/zero baseline). The permit will authorize the Permittee to take up to all tortoise that are above the baseline condition for the enrolled property. This includes any individuals released to the enrolled property or their progeny that result from the Permittee's conservation activities. The existing captive population of tortoises on the Armendaris Ranch involved in a study of movement patterns (via radio telemetry) and survival at a controlled environment at the Armendaris under section 9b of the ESA are not part of the baseline population for this property. The Permittee anticipates that the maximum level of take authorized under this Agreement and permit will never be realized. Permit issuance will not preclude the need for the Permittee to abide by all other applicable Federal, State, and local laws and regulations that may apply.

2. DESCRIPTION OF ENROLLED PROPERTY

Armendaris Ranch

The Armendaris Ranch encompasses an area of around 344,955 acres, in Sierra and Socorro counties in New Mexico (Figures 1 and 2). Management of the Armendaris focuses on bison ranching, nature tourism, hunting and other recreation, limited solar energy generation, and wildlife conservation including restoration of imperiled species. Nearly 93% of the Armendaris, including areas to be occupied by free ranging tortoises due to this Agreement, is encumbered by a conservation easement held by the New Mexico Land Conservancy.

The Armendaris sits at the northern extent of the Chihuahuan Desert, an ecoregion that was identified by the World Wildlife Fund in a 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.

Approximately a third of the Armendaris is composed of the Apacherian-Chihuahuan Semi-Desert Grassland and Steppe (Figure 3) 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 *Larrea tridentata* into former desert grasslands over the last 150 years. The combined effects of climate change (increased drought), overgrazing by livestock, and/or decreases in fire frequency over the last 70-250 years has fueled the expansion of *Larrea tridentata* (Buffington and Herbel 1965, Ahlstrand 1979, Donart 1984, Dick-Peddie 1993, Gibbens et al. 2005).

TESF biologists (administers the tortoise project in close collaboration with N.M. Ranch Properties, Inc.) assessed the habitat used by the tortoise population in Mexico and found numerous similarities with habitat on the Armendaris Ranch. They then used this information to inform the selection of captive enclosures for the tortoise in New Mexico. The Mexican and Armendaris Ranch locations are both within the Chihuahuan desert scrub biotic community (Brown and Lowe 1980).

N.M. Ranch Properties, Inc. staff created two 8.5-acre (3.4 ha) captive enclosures on the Armendaris Ranch in 2006 and named these Cedar Tank pen and Deep Well pen. These pens prevent the tortoise from walking away but allow other animals to enter and exit. In 2011, the Cedar Tank pen was expanded to approximately 18 acres (7.2 ha) and tortoises previously held in the Deep Well pen were added to the Cedar Tank population to increase the number of potential mates for all tortoises. Starting in 2012, larger juvenile tortoises were transferred from the headstart enclosures at the Ladder Ranch to the Cedar Tank pen to make space for younger, more vulnerable tortoises there. Roughly 90 tortoises are currently housed at the Cedar Tank pen. The tortoises are monitored regularly, and growth, health, and survivorship are evaluated annually. Tortoises are not given supplemental food beyond what grows naturally in the pens. Under these conditions, tortoises have successfully survived, reproduced, and grown in good health. Therefore, the Parties believe that the released tortoises will be successful in similar habitat elsewhere on the Armendaris Ranch. These efforts will help to recover the species by providing redundancy to the critically imperiled population in Mexico.

3. COVERED SPECIES

The tortoise is the largest and rarest land reptile and the rarest of the six *Gopherus* species native to the North American Continent (Wiese and Hillard 2018). The species was listed as endangered, without critical habitat, for population declines resulting from human predation, habitat modification, competition from grazing, and collection of individuals (USFWS 1978b).

This species in the wild is restricted to desert grasslands in a relatively small area of north-central Mexico in the states of Chihuahua, Coahuila, and Durango (USFWS 1978a, Morafka et al. 1989) where it exists in disjunct sub-populations. The tortoise once had a much larger range that included much of the southwestern United States. Fossil records indicate that during the Pleistocene Epoch the tortoise was present in the southern Great Plains and northern Mexican Plateau extending from southwestern Arizona, Oklahoma, Trans-Pecos Texas, and the Mexican State of Aguascalientes during the Pleistocene (Auffenberg and Franz 1978). Fossils have been found in New Mexico (Ureña-Aranda and de los Monteros 2012). Post-Pleistocene, the tortoise continued to inhabit the southwestern U.S., likely including New Mexico, and likely overlapping with Native American occupation of this area (Morafka 1982). Its current distribution thus represents a contraction of its range of greater than 90% (Morafka et al. 1989, NatureServe 2008). Tortoise numbers continue to dwindle in Mexico - mainly due to human predation and activities - such that the current wild population is estimated to consist of fewer than 2,500 adults (Kiester et al. 2018).

While the area covered by this Agreement lies within the past range of the species, there are currently no known wild populations of tortoise in the area, and there have not been for at least several thousand years. Under this Agreement, management actions related to the restoration of the tortoise include the propagation and establishment of the species in existing tobosa grassland which can be maintained in conjunction with current ranch management practices.

The tortoise is a land-dwelling reptile that spends over 95% of its time in a burrow that it constructs with its shovel-like front feet (Morafka 1982). Burrows have a single opening, are roughly 8 feet (2.5 m) deep and 33 feet (10 m) or more in length, and act as refugia from predators and temperature extremes (Morafka 1982). While the closely related gopher tortoise (*Gopherus polyphemus*) uses several burrows in any given active season, tortoises show strong preference for a single burrow which they defend against potential intruders by blocking the entrance with their bodies (TESF unpublished observation). Plant cover greatly influences burrow occupancy and creates a suitable micro-climate that could help determine appropriate repatriation sites (Becerra-Lopez et al. 2017). Because of the very close relationship of a tortoise with its burrow we expect very high site fidelity for this species.

