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Via email only

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Re: Comment Letter on the Draft Environmental Assessment for Test and Evaluation and Training Activities at the Cuddeback Range at Naval Air Weapons Station China Lake – November 2018

Dear Ms. Bresler:

The Desert Tortoise Council (Council) is a non-profit organization comprised of hundreds of professionals and laypersons who share a common concern for wild desert tortoises and a commitment to advancing the public's understanding of desert tortoise species. Established in 1975 to promote conservation of tortoises in the deserts of the southwestern United States and Mexico, the Council routinely provides information and other forms of assistance to individuals, organizations, and regulatory agencies on matters potentially affecting desert tortoises within their geographic ranges.

We appreciate this opportunity to provide comments on the above-referenced military project. Given the location of the proposed action in habitats occupied by Agassiz's desert tortoise (*Gopherus agassizii*) (synonymous with "Mojave desert tortoise") and designated Critical Habitat, our comments pertain to enhancing protection of this species during activities authorized by the Department of the Navy (Navy).

Summary of Proposed Action

The Navy proposes to test and evaluate unmanned systems, miniature munitions, expeditionary/ irregular warfare, ground troop training, and integrated warfighting capabilities at test sites located within the Cuddeback Range at Naval Air Weapons Station China Lake (NAWSCL). To operate the testing and evaluation of these activities, the Navy proposes to construct fencing along portions of the Cuddeback Range boundary; construct a new access road connecting the Cuddeback Range to the existing NAWS South Range; and install or place structures, generators, communications equipment, and connectivity to the instrumented targets. Research, development, acquisition, testing and evaluation (RDAT&E) types of activities include:

(1) Air to Air (air-launched, air-intercept weapons [inert, live motor but no warhead, or live round for firing and warhead detonation] against a variety of aerial targets using manned and/or unmanned aircraft, a kinetic or directed energy (DE) weapon system, a target, and countermeasure device such as flares or chaff);
(2) Surface-to-Air (surface-launched weapons [inert warheads or live rounds for firing and warhead detonation] against a variety of aerial targets [full-scale surface-launched targets, air- or surface-launched subscale targets, unmanned systems, or helicopter targets]);
(3) Air-to-Ground (air-launched, ground attack weapons [inert, live motor but no warhead, or live round for firing and warhead detonation] against a variety of ground-based targets [wide variety of both vehicular and structural targets]);
(4) Surface-to-Surface (surface-launched weapons [inert warheads or live rounds for firing and warhead detonation] against fixed and mobile ground targets);
(5) Electromagnetics (ground and flight tests that radiate radio frequency energy across much of the electromagnetic spectrum including the use of chaff, flares, and decoys, laser systems for targeting, weapons, directed energy weapons, experimental electromagnetics, and explosive device detection and neutralization systems); and
(6) Ground Troop Training (small-scale, theater-relevant combat training of ground troops). Examples include force reconnaissance, insertion and extraction, close air support, fleet area control and surveillance, and other types of tactical exercises. Ground troops may be on foot, with or without military support animals (e.g., horses, mules, or military working dogs) and may involve multiple support vehicle types and/or support aircraft (manned or unmanned; fixed or rotary wing) and access to distinct terrain such as mines, caves, tunnels, sloped areas, or vegetated areas to satisfy unique training requirements.

The Cuddeback Range is adjacent to existing RDAT&E operations within the NAWSCL South Range and near the North Range. The Cuddeback Range was withdrawn from the Bureau of Land Management's (BLM) ownership and management responsibility in 2015 and 2016 by Congress in the National Defense Authorization Acts of 2015 and 2016.

2.3 Alternatives Carried Forward for Analysis

In section 2.3 of the Draft Environmental Assessment for Test and Evaluation and Training Activities at the Cuddeback Range at Naval Air Weapons Station China Lake (Draft EA), the Navy analyzed three alternatives – No Action, Proposed Action (Alternative 1), and No New Access Road (Alternative 2). Although the Navy describes three alternatives, we conclude there are only two, the no action and the action. The two action alternatives are identical with one small variation, one includes construction and use of an access road, and the other does not.

Regarding the development of alternatives for consideration and analysis in a National Environmental Policy Act (NEPA) document, we remind the Navy that under section 1506.1(a) of the Council on Environmental Quality's (CEQ) regulations, federal agency action cannot "[l]imit the choice of reasonable alternatives" before reaching a final decision in a published record. In our December 4, 2017 scoping letter, we requested the Navy develop and analyze an environmentally preferred alternative (e.g., limiting surface disturbance activities within the Cuddeback Range to areas previously disturbed while designating much of the withdrawn lands for the conservation of the desert tortoise). This request was a reminder to the Navy that development of an environmentally preferred alternative is directed in 40 CFR Section 1505.2(b) of CEQ's regulations for implementing NEPA. We did not find that the Navy developed or identified an environmentally preferred alternative and request that the Navy do so in its final environmental document.

We believe that an environmental impact statement (EIS) is the appropriate mechanism for analysis of the proposed action for several reasons. These included segmentation of analysis of impacts, inaccurate representation of the baseline conditions for the Mojave desert tortoise, and cumulative impacts.

Segmentation of Analysis of Impacts: Under section 1508.25 of CEQ's regulations, the scope or "range of actions, alternatives, and impacts to be considered" directs federal agencies to "consider 3 types of actions, 3 types of alternatives, and 3 types of impacts. They include: (a) Actions (other than unconnected single actions) which may be: (1) Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) Automatically trigger other actions which may require environmental impact statements. (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously. (iii) Are interdependent parts of a larger action and depend on the larger action for their justification. (2) Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should, therefore be discussed in the same impact statement. (3) Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography."

These regulations require an EIS to cover the entire scope of a proposed action, considering all connected, cumulative, and similar actions in one document. These regulations ensure agencies will prepare a complete environmental analysis that results in a "hard look" at the environmental consequences of all proposed actions instead of segmenting environmental reviews (Novack 2015).

We believe the actions at Cuddeback Range are connected actions to those occurring at the South and north Ranges at NAWSCL. We note that the Navy issued an EIS in 2015 to accommodate an increase in RDAT&E and training within current land use areas (i.e., North and South Ranges), and signed a Record of Decision (ROD) in 2016 (page 1-1 of Draft EA). The proposed action at the Cuddeback Range is an extension of these actions and should be addressed in a formal EIS.

However, the information provided in the Draft EA leads us to believe that the Navy knew of its proposed actions for the Cuddeback Range prior to the congressional withdrawal of the Cuddeback Range for Navy use and before signing the Record of Decision. Our conclusion is based on the sequence of events provided in the Draft EA and the National Defense Authorization Acts of 2015 and 2016. Congressional withdrawals of the Cuddeback Range were approved in December 2014 and November 2015. Congress would not have considered or authorized these withdrawals unless the Navy requested them prior to these dates. Thus, the Navy advised Congress prior to the 2014 and 2015 withdrawal dates that it wanted the Cuddeback Range to conduct its mission at NAWSCL (i.e., RDAT&E and training activities). The Navy knew it had received the Cuddeback Range prior to signing the ROD (January 2016), had received part of the withdrawal prior to releasing the Final EIS (August 2015), and was likely to receive the second withdrawal. Although the Navy knew it would be using the Cuddeback Range for its mission, they chose not to include it in the final EIS or the ROD.

Instead, the Navy segmented the proposed action and analysis of impacts by issuing two NEPA documents after the final EIS and ROD: (1), a Categorical Exclusion in March 2016 for use "of the existing target areas within the former Air Force Cuddeback Air-Ground Gunnery Range and existing roads for "…launch, aerial flight, and recovery of U[nmanned] A[erial] V[ehicle]s, and the placement of mobile instrumentation systems and support equipment vehicles" and (2) the Draft EA. However, as the Navy stated (see p. 1-4) "the Navy determined that there was a need to further expand the RDAT&E operations of the China Lake Ranges per the EIS/LEIS (August 2015) into the Cuddeback Range." The Navy's issuance of the Categorical Exclusion followed by the Draft EA further supports the conclusion of segmentation under NEPA.

Inaccurate Representation of the Baseline Conditions for the Mojave Desert Tortoise

The purpose of Chapter 3 on Affected Environment and Environmental Consequences is to present "a description of the environmental resources and baseline conditions relative to the Proposed Action and Naval Air Weapons Station China Lake (NAWSCL) that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect impacts of each alternative." We contend the Navy is providing inaccurate, partial, or no information on baseline conditions and little or no scientifically supported analysis of the impacts from the action alternatives to the tortoise, its habitat, or Critical Habitat, upon which to draw the Navy's conclusion of no significant impacts. Below are some of the issues and information that were not provided in the Draft EA and should be included in the EIS. We believe these issues and information rise to the level of significance for the Mojave desert tortoise, which requires the Navy to prepare an EIS.

Noise: The Draft EA states "while the federally listed as threatened desert tortoise is present within the Proposed Action area, studies have concluded that exposure to noise from jets flying at low altitudes and sonic booms does not compromise the hearing capacity of tortoises (Bowles, et al.1999; USFWS 2011)" (p. 3-3). However, upon reviewing the two citations (Bowles et al. 1999 and USFWS 2011), we find this statement in the Draft EA provides only part of the information. "Studies on the effects of flight noise from jet aircraft and sonic booms on hearing, behavior, heart rate, and oxygen consumption of desert tortoises concluded that hearing loss and physiological changes are not likely to be dangerous during occasional short-term exposures;

however, those results cannot be extrapolated to chronic exposures over a tortoise's lifetime. The authors advise that their results are "best viewed as a first-order effort to determine the effects of subsonic and supersonic aircraft noise on a desert reptile." They recommend that changes in tortoise activity with repeated exposure to aircraft noise should be investigated under natural conditions, including during food and water deprivation, torpor, or exposure to dangers such as rivals and predators (Bowles et al. 1999, USFWS 2011).

In addition, Boarman and Sazaki (1996) noted that the tortoise "population sink along roads is probably cause by vehicle mortality, but we cannot rule out the effects of illegal collecting, vibration and noise, and habitat degradation, all of which probably decrease with distance."