The tortoises remain out of sight deep in their burrows while they brumate (hibernate) between November and March (TESF unpublished data). All foraging, nesting, and mating activities take place during the tortoise active season from approximately April to October (Legler and Vogt 2013). While tortoises are herbivores that favor tobosa grass (*Hilaria mutica*), they are opportunistic grazers that will include other available grasses and herbaceous annuals in their diets (Morafka 1982, Morafka et al. 1989).

The tortoise inhabits environmental conditions characterized by dry winters followed by a dry, warm spring and a hot, wet summer. Overall, the Chihuahuan Desert ecosystem, which they call home, exhibits relatively low humidity and precipitation, wide temperature fluctuations, and high incident solar radiation (Morafka 1982). Tortoises occur at higher elevations that other *Gopherus* species (from 1,000-1,400 meters or 3,280-4,593 feet above sea level) (Morafka 1982). Within their preferred habitat, they seem to avoid lowlands that are prone to flooding; instead, they build their burrows on gentle slopes with 1-3% grades and deep (>2 m), moderately hard, compacted soils with high sand and silt contents (up to 72% and 25%, respectively) (Morafka 1982).

Adults are large, up to 40 centimeters ((cm) 15.75 inches) in length. Fossils include shell carapace lengths of more than 1 meter (39 inches) (Morafka et al. 1989, USFWS 1978b). However, the largest known contemporary individuals are much smaller than this and rarely exceed 39 cm (15.35 inches) in shell length (Legler and Vogt 2013, TESF unpublished data). Adult males are generally smaller than females, and express only subtle sexually dimorphic features compared to other chelonians to clearly distinguish them from females. These features include a concave plastron, prominent chin glands, extended gular projection, distinct eye color, or larger, thicker tail with a more distal cloacal opening, to clearly distinguish them from females (Morafka 1982).

Tortoise courting and mating behaviors begin in late spring and continue through the fall (Legler and Vogt 2013, TESF unpublished data). Nesting takes place the following year starting in late April or early May and generally ends in mid-July. Most female tortoises will

lay two clutches per year (range: zero to three) with an average of 5-6 eggs per clutch (Morafka 1982, TESF unpublished data, McDonald 2017). Nests are dug with the hind legs and are thus typically shallow. How tortoises select nest sites is currently unknown. Approximately half of the nests are in or near a burrow (which may or may not be the burrow occupied by the nest-maker), but nest sites under shrubs or other vegetation far from the nearest burrow are equally as common. Hatchlings emerge from the egg after 75-120 days of development. Hatching starts in July or August and ends in October (Morafka 1982, Legler and Vogt 2013). Depending on the exact date of hatching, neonate tortoises may have the opportunity to forage only for several days or weeks before the onset of cooler temperatures compels them to seek shelter and brumate for the colder months, most often in a rodent burrow. Hatchlings will also occasionally forgo foraging by remaining in the nest and only emerging the following spring or summer (Legler and Vogt 2013, TESF unpublished data). A combination of low metabolic rates and ample yolk provisions by the mother (the only form of parental care enjoyed by hatchling tortoises) allows them to do so.

Young tortoises are very cryptic, shy, and are rarely encountered in the wild. tortoises are a long-lived species that reaches sexual maturity only after 15 to 20 years (Morafka et al. 1989, TESF unpublished data). The average lifespan of a tortoise is not known, but probably lies upwards of a century, but generations are 50-60 years (Kiester et al. 2018). Nest and hatchling predation rates are very high, resulting in survival rates of only 1-3% (Morafka 1982). Together, these life history traits translate to a generation time of nearly 50 years for tortoises. This fact demonstrates why the loss of even one adult female tortoise can have a devastating effect on the population as whole, and it underscores the need to protect this species from human impacts (including direct harvesting for food and the pet trade), and to develop redundant populations to ensure the species' survival.

The tortoise was listed as endangered on May 17, 1979 (44 FR 23062). Threats to this species include hunting for food, collection for the pet trade, and habitat loss due to conversion to farmland, and overgrazing by livestock. This species has been red listed as Critically Endangered by the International Union for Conservation of Nature (IUCN) in 2018 (Keister et al. 2018).

4. BASELINE DETERMINATION

The area covered by this proposed Agreement and its associated 10(a)(1)(A) EOS permit encompasses approximately 344,955 acres (139,598 ha) of the Armendaris Ranch in Socorro and Sierra Counties, New Mexico (Figures 1 and 2). The Armendaris Ranch is bounded on the east by Jornada del Muerto, which in turn is bounded by the San Andres Mountains on the west by the Fra Cristobal Mountain range and the Rio Grande valley, including Elephant Butte Lake, and on the north by Bosque del Apache National Wildlife Refuge. The tortoise is a rare endemic to central Mexico, that has disjunct populations, and does not have a population in the United States (Swingland and Klemens 1989).

The baseline population condition for the tortoise will be zero free ranging individuals (i.e., zero baseline). The free ranging population started with zero individuals at the Armendaris Ranch and may be returned to that amount under this Agreement without violating the permit (NHNM 2017).

Tortoises involved in the TESF conservation effort are currently maintained in captivity or

are part of a research project that was initiated before this Agreement was developed. Tortoises in either group are not part of baseline population for this Agreement.

TESF started the tortoise conservation effort in 2006 with 33 tortoises (26 adults and 7 hatchlings). Currently, approximately 500 tortoises are in captivity at the Ladder Ranch, including about 400 individuals that are maintained in predator-proof "headstart" enclosures. These tortoises are not a part of this Agreement, beyond including individuals for release at the Armendaris.

At the Armendaris, about 90 tortoises are held in an 18-acre (7.2-ha) pen designed to restrict tortoises' movements without restricting the movements of most other wildlife species. These tortoises are not considered a part of the baseline population for this Agreement. In addition to these tortoises, another 101 individuals have been released for research purposes with radio transmitters in a controlled environment at the Armendaris. These tortoises are not part of the baseline population since their presence principally aims to advance understanding of movement and survival patterns rather than population restoration.

Unfenced areas at the Armendaris will be used for releasing tortoises due to this Agreement which has a principal aim of facilitating population restoration. This will allow released animals to range freely. The high survival rates of tortoises that live in predator-accessible locations at the Ladder (head-start location) and Armendaris ranches (greater than 70%) or are involved in the movements/survival study at the Armendaris (greater than 90%) (TESF unpublished data) justify releasing tortoises in unfenced areas at the Armendaris to facilitate population restoration.

As long as the Permittee implements the agreed-upon voluntary conservation actions (Section 6) the Permittee may make lawful use of the property even if such use results in the loss of tortoises or occupied habitat. Prior to conducting an activity that would knowingly result in the take of a tortoise, the Permittee must give the FWS a minimum 60-day advance notice and an opportunity to relocate the individuals in question, if the FWS so chooses.

5. AGREEMENT AND PERMIT DURATION

The Agreement will be in effect for a duration of 50 years following its approval and signing by the Permittee. The associated section 10(a)(1)(A) EOS permit authorizing take of the species will have a term of 50 years from the effective date of the permit.

6. MANAGEMENT ACTIVITIES FOR THE COVERED SPECIES

Phase One of this Agreement will extend for the first 2 to 5 years and include management activities that accomplish some of the net conservation benefit for the species and will consist mainly of 1) maintaining the captive breeding and head-starting (see below) programs to ensure that adequate numbers of tortoises are available for release; and, 2) releasing, monitoring (section 8), and managing more than 100 tortoises as the foundation for a viable population (greater than 250 individuals) at the Armendaris Ranch.

Concerning TESF's captive breeding program, the adult tortoises that make up the breeding stock and some older, larger juveniles are currently housed in an 18-acre outdoor fenced enclosure ("Cedar Tank pen") on the Armendaris Ranch that prevent the tortoises from dispersing but do not exclude most other animals (including potential predators). Enclosures at

the Armendaris Ranch are in Chihuahuan Desert Scrubland and associated tobosa grassland (Brown and Lowe 1980). For many years, tortoises living in these enclosures have flourished and reproduced without supplemental feeding (TESF unpublished data).

Concerning TESF's highly successful head-starting program, at the Ladder Ranch, it aims to produce healthy adults by protecting eggs from predation (in natural nests or incubators), protecting small tortoises from predation while raising them on native forage to enable healthy growth, and growing tortoises to a size that enhances their survivorship and suitability for release. The minimum size for release has not yet been determined, but juvenile desert tortoises (*Gopherus agassizii*) that have reached at least 4 in (10 cm) shell length exhibit high survivorship (Nagy et al. 2015). Most tortoises in the head-starting facility reach 10 cm shell length in 3-7 years (TESF unpublished data).

Concerning releases, methods will follow Nagy et al. (2015), allowing for adaptive management modifications. Releases will occur in spring and fall months when tortoises are unlikely to overheat, in locations where soils can support burrow construction, and where vegetation includes sufficient food. The FWS New Mexico Ecological Services Field Office lead biologist for this species will coordinate with NMDGF and TESF to acquire the requisite State permits for these actions.

Phase Two of this Agreement will start immediately following Phase one during which releases will lessen or cease, monitoring and management intensity will lessen, and the population will be allowed to naturally grow to viability. Concerning viability, probably more than 250 adult tortoises are required, based on minimum viable population estimates for the gopher tortoise (*Gopherus polyphemus*) (Gopher Tortoise Council 2013), the tortoise's closest relative.

This 2-Phase approach for restoring a viable population of slowly maturing, long-lived individuals is justified by the quality of habitat and high level of security offered by the Armendaris Ranch.

Because the tortoise has been little studied and absent from the northern Chihuahuan Desert for thousands of years, little is known about typical population densities for the species and the area's carrying capacity which is likely to change over the duration of this Agreement, due to climate change. The extant tortoise population in the southern Chihuahuan Desert in Mexico provides useful but incomplete information on these important issues. Data collected by actively monitoring and managing released tortoises at the Armendaris Ranch will inform conclusions about these important population parameters and other aspects of the species' natural history and aid development of a recovery plan for the species.

Minimization (Conservation) Measures

We do not expect a tortoise population to expand from the Armendaris Ranch for the duration of the permit because of the high burrow site fidelity exhibited by the species. Populations are typically localized and discontinuous (Morafka et al. 1989). Wandering tortoises that do not have a burrow are highly susceptible to predation or mortality due to the conditions of the environment. Colonization off the property is not expected to occur in any timeframe relevant to this Agreement. If a tortoise were to wander far enough to leave the Armendaris Ranch its

contribution to the establishment of the conservation population would cease. In the unlikely event that a tortoise does leave the ranch premises, efforts will be taken to coordinate with Federal or private landowners, in the State of New Mexico, to bring the tortoise back to the introduced population area where it can continue to contribute to conservation efforts. Similar measures may be taken if tortoises wander far from the introduced population area but remain on ranch property. If the tortoise is unretrievable we will consider the individual(s) to be incidentally taken as covered in the EOS permit. Overall, there will be a benefit of retrieving the tortoise since there will be no population outside of the ranch.

Normal ranch activities include bison ranching, nature tourism, limited solar energy generation, hunting and other recreation, guest lodging and maintenance activities. These efforts are underway and will continue. Minimization efforts to place the tortoise in the most remote portion of the ranch, with the natural grassland community, were part of the release site selection process to reduce interactions with humans. Reduction of vehicle strikes, ranch activities, and construction activities that may affect the tortoise have been considered in the Armendaris Ranch planning process. The release sites will be located a sufficient distance from infrastructure and construction activities to reduce potential interactions. Visual inspections will be conducted to reduce the potential loss of tortoise from the activities. Utility companies and railroad will be notified of the potential interaction with the tortoise in order to reduce any mortalities.

7. NET CONSERVATION BENEFIT

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 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.

This Agreement, through establishment of a tortoise population on non-Federal lands and providing regulatory assurances to the Permittee so that activities can be undertaken to release tortoises, is expected to result in the following conservation benefits to the covered species:

- Release of more than 100 tortoises as the foundation for facilitating restoration of viable populations (greater than 250 individuals) at the Armendaris Ranch.