Examination of the published scientific literature on tortoises and hearing revealed a scientific paper by Gagno (2013) for Hermann's tortoise (*Testudo hermanni*). The author found "[T]he frequency range perceivable to the tortoises lies between 10 and 182 Hz. It is thus much narrower than that of humans, which ranges from about 20 to 20,000 Hz. A part of the frequency range perceived by these tortoises lies within the range of infrasound (between 10 and 20 Hz), which cannot be heard directly by the human ear. In addition "chelonians have… a well-developed sense of hearing that is complemented by sensory receptors in their shell that are sensitized to a wide range of the frequencies" (Gagno 2013). "In the case of *Gopherus polyphemus* [gopher tortoise], 'conversations' of up to ten minutes in duration were documented between residential caves that were in some instances several kilometers apart, with the produced and perceived frequency lying between 3 and 40 Hz" (Ashton & Ashton 2008 as cited in Gagno 2013). The desert tortoise is closely related to the gopher tortoise.

We request that this additional information on the impacts of noise/vibration to the Mojave desert tortoise be included in the EIS or Final EA. The Navy should have data on the amplitude and frequency of the sound waves produced by the Proposed Action and Alternative 2. If the activities of these two alternatives produce sound waves that mask or interfere with a desert tortoise's ability to hear, these sounds may be impeding predator avoidance and reducing the ability to locate mates. These impacts should be analyzed in the EIS or Final EA.

We note that noise/vibration affects not only an individual's ability to hear but has the ability to damage or destroy physical features. We also request that the Navy provide data from studies it has conducted on the impacts of noise to the Mojave desert tortoise and other species of wildlife. Finally we request that the EIS or Final EA include an analysis of the effects of vibrations/noise on the integrity of tortoise burrows and other wildlife burrows that tortoises of all sizes use for shelter.

Soils and Erosion: On page 3-22, there is a discussion of construction activities for the Proposed Action Alternative. This discussion does not include the perimeter road on page 2-5.

Page 3-23 "The existing target areas consist of flat denuded land that have previously been used for many years as targets by military operations. As a result, use of these existing disturbed areas would not result in a substantial change to soil characteristics or an increase in erosion-related effects."

We found no discussion or analysis of cryptobiotic soil crusts in this section of the Draft EA. Cryptobiotic soil crusts in the Mojave Desert are collections of symbiotic bacteria, algae, fungi, and lichen that live on or slightly below the soil's surface and create a semipermeable soil surface or crust. They reduce soil erosion, promote and control water infiltration, regulate soil temperatures, catch and convert atmospheric nitrogen, accumulate organic matter, and facilitate native seedling establishment and growth (Boarman 2002). Not readily visible to the human eye, crusts are a living component of desert soils that return and grow once disturbance of an area has ceased. Intense disturbance results in bare soil. Severely, newly, or frequently disturbed soils are generally dominated by large filamentous cyanobacteria. When disturbance is less severe, less frequent, or some time has elapsed since the disturbance, crusts are generally in some mid-successional state (Belnap et al. 2001),

The Draft EA does not discuss that the Cuddeback Range has not been used as a military range for decades (mentioned in our Scoping Comment Letter), so regular use/soil disturbance of the area by vehicles has not occurred. This means the successional process of cryptobiotic soil crusts has proceeded at the Cuddeback Range to reduce soil erosion, promote and control water infiltration, and the other ecological benefits regarding soils and surface water. Initiating use of the Range will degrade or destroy these crusts and result in increased soil erosion, reduced water infiltration, and higher soil temperatures and prevent the capture and conversion of atmospheric nitrogen, the accumulation of organic matter, and the facilitation of native seedling establishment and growth. We request that this information be included in the EIS with an analysis of the aerial extent that would receive these impacts. The Draft EA notes that the average annual rainfall is 5 inches (p. 3-15). There are times when this amount can fall in one or two events, resulting in serious erosion and water quality issues because of the absence of a well-established soil crust and woody vegetation. This impact is not analyzed but should be included in the EIS.

Vegetation: The Navy reports "Ground disturbance associated with the Proposed Action Alternative would primarily occur within the existing disturbed target areas of the former Air Force Cuddeback Air-Ground Gunnery Range." While the vegetation in/near the target areas was previously destroyed or degraded by Air Force activity, it has not been used for several years and was undergoing a natural restoration process. The Draft EA gives the impression that the condition of the biological resources, specifically the vegetation, is the same now as when the Air Force used it as a range several years ago. With implementation of one of the action alternatives, much of the Cuddeback Range will now be subject to degradation or loss from renewed activity by the Navy including increased and regular ground access from vehicles, equipment, and troops and from testing weapons that do not perform as planned or when their trajectory goes astray.

For any vegetation in the area or downwind, these activities would result in increased wind erosion of soil and dust deposition, disruption of pollination systems, and the spread of invasive nonnative plant species. These impacts contribute to changes in vegetation type; increases in fire frequency, size, and intensity; fragmentation and reduction/loss of connectivity; reduced gene exchange; and reduced population persistence for plants (USFWS 2014b). Adverse impacts to desert vegetation from dust deposition include increases in leaf temperatures and subsequent photosynthetic rates during early spring that may require an increased amount of water for growth and successful reproduction. If this increased amount of water is not available, these

plant species may respond by reducing plant vigor and by reducing flower and seed production or abandoning reproduction for the year (USFWS 2014b). Subsequent years of dust may result in no recruitment of plants or plant mortality. In summary, the quality and quantity of the vegetation would be adversely impacted. These impacts in turn adversely affect the habitat of the Mojave desert tortoise for breeding, feeding, sheltering, and connectivity requirements. We did not find an analysis of these indirect impacts to the vegetation or the habitat of the desert tortoise in the Draft EA and request that this analysis be include in the EIS or Final EA.

The Navy reports "None of the impact areas occur within habitats or plant communities that are unique or considered sensitive to cumulative loss, either within NAWSCL or in a regional context. Therefore, impacts to these vegetation communities would not be significant." We request the Navy provide citations in the EIS or Final EA to support this conclusion, especially regarding plant growth, reproduction, and recruitment with climate change intensifying.

Desert Tortoise: We request that the Navy include the following information on status and trend of the Mojave desert tortoise in the EIS. We request this because the current information in the Draft EA does not represent the status and trend of the species, Western Mojave Recovery Unit, or Superior-Cronese population, the last of which is where the Proposed Action area is located. To assist the Navy with its analysis of the direct, indirect, and cumulative impacts of Alternative 1 and Alternative 2 on the Mojave desert tortoise, we provide the following information on its status and trend.

Status of the Mojave Desert Tortoise

The Council has serious concerns about direct, indirect, and cumulative sources of human mortality for the Mojave desert tortoise given the status and trend of the species rangewide, within each of the five recovery units, within the Tortoise Conservation Areas (TCAs) that comprise each recovery unit, and the Superior-Cronese and Fremont-Kramer TCAs. The southern portion of Proposed Project area is within the Superior-Cronese TCA and designated Critical Habitat and 3 miles from the Fremont-Kramer TCA and designated Critical Habitat.

Densities of Adult Mojave Desert Tortoises: A few years after listing the Mojave desert tortoise under the Federal Endangered Species Act (FESA), the U.S. Fish and Wildlife Service (USFWS) published a Recovery Plan for the Mojave desert tortoise (USFWS 1994a). It contained a detailed population viability analysis. In this analysis, the minimum viable density of a Mojave desert tortoise population is 10 adult tortoises per mile^2 (3.9 adult tortoises per km^2). This assumed a male-female ratio of 1:1 (USFWS 1994a, page C25) and certain areas of habitat with most of these areas geographically linked by adjacent borders or corridors of suitable tortoise habitat. Populations of Mojave desert tortoises with densities below this amount are in danger of extinction (USFWS 1994a, page 32). The revised recovery plan (USFWS 2011) designated five recovery units for the Mojave desert tortoise that are intended to conserve genetic, behavioral, and morphological diversity necessary for the recovery of the entire listed species (Allison and McLuckie 2018).

Rangewide, densities of adult Mojave desert tortoises declined more than 32% between 2004 and 2014 (Table 1) (USFWS 2015). At the recovery unit level, between 2004 and 2014, densities of adult desert tortoise declined, on average, in every recovery unit except the Northeastern Mojave (Table 1). Adult densities in the Northeastern Mojave Recovery Unit increased 3.1% per year (SE = 4.3%), while the other four recovery units declined at different annual rates: Colorado Desert (4.5%, SE = 2.8%), Upper Virgin River (3.2%, SE = 2.0%), Eastern Mojave (11.2%, SE = 5.0%), and Western Mojave (7.1%, SE = 3.3%) (Allison and McLuckie 2018). However, the small area and low starting density of the tortoises in the Northeastern Mojave Recovery Unit (lowest density of all Recovery Units) resulted in only a small overall increase in the number of adult tortoises by 2014 (Allison and McLuckie 2018). In contrast, the much larger areas of the Eastern Mojave, Western Mojave, and Colorado Desert recovery units, plus the higher estimated initial densities in these areas, explained much of the estimated total loss of adult tortoises since 2004 (Allison and McLuckie 2018).

At the population level, represented by tortoises in the TCAs, densities of 10 of 17 monitored populations of the Mojave desert tortoise declined from 26% to 64% and 11 have densities that are less than 3.9 adult tortoises per km^2 (USFWS 2015). The southern portion of the Proposed Project area is within the Superior-Cronese population and has a population below the minimum viable density, and an 11-year declining trend (-61.5%) (USFWS 2015). It is located within 3 miles of the Fremont-Kramer population which has a population below the minimum viable density and an 11-year declining trend (-50.6%) (USFWS 2015).We are concerned that the Proposed Project would bring additional indirect and cumulative impacts to this population and its density and trend would further decline.

Population Data on Mojave Desert Tortoise: The Mojave desert tortoise was listed as threatened under the FESA in 1990. The listing was warranted because of ongoing population declines throughout the range of the tortoise from multiple human-caused activities. Since the listing, the status of the species has changed. Population numbers (abundance) and densities continue to decline substantially (please see Table 1).

Table 1. Summary of 10-year trend data for 5 Recovery Units and 17 Critical Habitat Units (CHU)/Tortoise Conservation Areas (TCA) for Agassiz's desert tortoise, *Gopherus agassizii* (=Mojave desert tortoise). The table includes the area of each Recovery Unit and Critical Habitat Unit (CHU)/Tortoise Conservation Area (TCA), percent of total habitat for each Recovery Unit and Critical Habitat Unit/Tortoise Conservation Areas, density (number of breeding adults/km^2 and standard errors = SE), and the percent change in population density between 2004-2014. Populations below the viable level of 3.9 breeding individuals/km^2 (10 breeding individuals per mi^2) (assumes a 1:1 sex ratio) and showing a decline from 2004 to 2014 are in red (USFWS 2015).