- Improved understanding of the biology and ecology of the tortoise, including habitat use, movement patterns, mortality factors, and food habits. There is a conservation benefit by closely monitoring the movements of the animals as well as understanding reproduction patterns, intervals, and climatic triggers. Monitoring habitat outside of their current range will help us to understand dietary needs and requirements for their recovery. This information will add to the greater scientific community and other *Gopherus* species knowledge.

- Improved potential for the species to be reintroduced to suitable habitat to restore populations beyond the boundaries of the enrolled property, possibly including Mexico.

This would be accomplished by finding similar habitat conditions on and off the Property.

The FWS has worked with the Permittee to develop conservation actions, as described in this Agreement, that are expected to provide a net conservation benefit to the tortoise as described above. The tortoise listing rule cites the species decline across its range, as well as loss of habitat, as factors threatening the species continued existence. The conservation actions above will increase the number of individuals on the landscape and hopefully reverse the negative trend of population declines.

Given the probable species' response time to the planned conservation actions, the FWS estimates it may take at least 50 years of implementing the Agreement for tortoise populations to exhibit viability through reproduction and recruitment. Regardless, the net conservation benefits described above are expected to begin within the first 2 to 5 years of this Agreement. Implementation of this Agreement is expected to result in protection, establishment, and expansion of the tortoises beyond the baseline condition within the lands under the Agreement. The 50-year permit would minimize the impact of any take of any individuals above the baseline condition. The longevity of this Agreement provides the necessary time for natural expansion and contraction of the Armendaris population assuming there will be stochastic events. The EOS permit and Agreement may be extended beyond the specified terms through amendment with written consent from the Permittee.

This Agreement will also help provide redundancy and resiliency to the species response to climate change. It is anticipated there will be changes to either the habitat or vegetative community in the current occupied range of the tortoise. Climate change projections predict that climate conditions will get hotter and drier where the tortoise is currently found, further stressing the remaining natural population. The current occupied range of this species is restricted to a small area in northcentral Mexico. If this Agreement is approved, the additional introduced population in New Mexico will expand the distribution of the species and being far removed from the extant wild population will likely experience different climatic conditions. The Armendaris Ranch may provide more suitable future climate conditions than the current range of the species.

The Parties anticipate this Agreement will result in the establishment of the tortoise and an increase in the total area of occupied suitable habitat, within the enrolled lands. Without this cooperative government/private effort, these lands would not otherwise be occupied by the tortoise in the foreseeable future. The Agreement will also provide an example of a mutually beneficial relationship between government agencies and private landowners, in the State of New Mexico, to benefit endangered and threatened species while ensuring continued land-use for economic benefit, and evidence that such species can coexist with current land-use practices. Therefore, the cumulative impact of this Agreement and the activities it covers, which are facilitated by the authorized take, is reasonably expected to provide a net conservation benefit to the species.

8. MONITORING AND REPORTING

The annual report will be based upon the results of compliance and biological monitoring, along with information on individual projects implemented during the calendar year covered by the report.

Compliance Monitoring:

The Permittee will be responsible for annual monitoring and reporting related to implementation of the Agreement and fulfillment of its provisions, including verification of baseline maintenance, implementation of agreed-upon conservation measures, and take authorized by the permit. The Agreement will grant the FWS, with reasonable prior notice (minimum 30 days) to and coordination with the Permittee, the right to enter the enrolled lands to ascertain compliance with the Agreement. Permittee or its representative shall have the right to accompany FWS during such access, and the scope of such access shall be agreed upon in advance by FWS and Permittee in writing.

The Permittee will provide information on the previous calendar years activities (section 6) to FWS by email of the annual report. The annual reports will be due April 1 of each year and copies will be made available to the Permittee.

The first annual report will include a detailed description of the activities completed within the enrolled lands, an estimate of the population size and extent of occupied habitat, and a description of any conservation measures implemented during the first year.

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 primarily from 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 2 of this Agreement, biological monitoring may include the techniques mentioned above and will occur less intensively and less frequently at a minimum of every 5 to 10 years.

Population Status

During Phase 1 of this Agreement, the status of the 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 once every 5 years.

Natural History

During monitoring, attributes of 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 they pertain to this Agreement, including the results of monitoring efforts, if applicable, will be submitted to the New Mexico Ecological Services Office and the FWS Southwest Regional 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 FWS to provide necessary information.

The reports will contain the following information:

- description of conservation actions taken;
- number of tortoises within the covered area;
- summary table of population status;
- summary of data on food habits, habitat use, movement patterns, burrows and their use;
- record of any take, injury, or mortality and cause;
- summary of diseases detected; and
- other relevant details regarding this Agreement or the covered species or area.

9. FUNDING

The Permittee agrees to explore possibilities for securing funding to establish a viable tortoise population within the covered area. Potential sources of funds include, but may not be limited to, the Natural Resources Conservation Service, FWS Partners for Fish and Wildlife, and TESF.

10. RESPONSIBILITIES OF THE PARTIES

In addition to the following stipulations, the Parties will work cooperatively on other issues as necessary to further the purposes of the Agreement. Moreover, nothing in this Agreement shall limit the ability of Federal and State conservation authorities to perform their lawful duties and conduct investigations as authorized by statute and by court guidance and direction.

Permittee:

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 (Annual reports and notification within 30 days of mortality, injury, or disease) to the FWS on species mortalities, injuries, or diseases observed on the enrolled lands.

3. Notify the FWS 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 FWS of any change 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 FWS, 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 FWS during such access, and the scope of such access shall be agreed upon in advance by FWS and Permittee in writing. In the event of an emergency, the FWS may enter the premises to care for and protect species at any time.

FWS:

1. Provide technical assistance, to the maximum extent practicable, when requested; and provides information on Federal funding programs.