Recovery Unit Designated Critical Habitat Unit/Tortoise Conservation Area	Surveyed area (km^2)	% of total habitat area in Recovery Unit & CHU/TCA	2014 density/km^2 (SE)	% 10-year change (2004–2014)
Western Mojave, CA	**6,294**	**24.51**	**2.8 (1.0)**	**–50.7 decline**
Fremont-Kramer	2,347	9.14	2.6 (1.0)	–50.6 decline

Ord-Rodman	852	3.32	3.6 (1.4)	–56.5 decline
Superior-Cronese	3,094	12.05	2.4 (0.9)	–61.5 decline
Colorado Desert, CA	**11,663**	**45.42**	**4.0 (1.4)**	**–36.25 decline**
Chocolate Mtn AGR, CA	713	2.78	7.2 (2.8)	–29.77 decline
Chuckwalla, CA	2,818	10.97	3.3 (1.3)	–37.43 decline
Chemehuevi, CA	3,763	14.65	2.8 (1.1)	–64.70 decline
Fenner, CA	1,782	6.94	4.8 (1.9)	–52.86 decline
Joshua Tree, CA	1,152	4.49	3.7 (1.5)	+178.62 increase
Pinto Mtn, CA	508	1.98	2.4 (1.0)	– 60.30 decline
Piute Valley, NV	927	3.61	5.3 (2.1)	+162.36 increase
Northeastern Mojave	**4,160**	**16.2**	**4.5 (1.9)**	**+325.62 increase**
Beaver Dam Slope, NV, UT, AZ	750	2.92	6.2 (2.4)	+370.33 increase
Coyote Spring, NV	960	3.74	4.0 (1.6)	+ 265.06 increase
Gold Butte, NV & AZ	1,607	6.26	2.7 (1.0)	+ 384.37 increase
Mormon Mesa, NV	844	3.29	6.4 (2.5)	+ 217.80 increase
Eastern Mojave, NV & CA	**3,446**	**13.42**	**1.9 (0.7)**	**–67.26 decline**
El Dorado Valley, NV	999	3.89	1.5 (0.6)	–61.14 decline
Ivanpah, CA	2,447	9.53	2.3 (0.9)	–56.05 decline
Upper Virgin River	**115**	**0.45**	**15.3 (6.0)**	**–26.57 decline**
Red Cliffs Desert	115	0.45	15.3 (6.0)	–26.57 decline
Total amount of land	**25,678**	**100.00**		**–32.18 decline**

Declining adult densities through 2014 have left the Western Mojave adult numbers at 49% (a 51% decline) and in the Eastern Mojave at 33% (a 67% decline) of their 2004 levels (Allison and McLuckie 2018, USFWS 2015). Such steep declines in the density of adults are only sustainable if there were suitably large improvements in reproduction and juvenile growth and survival. However, the proportion of juveniles has not increased anywhere in the range of the Mojave desert tortoise since 2007, and in the Western and Eastern Mojave recovery units the proportion of juveniles in 2014 declined to 91% (a 9 % decline) and 77% (a 23% decline) of their representation in 2004, respectively (Allison and McLuckie 2018).

Density of Juvenile Mojave Desert Tortoises: Survey results indicate that the proportion of juvenile desert tortoises has been decreasing in all five recovery units since 2007 (Allison and McLuckie 2018). The probability of encountering a juvenile tortoise was consistently lowest in the Western Mojave Recovery Unit, the location of the Navy's Alternative 1 and Alternative 2. Allison and McLuckie (2018) provided reasons for the decline in juvenile desert tortoises in all recovery units. These included decreased food availability for adult female tortoises resulting in reduced clutch size, decreased food availability resulting in increased mortality of juvenile tortoises, prey switching by coyotes from mammals to tortoises, and increased abundance of common ravens that typically prey on smaller desert tortoises.

Abundance of Mojave Desert Tortoises: Allison and McLuckie (2018) noted that because the area available to tortoises (i.e., tortoise habitat and linkage areas between habitats) is decreasing, trends in tortoise density no longer capture the magnitude of decreases in abundance. Hence, they reported on the change in abundance or numbers of the Mojave desert tortoises in each recovery unit (Table 2). They noted that these estimates in abundance are likely higher than actual numbers of tortoises and the changes in abundance (i.e., decrease in numbers) are likely lower than actual numbers because of their habitat calculation method. They used area estimates that removed only impervious surfaces created by development as cities in the desert expanded. They did not consider degradation and loss of habitat from other sources, such as the recent expansion of military operations (753.4 km^2 so far on Fort Irwin and the Marine Corps Air Ground Combat Center), intense or large scale fires (e.g., 576.2 km^2 of Critical Habitat that burned in 2005), development of utility-scale solar facilities (so far 194 km^2 have been permitted) (USFWS 2016), or other sources of degradation or loss of habitat (e.g., recreation, mining, grazing, infrastructure, etc.). Thus, the declines in abundance of the Mojave desert tortoise are likely greater than those reported in Table 2.

Table 2. Estimated change in abundance of adult Mojave desert tortoises in each recovery unit between 2004 and 2014 (Allison and McLuckie 2018). Decreases in abundance are in red.

Recovery Unit	Modeled Habitat (km^2)	2004 Abundance	2014 Abundance	Change in Abundance	Percent Change in Abundance
Western Mojave	23,139	131,540	64,871	-66,668	-51%
Colorado Desert	18,024	103,675	66,097	-37,578	-36%
Northeastern Mojave	10,664	12,610	46,701	34,091	270%
Eastern Mojave	16,061	75,342	24,664	-50,679	-67%
Upper Virgin River	613	13,226	10,010	-3,216	-24%
Total	**68,501**	**336,393**	**212,343**	**-124,050**	**-37%**

Habitat Availability: Data on population density or abundance does not indicate population viability. The area of protected habitat or reserves for the subject species is a crucial part of the viability analysis along with data on density, abundance, and other population parameters. In the Desert Tortoise (Mojave Population) Recovery Plan (USFWS 1994a), the analysis of population viability included population density and size of reserves (i.e., areas managed for the desert tortoise) and population numbers (abundance) and size of reserves. The USFWS Recovery Plan reported that as population densities for the Mojave desert tortoise decline, reserve sizes must increase, and as population numbers (abundance) for the Mojave desert tortoise decline, reserve sizes must increase (USFWS 1994a). In 1994, reserve design (USFWS 1994a) and designation of Critical Habitat (USFWS 1994b) were based on the population viability analysis from numbers (abundance) and densities of populations of the Mojave desert tortoise in the early 1990s. Inherent in this analysis is that the lands be managed with reserve level protection (USFWS 1994a, page 36) or ecosystem protection as described in section 2(b) of the FESA, and that sources of mortality be reduced so recruitment exceeds mortality (that is, lambda > 1)(USFWS 1994a, page C46).

Habitat loss also disrupts the prevailing population structure of this widely distributed species with geographically limited dispersal (isolation by distance; Murphy et al. 2007; Hagerty and Tracy 2010). Allison and McLuckie (2018) anticipate an additional impact of this habitat loss/degradation is decreasing resilience of local tortoise populations by reducing demographic connections to neighboring populations (Fahrig 2007). Military and commercial operations and infrastructure projects that reduce tortoise habitat in the desert are anticipated to continue (Allison and McLuckie 2018) as are other sources of habitat loss/degradation.

Allison and McLuckie (2018) reported that the life history of the Mojave desert tortoise puts it at greater risk from even slightly elevated adult mortality (Congdon et al. 1993; Doak et al. 1994), and recovery from population declines will require more than enhancing adult survivorship (Spencer et al. 2017). The negative population trends in most of the TCAs for the Mojave desert tortoise indicate that this species is on the path to extinction under current land management conditions (Allison and McLuckie 2018). They state that their results are a call to action to remove ongoing threats to tortoises from TCAs, and possibly to contemplate the role of human activities outside TCAs and their impact on tortoise populations inside them.

Densities, numbers, and habitat for the Mojave desert tortoise declined between 2004 and 2014. As reported in the population viability analysis, to improve the status of the Mojave desert tortoise, reserves (area of protected habitat) must be established and managed. When densities of tortoises decline, the area of protected habitat must increase. When the abundance of tortoises declines, the area of protected habitat must increase. We note that the Desert Tortoise (Mojave Population) Recovery Plan was released in 1994 and its report on population viability and reserve design was reiterated in the 2011 Revised Recovery Plan as needing to be updated with current population data (USFWS 2011, p. 83). With lower population densities and abundance, a revised population viability analysis would show the need for greater areas of habitat to be protected or larger reserves for the Mojave desert tortoise. In addition, we note that none of the recovery actions that are fundamental tenets of conservation biology has been implemented throughout most or all of the range of the Mojave desert tortoise. Although TCAs/CHUs have been designated on maps for the Mojave desert tortoise, these reserve areas are not managed for the Mojave desert tortoise.

Definition of an Endangered Species: Agassiz's desert tortoise is now on the list of the world's most endangered tortoises and freshwater turtles. It is in the top 50 species. The International Union for Conservation of Nature's (IUCN) Species Survival Commission, Tortoise and Freshwater Turtle Specialist Group, now considers Agassiz's desert tortoise to be Critically Endangered (Turtle Conservation Coalition 2018).

The IUCN places a taxon in the Critically Endangered category when the best available evidence indicates that it meets one or more of the criteria for Critically Endangered. These criteria are (1) population decline - a substantial (>80 percent) reduction in population size in the last 10 years; (2) geographic decline - a substantial reduction in extent of occurrence, area of occupancy, area/extent, or quality of habitat, and severe fragmentation of occurrences; (3) small population size with continued declines; (4) very small population size; and (5) analysis showing the probability of extinction in the wild is at least 50 percent within 10 years or three generations.

In the FESA, Congress defined an "endangered species" as "any species which is in danger of extinction throughout all or a significant portion of its range…" The California Endangered Species Act (CESA) contains a similar definition. In CESA, the California legislature defined an "endangered species" as a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant, which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes (California Fish and Game Code § 2062.). Given the information on the status of the Mojave desert tortoise and the definition of an endangered species, the Council believes the status of the Mojave desert tortoise is that it is an endangered species.

On page 3-40, the Navy provides a brief summary of tortoise sign found in 2016 during partial surveys of the Proposed Action area (p. 3-40) and cites Epsilon (2017). We found no information that the survey methodology or surveyors complied with the USFWS's 2017 survey protocol, or USFWS' 2009 protocol if surveys were performed before August 2017. We restate our earlier request that the information in the Epsilon 2017 document be provided in the EIS or Final EA.

Mitigation: Section 1508.20 of CEQ's regulations defines "Mitigation" to include (a) Avoiding the impact altogether by not taking a certain action or parts of an action; (b) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and (e) Compensating for the impact by replacing or providing substitute resources or environments.

Because many of the impacts to the Mojave desert tortoise and its habitat were not discussed and analyzed in the Draft EA and the Navy did not consider the most recent information on the status and trend of the Superior-Cronese population, Fremont-Kramer population, or Western Mojave Recovery Unit, the mitigation that the Navy is proposing is inadequate. As the Navy states, its proposed mitigation is based on a 2013 biological opinion (p. 3-44), a 5-year-old document. In addition, the measures in a biological opinion are limited to minimizing the take of a listed species. These are standard minimization measures that have been implemented for federal actions for decades, yet the status and trend of the tortoise continues to decline. One conclusion is these measures are inadequate to fully mitigate the impacts of actions to the desert tortoise and each action contributes to the further decline of the tortoise.

Section 7(a)(2) of the FESA does not include CEQ's definition of mitigation in its implementation. In addition, the 2013 biological opinion did not consider the information on the population and recovery unit status for the tortoise (that is, below the viability level for the Mojave desert tortoise in the Superior-Cronese population, Fremont-Kramer population, and Western Mojave Recovery Unit) and their declining trends (USFWS 2015). We suggest that the Navy should be fully mitigating all impacts from its actions, and the mitigation should be implemented in the order it is presented in CEQ's regulations, beginning with avoidance.

We note that standard minimization measures for other federal projects in occupied desert tortoise habitat include development and implementation of the following types of plans:

- Predator Management Plan (includes contributing to the Raven Management Fund)
- Site plan for Soils and Hydrology
- Habitat Restoration and Monitoring Plan
- Vegetation Management Plan (includes invasive species/noxious weeds) and Monitoring
- Tortoise Relocation and Repatriation Plan of Tortoise Translocation Plan
- Nuisance Animal Plan
- Spill Prevention, Control and Countermeasure (SPCC) Plan
- Erosion, Dust Control, and Air Quality Plan/Fugitive Dust Control Plan
- Blasting Plan
- Hazardous Materials Management Plan
- Fire Protection Plan
- Fire Prevention and Response Plan
- Waste Management Plan.

These plans were not included in the Draft EA but have a direct bearing on the extent of impacts to the Mojave desert tortoise and its habitat/Critical Habitat from implementation of the action alternatives. The Navy states, "… the Proposed Action would not result in significant impacts to biological resources upon implementation of mitigation measures" and "While the Proposed Action would potentially impact the federally listed as threatened desert tortoise, impacts would not be significant with implementation of these measures" (p. 4-11). However, we disagree with the Navy's assertion. The absence of these mitigation plans means the public and the decision maker are unable to review them to determine their adequacy for mitigating direct, indirect, and cumulative impacts; and for monitoring their effectiveness and implementing adaptive management regarding the Mojave desert tortoise. In addition, if these plans are not available, it is not possible for the Navy to analyze the impacts with implementation of the mitigation plans, to determine the environmental consequences of the action alternatives to the Mojave desert tortoise with the proposed mitigation, and to conclude there would be no significant impact to biological resources including the desert tortoise.

We urge the Navy to fully mitigate for the Mojave desert tortoise and its habitat/Critical Habitat whatever action alternative it implements and to implement actions that contribute to the recovery of the tortoise including its habitat/Critical Habitat. The action alternatives would result in additional impacts to the tortoise and its habitat/Critical Habitat. Given the status of the Mojave desert tortoise with densities below the viability level at the population and recovery unit levels and its declining trend, we believe that any additional action that would result in adverse impacts to the tortoise in the Superior-Cronese or Fremont-Kramer populations (the latter by indirect and cumulative impacts) or Western Mojave Recovery Unit is a significant impact on the tortoise and contributes to its extinction. We conclude from the above data on the tortoise and impacts from Alternative 1 or 2, that the tortoise will continue its spiral to extinction unless landowners, including the Navy, implement effective conservation actions to reverse its non-viable status and declining trend.

In addition to section 7(a)(1) of the FESA, the Navy is obligated by the Sikes Act Improvement Act to implement actions that are effective at contributing to the recovery of listed species. The Navy has a commitment under the Sikes Act Improvement Act to implement such effective management actions to contribute to the recovery of the Mojave desert tortoise through

development and implementation of its Integrated Natural Resources Management Plan (INRMP) for NAWSCL. As such, the INRMP "provides a conservation benefit to the species, provides certainty that it will be implemented, and. provides reasonable certainty that the conservation effort will be effective." (Navy 2014, Appendix O). The IMRMP includes (1) "biological goals (broad guiding principles for the program) and objectives (measurable targets for achieving the goals); (2) quantifiable, scientifically valid parameters that will demonstrate achievement of objectives and standards for these parameters by which progress will be measured are identified; (3) provisions for monitoring and, where appropriate, adaptive management; (4) provisions for reporting progress on implementation (based on compliance with the implementation schedule) and effectiveness (based on evaluation of quantifiable parameters) of the conservation effort are provided; and (5) a duration sufficient to implement the plan and achieve the benefits of its goals and objectives" (Navy 2014). We request that the Navy consider its actions at the Cuddeback Range during its implementation of its INRMP for the tortoise.

Cumulative Impacts: In section **4.4.5.3 Cumulative Impact Analysis for Biological Resources**, the Navy provided the following language, "the Proposed Action would not result in significant impacts to biological resources upon implementation of mitigation measures. While the Proposed Action would potentially impact the federally listed as threatened desert tortoise, impacts would not be significant with implementation of these measures. No significant impacts to sensitive vegetation communities, migratory birds, other threatened and endangered species and associated Critical Habitat would occur. Although other past, present, and reasonable foreseeable projects on NAWSCL and in adjacent areas/communities would also have the potential for biological impacts, these projects would also have to comply with applicable federal, state, and local regulations and/or requirements, including (but not limited to) the federal Endangered Species Act and Migratory Bird Treaty Act, as well as compliance with policies and natural resource management procedures stipulated in the Integrated Natural Resources Management Plan (INRMP) for cumulative projects occurring within NAWSCL."

We consider this statement and additional language in this section as restating conclusions the Navy came to in the section in **Section 3.5, Biological Resources.** As we stated above, these conclusions were drawn from inaccurate, partial, or no information on baseline conditions for the Mojave desert tortoise. This is a foundation from which the analysis of all the direct and indirect impacts to the Mojave desert tortoise is then built. In, addition the analysis the Navy provided had little or no scientific support/documentation provided in the Draft EA. Therefore, the foundation upon which the Navy built its conclusion of no significant impacts to the tortoise or its habitat/Critical Habitat is flawed. If this is flawed, the cumulative impact analysis, which is built on the impact analysis of the action alternatives, is also flawed. In addition, we consider this statement as the Navy deferring cumulative impact analysis to other actions when certain federal laws may apply.

In addition, we did not find (1) the "analysis" part of the cumulative impact analysis from this loss of habitat/Critical Habitat, or (2) impacts to desert tortoises and an analysis of how these impacts would affect the survival of the Mojave desert tortoise at a population (Superior-Cronese and Fremont-Kramer), recovery unit, or species level. The Council urges the Navy to conduct this analysis in the final environmental document given the densities of the Mojave desert tortoise populations of less than the minimum viable threshold for the Superior-Cronese and Fremont-Kramer populations, all three populations in the Western Mojave Recovery Unit, and 10 of 17 populations throughout the range of the species. This type of analysis is required in all EA and EIS documentation (see below).

The CEQ (1997) states "Determining the cumulative environmental consequences of an action requires delineating the cause-and-effect relationships between the multiple actions and the resources, ecosystems, and human communities of concern. The range of actions that must be considered includes not only the project proposal but all connected and similar actions that could contribute to cumulative effects." The analysis "must describe the response of the resource to this environmental change." Cumulative impact analysis should "address the sustainability of resources, ecosystems, and human communities."

The CEQ provides eight principles of cumulative impacts analysis (CEQ 1997, Table 1-2). These are:

1. **Cumulative effects are caused by the aggregate of past, present, and reasonable future actions.**
The effects of a proposed action on a given resource, ecosystem, and human community, include the present and future effects added to the effects that have taken place in the past. Such cumulative effects must also be added to the effects (past, present, and future) caused by all other actions that affect the same resource.

2. **Cumulative effects are the total effect, including both direct and indirect effects, on a given resource, ecosystem, and human community of all actions taken, no matter who (federal, non-federal, or private) has taken the actions.**
Individual effects from disparate activities may add up or interact to cause additional effects not apparent when looking at the individual effect at one time. The additional effects contributed by actions unrelated to the proposed action must be included in the analysis of cumulative effects.

3. **Cumulative effects need to be analyzed in terms of the specific resource, ecosystem, and human community being affected.**
Environmental effects are often evaluated from the perspective of the proposed action. Analyzing cumulative effects requires focusing on the resources, ecosystem, and human community that may be affected and developing an adequate understanding of how the resources are susceptible to effects.

4. **It is not practical to analyze the cumulative effects of an action on the universe; the list of environmental effects must focus on those that are truly meaningful.**
For cumulative effects analysis to help the decision maker and inform interested parties, it must be limited through scoping to effects that can be evaluated meaningfully. The boundaries for evaluating cumulative effects should be expanded to the point at which the resource is no longer affected significantly or the effects are no longer of interest to the affected parties.

5. **Cumulative effects on a given resource, ecosystem, and human community are rarely aligned with political or administrative boundaries.**
Resources are typically demarcated according to agency responsibilities, county lines, grazing allotments, or other administrative boundaries. Because natural and sociocultural resources are not usually so aligned, each political entity actually manages only a piece of the affected resource or ecosystem. Cumulative effects analysis on natural systems must use natural ecological boundaries and analysis of human communities must use actual sociocultural boundaries to ensure including all effects.

6. **Cumulative effects may result from the accumulation of similar effects or the synergistic interaction of different effects.**
Repeated actions may cause effects to build up through simple addition (more and more of the same type of effect), and the same or different actions may produce effects that interact to produce cumulative effects greater than the sum of the effects.