2. Upon execution of the Agreement and satisfaction of all other applicable legal requirements, the FWS will issue a permit to the Permittee in accordance with ESA section 10(a)(1)(A), authorizing take of the covered species as a result of lawful activities within the enrolled property. The term of the permit will be 50 years.

3. Ensure Permittee is implementing the terms of the Agreement if/when it is permitted.

4. Help provide technical assistance/guidance on biological monitoring conducted by Permittee.

5. Provide the Permittee with a minimum of 30-day written notice prior to entering the enrolled property to conduct monitoring.

6. Coordinate all establishment activities with NMDGF, including acquiring all necessary permits.

11. INCIDENTAL TAKE

The activities that occur under this Agreement and that occur on this property may result in

incidental take of a tortoise or otherwise impact the tortoise population established under this Agreement. The Permittee and their affiliates, and their respective employees, agents, representatives, contractors, guests, and invitees will be authorized to incidentally take the tortoises. The covered property in this Agreement is an active ranch. The Permittee's activities include management of livestock (bison); development and maintenance of ranch infrastructure required to manage livestock; including the development and maintenance of tanks, roads, and fences; activities related to limited solar energy generation; and activities related to nature tourism, hunting, other recreation, and guest lodging. Any take resulting from these activities should be minimal and is expected to consist mainly of accidentally collapsing burrows and/or striking/killing tortoises with vehicles. Minimization measures, as described in Section 6 above, will reduce the likelihood of this occurring. If the Permittee undertakes any actions that may be reasonably expected to result in incidental taking of any tortoise, including any activities that will return the property to baseline conditions, they will give the FWS at least 60 days advance notice and provide an opportunity to relocate affected individuals. The Parties will work together to minimize negative impacts to covered species from such actions.

Under this Agreement, the Permittee is authorized to make use of the enrolled property in any manner that does not result in reducing the population and/or occupied habitat of the covered species below the baseline condition. The permit, once signed, will authorize incidental take of the covered species that is above the baseline condition of the enrolled property, or alteration of occupied habitat, resulting from lawful activities within the enrolled property, until permit expiration. The Permittee may continue current land-use practices or undertake new ones, even if such use results in the loss of species individuals or their habitat covered under this Agreement.

Among the activities the Permittee plans to continue, which in no way shall be considered a limitation on any other activity the Permittee desires to engage in, are the following activities that may result in incidental take of the species: road maintenance, hunting, nature tourism, livestock water tank repairs, bison ranching, fence building and maintenance, guest lodging, and limited solar energy generation.

All incidental take, including that related to the return to baseline, should occur before the end of the 50-year Permit term.

This Agreement will allow for the natural expansion and contraction of the population only on the Armendaris Ranch.

In the unlikely event that a tortoise does leave the ranch premises, efforts will be taken to coordinate with Federal or private landowners, in the State of New Mexico, to bring the tortoise back to the introduced population area where it can continue to contribute to conservation efforts. Landowners may contact the Permittee at the Armendaris Ranch headquarters in Engle, NM (575-894-6782) of tortoises that may wander on their property. Similar measures may be taken if tortoises wander far from the introduced population area but remain on ranch property. If the tortoise is unretrievable we will consider the individual(s) to be incidentally taken as covered in the EOS permit. Overall, there will be a benefit of retrieving the tortoise since there will be no population outside of the ranch.

The maximum number of individuals that can be taken pursuant to this Agreement will be no more than the number of additional individuals above the baseline created through this Agreement. Thus, the net impact of the take authorized under this program is, at the very least, a return to the status quo, and therefore would not negatively impact the species. To return the enrolled property to zero baseline, the Permittee must demonstrate that the activities identified in the Agreement to achieve a net conservation benefit had been conducted. No habitat will be impacted until the Permittee has given the FWS a 60-day prior notice to relocate any remaining species individuals from the area to be impacted.

Other ongoing uses in the covered area, such as recreation, home repair, maintenance, and improvement not otherwise mentioned above may also result in a small amount of incidental take. If the incidental take associated with these activities can be anticipated, the Permittee should provide FWS at least 60 days advance notice and provide an opportunity to relocate affected individuals. The Parties will work together to minimize negative impacts to covered species from such actions. If the incidental take cannot be anticipated and is associated with an otherwise legal activity, incidental take from these activities could occur up to the number of individuals, population sites, or acres of habitat above the baseline condition.

Impact of Incidental Take:

The source of the covered species to be established onto the covered property under this Agreement will be from the captive population on the Ladder Ranch to the Armendaris Ranch, which is large enough to remain viable after the removal of individuals for restoration purposes. As most or all individuals for release will be coming from a captive breeding program, the only impact to the species will be positive. Currently, the captive population is comprised of approximately 600 individuals, including 24 reproductive active adults that produce dozens of viable eggs annually. To ensure the continued viability of the captive population, these adults are not available for release. Although not currently planned, it is possible that in the future course of this agreement, tortoises from outside of the captive population could be brought to the Armendaris to bolster genetic resources of the Armendaris population. Tortoises could come from other captive stock, or from Mexico. Any such efforts would adhere to all Federal and State laws, regulations, and permitting requirements. If such efforts do occur, it would not change the status of this agreement or the resulting EOS permit.

The proposed establishment of tortoises in this Agreement would increase the number of viable populations of the species and would be consistent with any future recovery plan developed for this species. If this Agreement is successful with released tortoises on the Armendaris Ranch, we will develop a plan to recover this species. The monitoring data and information gathered from this Agreement will help to contribute to a future recovery plan. While unlikely, if an entire population at a site is lost through incidental take, the cause of the take will be identified, minimization measures will be evaluated, and if appropriate, the site will be reestablished with translocated individuals from another site managed under this agreement or another source consistent with criteria for the initial releases. As there are no known wild tortoises on the site prior to releases, the level of anticipated take will not exceed the baseline for the property enrolled in this Agreement and not appreciably reduce the anticipated net conservation benefit of this Agreement and its associated section 10(a)(1)(A) permit.