7. **Cumulative effects may last for many years beyond the life of the action that caused the effects.**
Some actions cause damage lasting far longer than the life of the action itself (e.g., acid mine damage, radioactive waste contamination, species extinctions). Cumulative effects analysis need to apply the best science and forecasting techniques to assess potential catastrophic consequences in the future.

8. **Each affected resource, ecosystem, and human community must be analyzed in terms of its capacity to accommodate additional effects, based on its own time and space parameters**.
Analysts tend to think in terms of how the resource, ecosystem, and human community will be modified given the action's development needs. The most effective cumulative effects analysis focuses on what is needed to ensure long-term productivity or sustainability of the resource.

In addition, CEQ (1997) states, "The consequences of human activities will vary from those that were predicted and mitigated." "[M]onitoring for accuracy of predictions and the success of mitigation measures is critical." "Adaptive management provides the opportunity to combine monitoring and decision making in a way that will ensure protection of the environment and societal goals."

We were unable to find in **Chapter 4 Cumulative Impacts** of the Draft EA, the application of these eight principles of cumulative impacts analysis with respect to the Mojave desert tortoise or commitments by the Navy to monitor the success of mitigation and implement adaptive management. We request that the EIS (1) include these eight principles in its analysis of cumulative impacts to the Mojave desert tortoise; (2) address the sustainability of the tortoise given the information on the status of the Mojave desert tortoise (provided above); and (3) include mitigation plans along with monitoring and adaptive management for impacts that directly and indirectly affect the desert tortoise and its Critical Habitat/tortoise habitat.

Below are our specific comments on sections of the Draft EA.

Section 1.6 Key Documents
The Navy issued a "Categorical Exclusion for the Use of the Cuddeback Area for Non-ground Disturbing Unmanned Aerial Vehicle Operations at Naval Air Weapons Station China Lake" on March 10, 2016. This Categorical Exclusion was prepared by the Navy to authorize use of the former Air Force Cuddeback Air-Ground Gunnery Range. Although the Draft EA refers to the area as Former Air Force Cuddeback Air Ground Gunnery Range, it had been withdrawn to BLM and managed by them for several years. Given the additional impacts from support of Unmanned Aerial Vehicles (UAV) operations at the Cuddeback Range, which include (1) noise; (2) vehicle use, and associated impacts; (3) increased likelihood of vehicular strikes of tortoises;

(4) roadkill of other wildlife providing increased food subsidies for tortoise predators and increasing predation pressure on tortoises, transport of non-native plant propagules in vehicles and equipment facilitating establishment of non-native plants; (5) reduce the quality and quantity of nutritional forage required by tortoise to survive in an arid environment; and (6) provide unnatural high levels of dried fuel that facilitate the spread of wildfires in the Mojave Desert that kills native vegetation and other impacts, we would like to know if the Navy consulted with the USFWS on the action alternatives. We request a copy of the Navy's biological assessment and the USFWS' biological opinion regarding each agency's determination of the effects to the Mojave desert tortoise under section 7(a)(2) of the FESA.

1.7 Public and Agency Participation and Intergovernmental Coordination

On page 1-8 of the Draft EA, the Navy says, "Comments received during the scoping period were considered in preparing the Draft EA." The Council provided numerous issues, data, and comments during the 2017 scoping period (Desert Tortoise Council 2017). We provided the Navy with 16 issues that should have been addressed in the Draft EA but were not. Briefly these issues were:

(1) impacts to tortoise movements/dispersal and gene flow between the Golden Valley and Grass Valley Wilderness Areas;
(2) impacts to higher elevation habitats north of the Grass Valley Wilderness Area for Mojave desert tortoise populations and their importance because of climate change;
(3) a complete project description including ground disturbances, impacts to the tortoise population that occupies the withdrawn lands and adjacent lands, impacts to Critical Habitat, and mitigation;
(4) status of existing conditions for native vegetation (including quantification), tortoise populations, Mohave ground squirrel, and other special status species; status of habitat for these species; use of area by common ravens and other tortoise predators; areas previously disturbed by human use; presence of hazardous materials;
(5) an environmentally preferred alternative (e.g., limiting surface disturbance activities within the Cuddeback Range to areas previously disturbed while designating much of the withdrawn lands for the conservation of the desert tortoise);
(6) quantification of changes from implementation of alternatives to natural vegetation, populations and habitat of tortoises, Mohave ground squirrels, desert cymopterus and other species of special concern; change in use of area by tortoise predators, and activities that will result in surface disturbance and manage/remove hazardous materials;
(7) a description of the Navy's special management considerations or protection of Critical Habitat for the tortoise in the action area;
(8) compliance with CEQ's NEPA Guidelines (40 CFR 1506.1) on limiting reasonable alternatives;
(9) implementation of tortoise surveys to determine distribution and relative densities of tortoises throughout the action area, evaluation of primary constituent elements for tortoise Critical Habitat, and analysis of this information to determine areas to avoid infrastructure, intensive ground maneuvers, and training because of higher densities of tortoises, areas providing connectivity, and Critical Habitat;

(10) consideration of cumulative effects in determining the effect of the proposed action on the withdrawn lands as the biological integrity of the Superior-Cronese Critical Habitat Unit is already severely compromised through many land uses;
(11) explicit descriptions of the types and locations of training in expeditionary and irregular warfare and use of environmental baseline data to avoid areas supporting moderate and higher densities of tortoises, connectivity, and Critical Habitat, with the Navy fully mitigating for impacts that cannot be avoided including the acquisition of tortoise habitat;
(12) development and implementation of Predator Management Plan for raven and other tortoise predators, and contributions to the National Fish and Wildlife Foundation's Raven Management Fund for regional and cumulative impacts;
(13) a request for analysis of habitats within the withdrawn lands that may provide high elevation refugia for tortoise populations, an analysis of how the proposed action would contribute to the spread and proliferation of nonnative invasive plant species, and fires, and development and implementation/integration of a native vegetation restoration/invasive species management and monitoring plan and a fire prevention and response plan;
(14) details of fencing and translocation plans for tortoises;
(15) analysis of desert cymopterus impacts and mitigation; and
(16) inclusion of the withdrawn lands in NAWSCL INRMP with the addition of desert cymopterus.

In reviewing the Draft EA, we noted that most of these issues were not analyzed or even discussed in the Draft EA. We do not understand why the Navy would implement a scoping process for identification of issues deemed important by the public and then not analyze/discuss issues identified to them in the EA. We provided these issues to the Navy to help it implement its mission while conserving the Mojave desert tortoise and to prepare a defensible NEPA document, thereby fulfilling the Navy's responsibilities under NEPA, the FESA, and Sikes Act Improvement Act. These statutes direct the Navy to mitigate direct, indirect, and cumulative impacts of a proposed action to the Mojave desert tortoise and designated Critical Habitat and contribute to the recovery of the tortoise. We request that the issues we identified in our 2017 scoping letter to the Navy be described, that baseline information on them be included in the Affected Environment section, and that an analysis of all direct, indirect, and cumulative impacts according to CEQ (1981 and 1997) guidance be added to the EIS.

CEQ (1981) notes that "Scoping can be a useful tool for discovering alternatives to a proposal, or significant impacts that may have been overlooked. In cases where an environmental assessment is being prepared to help an agency decide whether to prepare an EIS, useful information might result from early participation by other agencies and the public in a scoping process." We advised the Navy, "Agassiz's desert tortoise populations range-wide have declined significantly over the past 40 years, and in particular over the past decade." "These precipitous [population] declines are unsustainable, and we believe the tortoise is on the verge of extinction in the Western Mojave Recovery Unit." Any action that results in additional impacts to the tortoise in this region would be significant. We advised the Navy that their plan would impede tortoise movements/dispersal and gene flow between the Golden Valley and Grass Valley Wilderness Areas. Thus, we believe that the Navy's proposal for the Cuddeback Range and adjacent withdrawn lands would represent significant impacts to tortoise populations that occupy these lands, as well as to populations on lands in the Fremont-Kramer and Superior-Cronese Critical

Habitat Units. Although we provided these statements and data supporting them, the Navy did not include this information in the Draft EA. This is baseline information that is needed for the Navy to analyze whether the impacts of the proposed action will rise to the level of significance and is necessary for the decision maker to have so decisions are made using current and accurate information.

2.3.2 Proposed Action Alternative (Alternative 1)

2.3.2.1 Facilities Requirements

Fencing and a perimeter road (page 2-5) would be constructed in a 20-foot wide area with locked gates installed across established access routes to private property. Proposed fencing would be composed of wood posts and braces, T-posts, and four to five strands of barbed wire. "Restricted Area" signs would be installed at regular intervals along the fence lines.

We found no information on the purpose or need for a perimeter road. Fencing can be constructed and maintained using cross-country travel and on foot. This reduces the impacts on soils and vegetation, and does not encourage off-highway vehicle (OHV) use by the public, which will occur with a perimeter road and should be analyzed as an impact. We request that the Navy exclude the perimeter road. If it is for security, we believe methods using remote sensing would be more effective as they could be operated 24 hours a day and would not subject the Navy to additional mitigation and monitoring for the road construction, use, and maintenance by the Navy and the public. "But for" the Navy's perimeter road, there would be no road effect zone for the Mojave desert tortoise and other wildlife species around the perimeter of the Cuddeback Range from Navy use and from public use.

2.4.1 Alternative Off-site Locations for Expanded RDAT&E Operations

The Navy states "Alternative off-site locations for the proposed expansion of RDAT&E activities would be inefficient…by virtue of failing to capitalize on the locational, geographic, and operational characteristics and advantages that NAWSCL and the Cuddeback Ranges would provide" (p.2-9). We concur that a location near or adjacent to NAWSCL would be appropriate to meet the purpose and need of the proposed action. However, we question the need for the Navy selecting the Cuddeback area and designated Critical Habitat. NAWSCL shares it boundary with other government lands including Fort Irwin and BLM land to the north and east. Thus, we suggest that other options are available.

In addition the Navy states (p. 2-9) "locating the proposed expansion of RDAT&E activities elsewhere would represent a failure to appropriately utilize the public lands expressly added onto NAWSCL by Congress in FY 2015 and 2016 National Defense Authorization Acts, and would therefore also appear to run counter to Congress' intent. Therefore, this alternative is not being carried forward for detailed analysis in the EA."

We note that section 3068 of the National Defense Authorization Act of 2015 and section 2841 of the National Defense Authorization Act of 2016 did not direct the Navy as to how these withdrawn lands would be used. Congress would not have authorized these specific land withdrawals unless the Navy had previously identified them to Congress and requested their withdrawal. Thus, we reject the Navy's logic that they must use these lands for the actions proposed in Alternatives 1 or 2.

2.5 Best Management Practices Included in Proposed Action

The Draft EA contains a list of various plans that would be developed and implemented as best management practices (BMPs) for Alternatives 1 and 2. These BMPs are considered "incorporated into the Proposed Action" (p. 2-9 and 2-10). "The BMPs identified in this document [Draft EA] are inherently part of the Proposed Action and are not potential mitigation measures proposed as a function of the NEPA environmental review process for the Proposed Action." The table of BMPs lists a Fugitive Dust Control Plan, Storm Water Pollution Prevention Plans, and Erosion Control Plan. Unfortunately, we found no information in the Draft EA on the practices that would be implemented with the Fugitive Dust Control Plan to reduce the impacts to air quality, or the Storm Water Pollution Prevention Plans and Erosion Control Plan to reduce the impacts to soils (erosion and off-site sediment transport) and water resources (water quality) (Fugitive Dust Control Plan), from the alternatives.

These BMP plans were not included in the Draft EA but have a direct bearing on the extent of impacts to Mojave desert tortoises and their habitats/Critical Habitat from implementation of the Project. Their absence means the public and the decision maker are unable to review them to determine their adequacy for "avoiding, minimizing or reducing/eliminating impacts" (p. 2-9) that are direct, indirect, and cumulative, and monitoring for effectiveness and adaptive management regarding desert tortoises. In addition, if these plans are not provided, it is not possible for the Navy to determine the environmental consequences of the Project to the Mojave desert tortoise.

We request that the Navy include these plans in the Final EA or EIS so the public has the opportunity to review and comment on them with respect to their adequacy and effectiveness to offset the direct, indirect, and cumulative impacts of the Project.

In the section on BMPs, the Navy states the BMPs "are incorporated into the Proposed Action" (p. 2-9) but there is no mention of their incorporation in the No New Access Road Alternative (Alternative 2). We are unclear whether this omission is an oversight by the Navy and BMPs are included in the No New Access Road Alternative (Alternative 2) or this is another difference between the Proposed Action and the No New Access Road Alternative. We request that the Navy clarify this uncertainty in the Final EA or EIS.

3.5.1 Regulatory Setting
3.5.1.1 Special Status Species

"Special status species, for the purposes of this assessment, are those species listed as threatened or endangered under the federal Endangered Species Act (ESA) or the Migratory Bird Treaty Act (MBTA)" (p. 3-30). This sentence is confusing. It can be interpreted, as there are species listed as threatened or endangered under the Migratory Bird Treaty Act. This is not accurate. We suggest reversing the order the laws are presented in the sentence in the Final EA or EIS.

The Navy provides much information on requirements for feral burros, but only partial information on special status species. We agree that "[T]he purpose of the federal ESA is to conserve the ecosystems upon which threatened and endangered species depend and to conserve

and recover listed species" (a modification of section 2(b) of the FESA). On page 3-30, the Navy states "Section 7 of the ESA requires action proponents to consult with the U.S. Fish and Wildlife Service (USFWS) or National Oceanic and Atmospheric Administration Fisheries to ensure that their actions are not likely to jeopardize the continued existence of federally listed threatened and endangered species, or result in the destruction or adverse modification of designated Critical Habitat." This is an excerpt from the regulations for implementing section 7(a)(2) of FESA.

However, the Navy did not include requirements under sections 7(a)(1) and section 2(c). Section 7(a)(1) of the FESA states "All other Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act." Conservation in section 3 of the FESA is defined as "to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation…" In addition, section 2(c) of FESA states "all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act." We request that the Navy add sections 2(c) and 7(a)(1) to the Final EA or EIS and provide data on the effectiveness of actions it is implementing to comply with sections 2(b), 2(c), and 7(a)(1) of FESA for the Mojave desert tortoise in the Proposed Action area and nearby.

This section presents information on section 7(a)(2) requirements of the FESA, but nothing on section 7(a)(1) requirements (please see below) or sections 2(b)and 2(c). Section 2(b) states "The purposes of this Act are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species." Section 2(c) states "all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this Act."

In addition, we believe the Navy is remiss in not including in the Draft EA the special status species in its INRMP, particularly the state threatened Mohave ground squirrel *(Xerospermophilus mohavensis*). By not doing this, the Navy is giving the public the impression that it is managing the North and South Ranges of NAWSCL to comply with the Sikes Act Improvement Act but excluding the Cuddeback Range from Sikes Act compliance. We request that the Mohave ground squirrel and other specials status species in the INRMP be addressed in the Final EA or EIS including mitigation so the implementation of one of the Navy's two action alternatives does not contribute to their listing under the FESA.

We request that the Navy add information to this section on the requirements of the Sikes Act Improvement Act and what effective actions the Navy is implementing at NAWSCL to conserve and recover the Mojave desert tortoise and other special status species per the INRMP and federally listed species per sections 2(b), 2(c), and 7(a)(1) of the FESA. We ask this as the Navy has a NAWSCL Wild Horse and Burro Management Plan (cited in the Draft EA as Navy 2011c)

but provides no information on a Mojave Desert Tortoise Management Plan. We request that the tortoise management plan be included as an appendix to the EIS and the Navy demonstrate how it is implementing its tortoise management plan in the Proposed Action area and nearby.

"The INRMP describes the Installation's natural resources management programs, goals, and guidelines; prioritizes management efforts; establishes a baseline for existing resource conditions" (page 3-31). We ask that the Navy provide in the EIS its data on the baseline of resource conditions for the Mojave desert tortoise and Mohave ground squirrel for NAWSCL and for the Cuddeback Range.

On page 3-35, the Navy provides information on Mediterranean Grass Grasslands. This non-native vegetation poses a high fire risk for any activity with an incendiary or high heat source (e.g., vehicles with catalytic converters or hot exhaust pipes, bombs, flares, etc.) It promotes the spread of fire to native desert shrubs that are not fire adapted. The Navy is proposing the use of such heat sources in its two action alternatives. Thus, in the Final EA or EIS the Navy should provide baseline data on both acres and location/configuration to monitor and manage this non-native vegetation type to ensure that it is declining and does into cause/contribute to the spread of fire to native vegetation in the Proposed Project area, including Critical Habitat. These data should be included in the EIS and appropriate minimization plans such as the Habitat Restoration and Monitoring Plan, Vegetation Management Plan (includes invasive species/noxious weeds) and Monitoring, Fire Protection Plan, and Fire Prevention and Response Plan.

3.5.2 Affected Environment
3.5.2.1 Terrestrial Vegetation
Plant Species

On pages 3-35 and 3-36, the Navy provides brief information on the results of a plant survey of the Proposed Action area and references Epsilon Systems Solutions, Inc. (2017) Cuddeback Land Withdrawal Biological Evaluation, NAWS China Lake, San Bernardino County, California (FINAL). We were unable to locate this report as an appendix to the Draft EA or on-line. Our interest in this document is because the Draft EA provides no information on the timing or methodology used to conduct plant surveys. The scientific community has developed standards for conducting plant surveys in arid environments because of the substantial seasonal and annual variation in the occurrence of plants especially annual plants. Thus, we strongly urge the Navy to provide this information and, if surveys did not follow scientific botanical standards, in the Final EA or EIS please include a section on plant species likely to occur in the area and referencing other surveys.

3.5.2.3 Threatened and Endangered Species

Table 3-4 lists the scientific name of the Mohave tui chub as *Gila bicolor mohavensis*. Although this was the scientific name at the time of listing, the scientific community has recognized its scientific name since 1998 as *Siphateles bicolor mohavensis* (please see Simons and Mayden 1998, Moyle 2002, Baerwald and May 2004, and Leunda 2005). Its status is federally endangered, state endangered, and fully protected. The SW designation is not defined in the footnote for the table.

The common name of the desert tortoise in the Proposed Action area is Mojave or Agassiz's desert tortoise. Its scientific name is *Gopherus agassizii*. It is a separate species from the Sonoran or Morakfa's desert tortoise, *Gopherus morafkai*, which occurs in western and southern Arizona and Sonora, Mexico. We suggest the Navy update its table in the Final EA or EIS.

3.5.3 Environmental Consequences
3.5.3.1 No Action Alternative

Referring to our second comment on section **2.3 Alternatives Carried Forward for Analysis,** we believe the Navy should analyze the consequences of the "no action" alternative" regarding impacts to the human environment (CEQ 1981). We do not believe the Navy has analyzed what would happen to the Mojave desert tortoise, part of the human environment, if the No Action Alternative were selected. If the Navy continues its current use of the Proposed Action area, that is, no new action (rather than no action), we believe the available data support the conclusion that the Mojave desert tortoise in and near the Proposed Project area (i.e., Superior-Cronese and Fremont-Kramer populations) will continue to decline in density and abundance, decline further below the viability threshold than it currently is, and the population trend will continue its substantial decline. Continuation of a downward status and trend will ultimately result in population extirpation. We request this analysis and conclusion be included in the subsequent document.

Vegetation
On page 3-41, the Navy says "None of the impact areas occur within habitats or plant communities that are unique or considered sensitive to cumulative loss, either within NAWSCL or in a regional context. Therefore, impacts to these vegetation communities would not be significant." The information in the first sentence is not supported by citations and the conclusion in the second sentence is not supported by the information in the first sentence. We find that Table 3-5 Potential Impacts on Vegetation – Proposed Action Alternative is a footprint of the direct impacts of the Proposed Action Alternative with a scientifically unsupported buffer area placed around roads.

In the Final EA or EIS, we request that the Navy quantify the acres, locations, configuration, recruitment, quality (e.g., plant density and plant size) and other relevant ecological information on survival/persistence of vegetation communities in/near the Proposed Action area; determine the types and extent of direct and indirect impacts (e.g., fugitive dust and impacts on plant physiology and reproduction, introduction and spread of non-native plant propagules, increased frequency and size of fire, destruction/degradation of soil crusts, etc.) from implementation of the Proposed Action Alternative; and use these data and information from the scientific literature to analyze the extent of the loss and degradation of these plant communities. Once completed, the Navy may then draw a conclusion regarding significance.