12. AGREEMENT ASSURANCES & PERMIT ADMINISTRATION

After approval of the Agreement, the FWS may require any new requirements or conditions on, or modify any existing requirements or conditions applicable to, a landowner or successor in interest to the landowner, to mitigate or compensate for changes in the conditions or circumstances of any species or ecosystem, natural community, or habitat covered by the Agreement except as stipulated in 50 CFR 17.22(c)(5) and 17.32(c)(5).

Changed Circumstances. Under 50 CFR 17.3, Changed Circumstances are defined as "changes in circumstances affecting a species or geographic area covered by a conservation plan or agreement that can reasonably be anticipated by plan or agreement developers and the FWS and that can be planned for (e.g., the listing of new species, or a fire or other natural catastrophic event in areas prone to such events)." If the Director of the FWS determines that additional conservation measures are necessary to respond to Changed Circumstances and these measures were set forth in the SHA, the Permittee is obligated to implement the measures specified in the SHA. The proposed action and conservation measures identified in the SHA have taken into account changes in circumstances that can be planned for at this time. Therefore, no changed circumstances or responses to those changes are identified in this SHA.

If the FWS determines additional conservation and mitigation measures are deemed necessary to respond to Changed Circumstances and such measures were not provided for in the SHA, the FWS will not require any conservation and mitigation measures in addition to those provided for in the SHA without written consent of the Permittee, provided the SHA is being properly implemented.

Unforeseen Circumstances. Unforeseen circumstances are "changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by plan developers or the FWS at the time of the conservation plan's negotiation and development, and that result in a substantial and adverse change in the status of the covered species" (50 CFR 17.3 [1975]).

(A) If additional conservation measures are necessary to respond to unforeseen circumstances, the Director may require additional measures of the Permittee where the SHA is being properly implemented, but only if such measures are limited to modifications within the SHA conservation strategy for the affected species, and only if those measures maintain the original terms of the SHA to the maximum extent possible. Additional conservation measures will not involve the commitment of additional land, water, or financial resources, or additional restrictions on the use of land, water, or other natural resources available for development or use under the original terms of the SHA without the written consent of the Permittee.

(B) The FWS has the burden of demonstrating that unforeseen circumstances exist using the best scientific and commercial data available. These findings must be clearly documented and based upon reliable technical information regarding the status and habitat requirements of the affected species. The FWS will consider, but not be limited to, the following factors:

1) Size of the current range of the affected species;

(2) Percentage of range adversely affected by the SHA;

(3) Percentage of range conserved by the SHA;

(4) Ecological significance of that portion of the range affected by the SHA;

(5) Level of knowledge about the affected species and the degree of specificity of the species' conservation program under the SHA; and

(6) Whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild. In the case of an unforeseen circumstance, the FWS, any Federal, State, or local government agency, nongovernment organization, or private entity can take any actions necessary in order to conserve a species, as long as the actions are at the expense of that entity.

In the event of an unforeseen circumstance, the FWS will provide at least a 30-day notice of a proposed finding of unforeseen circumstances to the Permittee and will work with the Permittee to develop an appropriate response to the new conditions that is mutually agreeable to FWS and the Permittee. The Permittee will have the opportunity to submit information to rebut the proposed finding.

Amendment of the Permit. The permit may be amended to accommodate changed conditions in accordance with all applicable legal requirements, including but not limited to the ESA, the National Environmental Policy Act, and the FWS's permit regulations at 50 CFR 13, 50 CFR 13.23, and 50 CFR 17. The party proposing the amendment shall provide a statement describing the proposed amendment and the reasons for it.

Termination of the Agreement. As provided for in Part 12 of the FWS's Safe Harbor Policy (64 FR 32717), the Permittee may terminate implementation of the Agreement's voluntary management actions prior to the Agreement's expiration date, for circumstances beyond the Permittee's control. In such circumstances, the Permittee may return the lands to baseline conditions even if the expected net conservation benefits have not been realized. If the Permittee is unable to continue implementation of the plans and stipulations of the Agreement, whether due to catastrophic destruction of the species population numbers or habitat or due to unforeseen hardship, this Agreement will terminate, and the Permittee would relinquish the permit to the FWS. Species management on the Permittee's lands would return to its status prior to the signing of the Agreement (i.e., original baseline). Such termination will affect the Permittee's authorization under the permit to take any individual species or occupied habitat that is not part of the Permittee's baseline at the time of termination. Actions under this Agreement would cease, the FWS and the Participants would have 5 years to return the property to baseline. Notwithstanding the foregoing, the Permittee may terminate this Agreement upon 60 days prior written notice to the other Parties, provided that the baseline conditions have been maintained and the FWS is provided an opportunity to relocate affected species within 60 days of that notice. The Parties may terminate the Agreement at any time and for any reason, but early termination of enrollment

will extinguish the Permittee's assurances to return the property to baseline and associated take authorization at the time of termination. Therefore, a return to baseline must occur prior to the Permit termination date, and a timetable should be negotiated with FWS.

Permit Suspension or Revocation. The FWS may suspend or revoke the permit for cause in accordance with the laws and regulations in force at the time of such suspension or revocation. The FWS also, as a last resort, may revoke the permit if continuation of permitted activities would likely result in jeopardy to covered species (50 CFR 13.28(a)). Prior to revocation, the FWS would exercise all possible measures to remedy the situation.

Permit Severability. The Permittee will be independently severable with respect to the Agreement's section 10(a)(1)(A) permit. Thus, failure on the part of the landowner may result in revocation of that landowner property from coverage under the permit. Likewise, the early termination of the landowner shall not affect the coverage of any other landowner under the permit, if applicable.

Remedies. Each party shall have all remedies otherwise available to enforce the terms of the Agreement and the permit, except that no party shall be liable in damages for any breach of this Agreement, any performance or failure to perform an obligation under this Agreement or any other cause of action arising from this Agreement.

Dispute Resolution. The Parties agree to work together in good faith to resolve any disputes, using dispute resolution procedures agreed upon by all Parties.

Neighboring Lands. This Agreement covers the lands described in Section 2 above and Figures 1-3.