Terrestrial Wildlife
On pages 3-42 and 3-43 is a discussion of the removal of habitat from installation of the new road, but we found no analysis of direct and indirect impacts to "special status species, MBTA-covered species, and non-special status species" from road construction (e.g., injury and mortality), use, and maintenance. Similarly there is discussion of new fencing, but we found no analysis of direct and indirect impacts to "special status species, MBTA-covered species, and

non-special status species" after the fence was constructed (e.g., fence posts providing new perch sites for common ravens to use for hunting Mojave desert tortoises) or fence maintenance. Please include a list of the types of direct and indirect impacts and an analysis, supported by scientific literature of the extent of these impacts in the Final EA or EIS. To assist the Navy in its analysis we are providing some information on these issues below.

Impacts of Roads and Other Linear Features

On page 2-5 in the Draft EA, the Navy says existing roads "would be used for **regular operations** (emphasis added)." "The new unpaved access road would be approximately 5 miles (8 kilometers) long with a width of 20 feet." "A[n unpaved] perimeter road along the fence line would also be provided" and "…would occur within a 20-foot (6-meter) wide area." "All existing and proposed roads would receive periodic maintenance." "Existing and proposed roads within the Cuddeback Range would encompass a total of 1,209 acres (489 hectares [ha]), comprised of 1,154 acres (467 ha) of existing roads and 55 acres (22 ha) of the proposed new access road. The 55 acres (22 ha) assumes a right-of-way width of approximately 100 feet (30 meters), but as stated above the width of the new access road would be 20 feet (6 meters) wide, which would result in a disturbance area of 11 acres (4.5 ha)."

Unfortunately, the "road effect zone" for the Mojave desert tortoise is much wider than 100 feet or 50 feet on either side of the centerline of the road calculated in the Draft EA.

We are concerned about increased vehicle use/trips from regular operations on new and existing access roads to and in the Proposed Action area by authorized users and unauthorized users for the two action alternatives. Roads have a generally negative overall impact on native biological diversity and ecological integrity (Brocke et al., 1988, Jalkotzy et al. 1997, Gucinski et al. 2001). This includes the deterioration/loss of wildlife habitat, hydrology, geomorphology, and air quality, increased competition and predation (including by humans), and the loss of naturalness or pristine qualities (Forman et al. 1997, Jalkotzy et al. 1997). Roadless areas and areas with low road density are more likely to have greater ecological integrity and/or wildlife habitat value than similar areas with more roads (Noss 1993, Rudis 1995; as cited in Beazley et al. 2004).

Forman (2000) has called the area where these collective effects impact wildlife and their habitats the "road effect zone." Though roads comprise only 1% of surface area, an estimated 19% of the total land within the United States is ecologically affected by roads due to indirect effects that extend 100–800 m beyond the physical footprint of the road (Forman 2000, as cited in Nafus et al. 2013).

Roads have been described as the single most destructive element in the process of habitat fragmentation (Noss 1993) and their ecological effects are considered "the sleeping giant of biological conservation" (Forman 2002:viii, as cited in van der Ree et al. 2011). "The synergistic effects of roads and other factors that operate simultaneously" need to be investigated and considered. This lack of knowledge is often used as a justification to create more roads by arguing that not enough is known and more research is needed before road construction may slow down. This constitutes a "fragmentation spiral" (Jaeger 2002), because research has been unable to catch up with the ecological effects of the rapid increase in road densities. This situation is contrary to the precautionary principle and undermines the principles of sustainability (all from van der Ree et al. 2011).

There are five major categories of primary road effects to wildlife (1) wildlife mortality from collisions with vehicles; (2) hindrance/barrier to animal movements thereby reducing access to resources and mates; (3) degradation of habitat quality; (4), habitat loss caused by disturbance effects in the wider environment and from the physical occupation of land by the road; and (5) subdividing animal populations into smaller and more vulnerable fractions (Jaeger et al. 2005a, 2005b, Roedenbeck et al. 2007). Road establishment is often followed by various indirect effects such as increased human access causing disturbance of breeding sites, increased exploitation via activities such as hunting (McLellan and Shackleton 1988, Kilgo et al. 1998), and the spread of invasive species (Parendes and Jones 2000). For desert tortoises, increased human access includes encounters with vehicles that result in collection or vandalism as this removes tortoises from the populations and is equivalent to mortality.

Increased vehicle use on roads equates to increased direct mortality and an increased road effect zone for desert tortoises. Road construction, use, and maintenance adversely affect wildlife through numerous mechanisms that can include mortality from vehicle collisions, and loss, fragmentation, and alteration of habitat (Nafus et al. 2013; von Seckendorff Hoff and Marlow 2002).

Von Seckendorff Hoff and Marlow (2002) reported that they detected reductions in Mojave desert tortoise numbers and sign from infrequent use of roadways to major highways with heavy use. There was a linear relationship between traffic level and reduction. For two graded, unpaved roads, the reduction in tortoises and sign was evident 1.1 to 1.4 km (3,620 to 4,608 feet) from the road. Nafus et al. (2013) reported that roads may decrease tortoise populations via several possible mechanisms, including cumulative mortality from vehicle collisions and reduced population growth rates from the loss of larger reproductive animals. Other documented impacts from road construction, use, and maintenance include increases in roadkill of wildlife species as well as tortoises, creating or increasing food subsidies for common ravens, and contributing to increases in raven numbers and predation pressure on the desert tortoise.

Based on this information and information on impacts from noise (provided above), the EIS should include analysis of the extent of these impacts to desert tortoises and their habitats from the new construction, use, and maintenance of roads by vehicles/equipment associated with the two action alternatives, and use by the public (e.g., on the perimeter road and trespass)trespass. In addition, it should include effective mitigation for these impacts and using (1) information provided above on the Mojave desert tortoise's populations in/near the Proposed Action area, recovery unit, and species status, and (2) the Navy's commitment in its INRMP and responsibilities under section 7(a)(1) of the FESA.

We request that the EIS analyze in **Environmental Consequences 3.5.3.2 Proposed Action Alternative (Alternative 1) Potential Impacts** and **3.5.3.3 No New Access Road Alternative (Alternative 2) Potential Impacts** the impacts to the Mojave desert tortoise from road construction, use, and maintenance for the five major categories of primary road effects to the Mojave desert tortoise. The analysis would include how these road effects would affect (1) the survival and recovery of the Mojave desert tortoise at the population (Superior-Cronese and Fremont-Kramer populations), recovery unit, and species levels, and (2) the impacts to Critical Habitat. Once this analysis has been completed, the Navy would have the appropriate knowledge base to develop and implement effective mitigation (i.e., Road Management and Monitoring Plan) that would implement measures to prevent unauthorized use of access roads, and include habitat restoration for areas with past and future unauthorized use that restores the functions and values of these habitats.

Impacts on Predators of the Mojave Desert Tortoise

The Draft EA does not discuss predators of the Mojave desert tortoise, provide baseline information, or analyze how the action alternatives would impact tortoise predation and the survival of tortoise populations (Superior-Cronese and Fremont-Kramer) and the Western Mojave Recovery Unit. The EIS should include this analysis.

Common ravens are known predators of the Mojave desert tortoise, and raven numbers have increased substantially because of human subsidies of food, water, and sites for nesting, roosting, and perching to hunt (Boarman 2003). The two action alternatives will result in surface disturbance that exposes or injures/kills fossorial/burrowing animals (e.g., invertebrates, small mammals and reptiles) making them available as a food subsidy for ravens, who are predators and scavengers. Because ravens are able to fly at least 30 miles in search of food and water on a daily basis (Boarman et al. 2006) and coyotes can travel an average of 7.5 miles or more daily (Servin et al. 2003), the analysis of impacts of tortoise mortality from ravens and coyotes should extend at least 30 miles from the Project. The Superior-Cronese population overlaps the Proposed Action area and the Fremont-Kramer population is within 2 miles of the action area. Most of the Cuddeback Range is in Critical Habitat. Both populations and Critical Habitat within the daily flight range of the raven and daily coyote range. The Navy should include provisions for monitoring and managing tortoise predators (e.g., raven, coyote, etc.) because of or contributed by its activities in the Final EA or EIS.

We request the Predator Management Plan include reducing/eliminating human subsidies for food, water, and sites for nesting, roosting, and perching to address local impacts (footprint of the proposed Project). This includes fences, generators, and other vertical structures associated with the Proposed Action area. In addition, the Predator Management Plan should include provisions that eliminate the pooling of water on the ground or on roofs. The Predator Management Plan should include monitoring and adaptive management throughout the duration of the Navy's activities to collect data on the effectiveness of its implementation and enact changes to reduce/eliminate predation on the tortoise.

Please ensure that all standard measures to mitigate the local, regional, and cumulative impacts of raven predation on the tortoise are included in this Predator Management Plan. USFWS (2010) provides a template for a project-specific management plan for common ravens. This template includes sections on construction, operation and maintenance, and restoration with monitoring and adaptive management (USFWS 2010). In addition, the Navy should contribute to the regional raven management plan (USFWS 2010) to address the indirect and cumulative impacts associated with the action alternatives and other associated land uses in the desert to reduce the expansion of raven populations in the range of the tortoise.

3.6 Land Use

The Navy reports, "Two main objectives of land use planning are to ensure orderly growth and compatible uses among adjacent property parcels or areas." In **section 3.6.3 Environmental Consequences**, the Navy says "Factors affecting a proposed action in terms of land use include its compatibility with on-site and adjacent land uses, restrictions on public access to land, or change in an existing land use that is valued by the community. Other considerations are given to

proximity to a proposed action, the duration of a proposed activity, and its permanence. As previously mentioned, the purpose of Chapter 3 on Affected Environment and Environmental Consequences is to present "a description of the environmental resources and baseline conditions relative to the Proposed Action and Naval Air Weapons Station China Lake (NAWSCL) that could be affected from implementing any of the alternatives and an analysis of the potential direct and indirect impacts of each alternative."

We find similar deficiencies with the Navy's description of the Affect Environment and Environmental Consequences sections of the Draft EA as for the Biological Resources. **In section 3.6.2 Affected Environment**, the Navy provides no information on the ownership or use of private lands within/adjacent to the boundary of the lands withdrawn for the Navy under the National Defense Authorization Act of 2015 and 2016 (i.e., Navy withdrawn lands for the Cuddeback Range). The baseline information on land ownership, use, and management prior to the Navy withdrawal is summarized here.