Succession and Transfer. This Agreement shall be binding on and shall inure to the benefit of the Parties and their respective successors and transferees, in accordance with applicable regulations (50 CFR 13.24 and 13.25). The rights and obligations under this Agreement shall run with the enrolled property and are transferable to subsequent non-Federal property owners pursuant to 50 CFR 13.25. The EOS permit issued to the Permittee also will be extended to the new owner(s). As a party to the original agreement and permit, the new owner(s) will have the same rights, including the original baseline, and obligations with respect to the enrolled property as the original owner. The new owner(s) also will have the option of receiving Safe Harbor assurances by signing a new Agreement and receiving a new permit. The Permittee shall notify the FWS of any transfer of ownership, so that the FWS can attempt to contact the new owner, explain the baseline responsibilities applicable to the property, and seek to interest the new owner in signing the existing Agreement or a new one to benefit listed species on the property. Assignment or transfer of the permit shall be governed by FWS regulations in force at the time.

Availability of Funds. Implementation of this Agreement is subject to the requirements of the Anti-Deficiency Act and the availability of appropriated funds. Nothing in this Agreement will be construed by the Parties to require the obligation, appropriation, or expenditure of any funds from the U.S. Treasury. The Parties acknowledge that the FWS will not be required under this Agreement to expend any Federal agency's appropriated

funds unless and until an authorized official of that agency affirmatively acts to commit to such expenditures as evidenced in writing.

Relationship to Other Agreements. Permittee has and may continue to work to conserve and protect against incompatible development on the Armendaris Ranch through easements and or other perpetual land use restriction tools (each a "Conservation Agreement"). In the event of any conflict between any such Restrictions and terms and conditions of this Agreement, the applicable Conservation Agreement will govern and control with the exception of take. Any take will be covered under the applicable permit and agreement for this species.

No Third-Party Beneficiaries. This Agreement does not create any new right or interest in any member of the public as a third-party beneficiary, nor shall it authorize anyone not a party to this Agreement to maintain a suit for personal injuries or damages pursuant to the provisions of this Agreement. The duties, obligations, and responsibilities of the Parties to this Agreement with respect to third parties shall remain as imposed under existing law.

Other Listed Species, Candidate Species, and Species of Concern. Other listed, proposed, or candidate species, or species of concern may occur in the future on lands enrolled in the Agreement as a direct result of the Permittee's voluntary conservation actions. If biological surveys determine this Agreement will provide a net conservation benefit to any such species or their potential habitat, the Parties may agree to amend the Agreement and permit to cover additional species, at the Permittee's request.

If federally designated candidate species should occur on the property, the FWS will recommend measures for including them in a joint Safe Harbor Agreement/Candidate Conservation Agreement with Assurances to contribute toward the conservation of those species. If appropriate measures are included in such an agreement, the FWS, consistent with its "No Surprises" policy, will not impose additional requirements on the Permittee because of any such species later being listed as threatened or endangered.

Notices and Reports. Any notices and reports, including monitoring and annual reports, required by this Agreement shall be delivered to the persons listed below, as appropriate:

Notification Requirement. The permittee is required to give the FWS reasonable advance notice (generally at least 60 days) of when Turner Enterprises or designated individuals to incidentally take any listed species covered under the permit. Such notification will provide the FWS with an opportunity to relocate affected individuals of the species, if possible and appropriate.

Permittee:
New Mexico Ranch Properties, Inc.
133 Luckie Street
Atlanta, Georgia 30303

Attn: Chief Financial Officer

FWS:
Field Supervisor
New Mexico Ecological Services Office
U.S. Fish and Wildlife Service
2105 Osuna NE
Albuquerque, NM 87113
(505)761-4781

Assistant Regional Director – Ecological Services
Region 2 Southwest Regional Office
U.S. Fish and Wildlife Service
500 Gold Ave SW
P.O. 1306
Albuquerque, NM 87103

13. SIGNATURES

Organization

NEW MEXICO RANCH PROPERTIES, INC.
SAFE HARBOR AGREEMENT

Date

United States Fish and Wildlife Service

Date 8/16/2023

IN WITNESS WHEREOF,
THE PARTIES HERETO
have executed this Safe
Harbor Agreement to be in
effect as of the date that the
FWS issues the permit.

14. LITERATURE CITED

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Figure 1. The position of the Armendaris Ranch in New Mexico and within Sierra and Socorro counties.

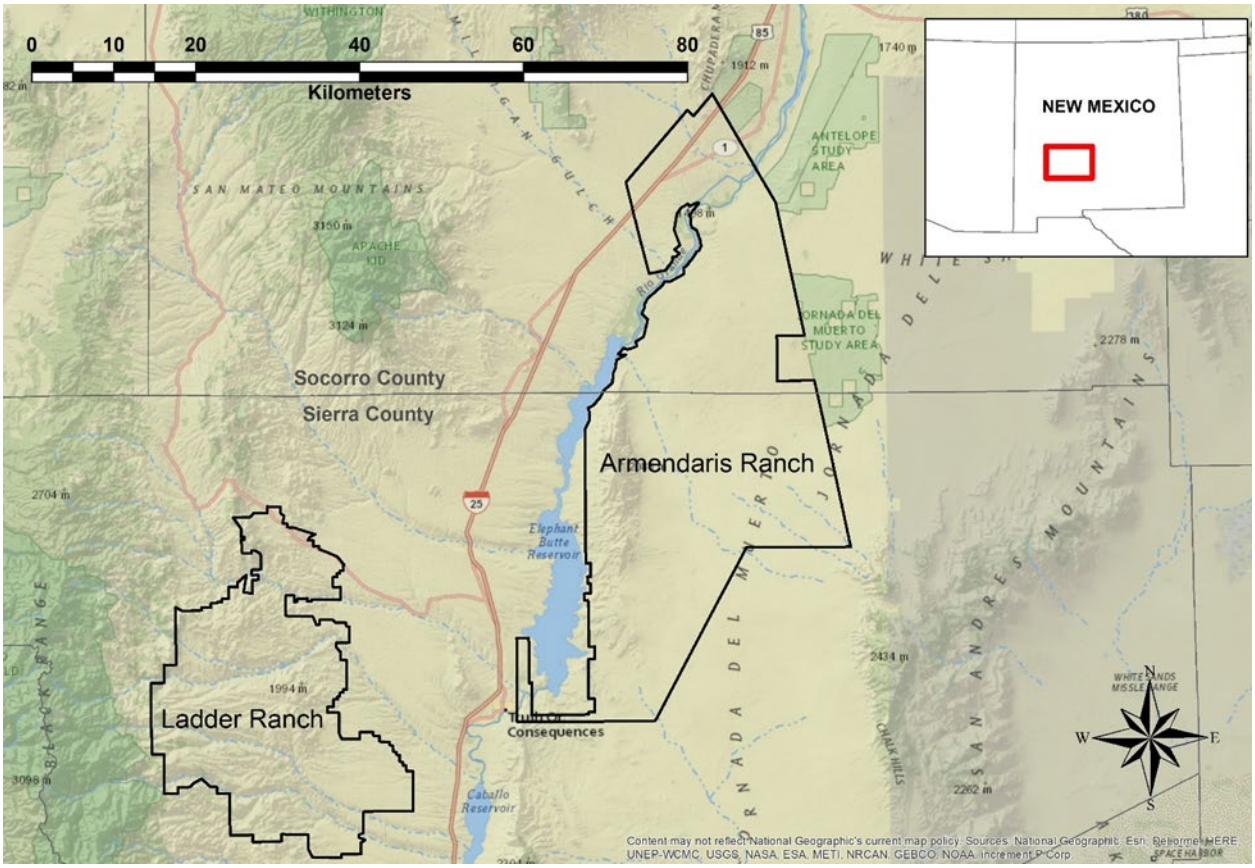

Figure 2. Surface ownership of the agreement and surrounding area.

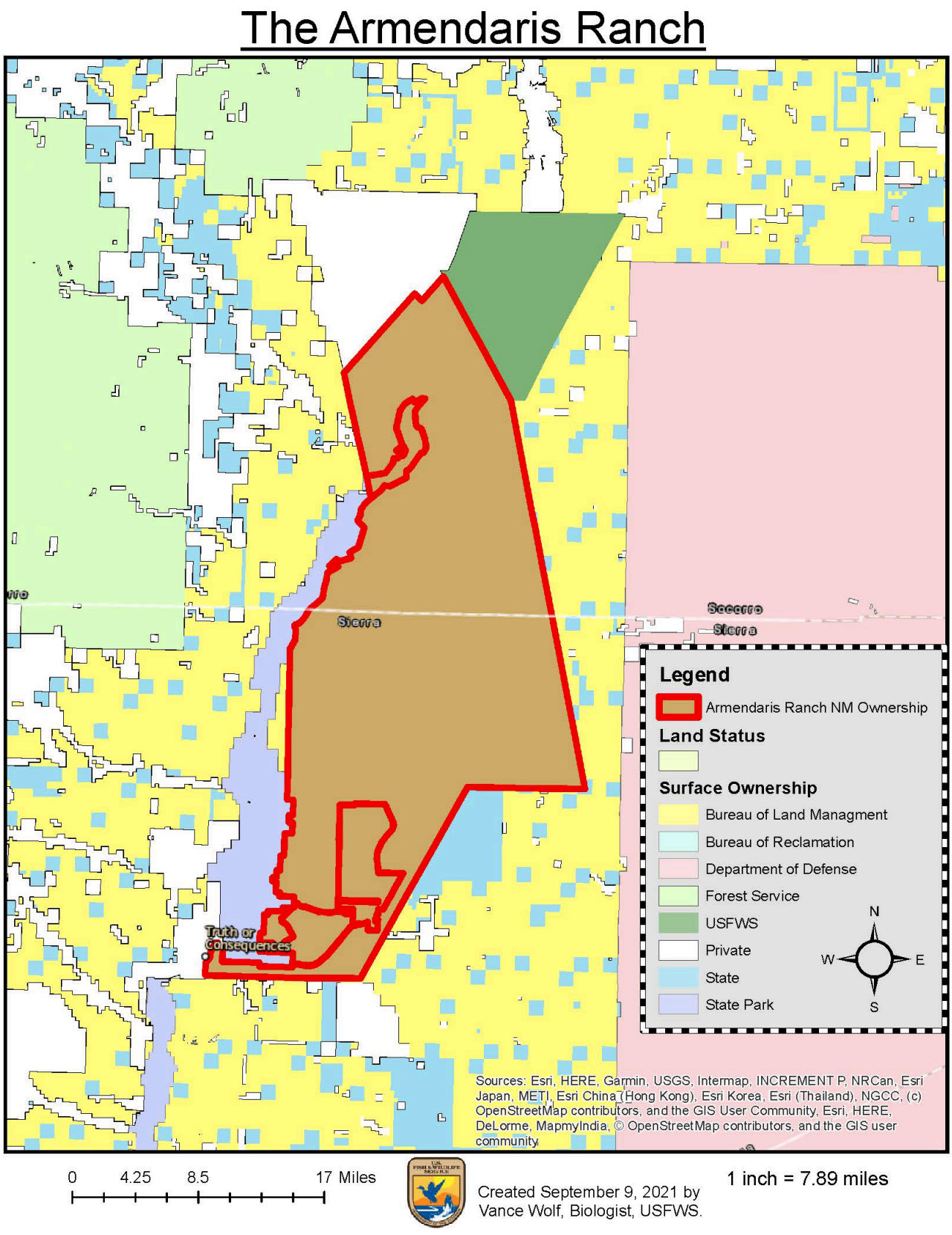

Figure 3: Major vegetation and land use patterns of the Armendaris Ranch. Note, only ecological systems ≥ 50ha are shown and listed in map legend. Data source: USGS 2011. See SWReGAP (2018) for all land cover descriptions.