Circa 1993, the Desert Tortoise Preserve Committee purchased two parcels of land within/adjacent to the Proposed Action area. These lands are managed for the conservation of the Mojave desert tortoise and are covered by legal, contractual obligations for conservation, preservation, and protection of the 640 acres of land for the tortoise. In addition, the Desert Tortoise Preserve Committee and Wildlands Conservancy purchased the grazing rights and water rights in the area and negotiated with BLM to withdraw grazing from more than 40,000 acres of BLM lands in an effort to reduce impacts to the Mojave desert tortoise and contribute to recovery/support designated Critical Habitat. This information should have been included in the Draft EA and should have been made available to Congress for consideration prior to approval of the National Defense Authorization Acts of 2015 and 2016 and now needs to be published in the Final EA or EIS.

The information on baseline conditions for the land use of private parcels is the foundation from which the Navy's analysis of all direct, indirect, and cumulative impacts regarding the effectiveness of this land use will be analyzed with the implementation of the Navy's proposed action. Because the use of adjacent private lands is for the conservation of the Mojave desert tortoise, the analysis of impacts to land use is tied to the impacts to the tortoise, including its habitat/Critical Habitat and the indirect impacts that may extend for a few thousand feet to miles. None of this information or analysis was provided in the Draft EA. In addition, the analysis the Navy provided had little or no scientific support/documentation provided in the Draft EA. Therefore, we conclude the foundation upon which the Navy built its conclusion of no significant impacts to land use of the private parcels is flawed. If this is flawed, the cumulative impact analysis, which is built on the impact analysis of the action alternatives, is also flawed. We request that the Navy revise its description of the Affected Environment regarding land use for the private parcels and fully disclose the requirements for land use/management of the private parcels in the Final EA or EIS. We also request this information include the requirements for accomplishing this management/use, that is, the management needs of the Mojave desert tortoise at these parcels.

We challenge the Navy's baseline for the Proposed Action area as including the recently initiated activities of using "target areas within the former Air Force Cuddeback Air-Ground Gunnery Range and existing roads for …launch, aerial flight, and recovery of U[nmanned] A[erial] V[ehicle]s, and the placement of mobile instrumentation systems and support equipment vehicles." As stated above, we believe, based on the information provide in the Draft EA and National Defense Authorization Acts of 2015 and 2016, that the Navy segmented the NEPA process by segmenting the actions it wanted to conduct in the withdrawn lands at the Cuddeback Range. The Navy quickly issued a Categorical Exclusion in 2016 to begin operations on the recently withdrawn lands with no public notice/involvement and apparently no resolution with the private landowners regarding future use of/impacts to the private parcels. It is now proposing additional uses of the withdrawn lands in the Draft EA. Because of the Navy's segmentation under NEPA of their actions since withdrawal of the Cuddeback Range lands, we believe the Navy should set the baseline at no Navy action on the withdrawn lands and fold the actions authorized under the March 2016 Categorical Exclusion in to the Navy's current proposed action.

The current and proposed uses of the withdrawn lands by the Navy may not be compatible with the land use of the private parcels. The Navy did not conduct an analysis of their ongoing and proposed actions with the legally required management of the private land parcels to conserve the Mojave desert tortoise. We contend this absence of analysis is a violation of NEPA and possibly the National Defense Authorization Acts of 2015 and 2016. In addition, if the Navy's ongoing and proposed actions are not compatible, the Navy's land withdrawal and use may be considered a taking of private lands without compensation for the damaged or lost use (i.e., functions and values) of the private parcels. We suggest this because the lands were withdrawn in 2016 but the Draft EA states "the Navy would continue to work with the property owner of the privately owned property located in the interior of the Cuddeback Range to protect their legal rights for use and access as stipulated within the FY 2016 National Defense Authorization Act" (p. 3-50). This statement gives the impression the Navy has moved forward with its use of the withdrawn lands but has not yet complied with the National Defense Authorization Act of 2016, passed in December 2015, regarding the private parcel.

We request that the Navy develop and include a scientifically supported analysis of direct, indirect, and cumulative impacts of its current and proposed actions on withdrawn lands to the land use of the private parcels for the conservation of the Mojave desert tortoise in the Final EA or EIS. Whatever the results of the complete impacts analysis are, the Navy should ensure that the required use of the private parcels are not impacted by the Navy's current and proposed actions (e.g.,. fully mitigate). In addition, the Navy should mitigate for the temporal loss of the required land use of the private parcels from ongoing Navy actions since the March 2016 Categorical Exclusion.

We consider this section of the Draft EA on Land Use as another example of the Navy providing inaccurate, partial, or no information on baseline conditions for land use in the Proposed Action area for private parcels and until recently, the management of the BLM lands. In the Draft EA, the Navy states it "would continue to work with the property owner of the privately owned property located in the interior of the Cuddeback Range to protect their legal rights for use and access as stipulated within the FY 2016 National Defense Authorization Act. Therefore, no significant impacts related to land use would occur with implementation of the No Action Alternative."

Summary of Comments

Because of the deficiencies in the Draft EA for the Mojave desert tortoise and related resources that we described above (e.g., absence of or inadequate baseline information on the status and trend of the tortoise; absence or inadequate analysis of all direct, indirect, and cumulative impacts to the Mojave desert tortoise, Critical Habitat/tortoise habitat, and other special status species and their habitats, land use and management for the conservation of the tortoise) and the Navy's segmentation of actions, we cannot support any of the alternatives for the following reasons:

1. The Navy did not provide a range of reasonable alternatives. Our impression is Alternative 2 was "created" by making a minor modification to Alternative 1. In 40 CFR 1502.14 alternatives including the proposed action, CEQ states. "Based on the information and analysis presented in the sections on the Affected Environment and .the Environmental Consequences, it should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice." The Council does not believe the Navy has demonstrated that it has developed a "range of alternatives" including "all reasonable alternatives, which must be rigorously explored and objectively evaluated" (CEQ 1981).

2. The Navy should analyze the consequence of the "no action" alternative" regarding impacts to the human environment (CEQ 1981). We do not believe the Navy has analyzed what would happen to the Mojave desert tortoise, and land use of private parcels, part of the human environment, if the No Action Alternative is selected (please see our comment on section **3.5.3.1 No Action Alternative**).

3. The Navy has not identified the environmentally preferable alternative per CEQ guidelines (40 CFR Section 1505.2(b)). This alternative will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 1981).

4. The Navy's action alternatives conflict with Land Use Plans, Policies or Controls (40 CFR 1502.16(c)). The Navy has ignored the lengthy public process of designation of these lands by BLM and USFWS as important for the survival and recovery of the Mojave desert tortoise, the USFWS' Critical Habitat designation of lands in the Cuddeback Range, and the Desert Tortoise Preserve Committee's activities and expenditures to correct past impacts and enhance habitat for the tortoise, including purchasing grazing rights and acquisition of lands for conservation and recovery of the tortoise. Although Congress withdrew the land at/near the Cuddeback Range from BLM's management for the Navy's use. it did not specify in the National Defense Authorization Acts of 2015 and 2016 how these lands were to be used by the Navy. We conclude that from a legal perspective, the use of these withdrawn lands is a discretionary action, which is why the Navy prepared the Draft EA. The Navy would be remiss in ignoring recent land use planning actions and expenditures that BLM and other federal and state agencies participated in that resulted in the designation of these lands as important to the survival and recovery of the Mojave desert tortoise and implementation of recovery actions.

5. The mitigation in the Draft EA is inadequate. “The mitigation measures discussed…must cover the range of impacts of the proposal. The measures must include such things as design alternatives that would decrease….impacts,…possible land use controls that could be enacted, and other possible efforts. Mitigation measures must be considered even for impacts that by themselves would not be considered "significant." Once the proposal itself is considered as a whole to have significant effects, all of its specific effects on the environment (whether or not "significant") must be considered, and mitigation measures must be developed where it is feasible to do so. (CEQ 1981 and 40 CFR 1502.14(f), 1502.16(h), and 1508.14). We believe the Navy is legally obligated to revisit its analysis of direct, indirect, and cumulative impacts to the Mojave desert tortoise, impacts to Critical Habitat/tortoise habitat, and impacts to land use for private parcels under Alternatives 1 and 2, and develop and implement effective mitigation that offsets these impacts and contributes to improving the status and trend of the Superior-Cronese tortoise population, nearby Fremont-Kramer population, and Western Mojave Recovery Unit in the Final EA or EIS.

6. The Navy provided an unsupported conclusion in the Draft EA that the implementation of either action alternative is not a significant effect to the Mojave desert tortoise. In addition, its analysis of impacts to the tortoise was flawed. The Navy did not provide baseline information on the status and trend of the tortoise for the population that overlaps the Proposed Action area, the adjacent population, or the Western Mojave Recovery Unit. Because the baseline data were missing, the analysis of direct, indirect, and cumulative impacts to the tortoise and its habitat/Critical Habitat from implementation of Alternatives 1 or 2 were flawed. With densities of all three tortoise populations in the Western Mojave Recovery Unit below viable levels, trends in substantial decline, and number of juvenile tortoises declining, any impact to the tortoise in the Western Mojave Recovery Unit contributes to this decline. Similarly, the Navy provided an unsupported conclusion in the Draft EA that the implementation of either action alternative is not a significant effect to land use.

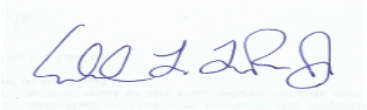
7. The action alternatives with the mitigation proposed in the Draft EA cannot guarantee that the status of the Mojave desert tortoise, which is currently below viable densities, population and recovery unit trends that are substantially declining, and declines in juvenile tortoises will be halted or improved given the direct, indirect, and cumulative impacts of the three alternatives.

8. The impacts of Alternatives 1 or 2 to the survival and recovery of the Mojave desert tortoise are significant to the Superior-Cronese population, the Fremont-Kramer population, and the Western Mojave Recovery Unit. The data from Tables 1 and 2 show that populations in the Western Mojave Recovery Unit are in substantial decline, below viability, and experiencing declines in juvenile desert tortoises. The implementation of the No Action Alternative, Alternative 1, or Alternative 2 with BMPS and minimization measures as mitigation (as described in the Draft EA) would likely mean the tortoise in the Superior-Cronese population, Fremont-Kramer population, and Western Mojave Recovery Unit would not be sustained as it is does not have the capacity to accommodate the impacts of the Navy’s current and proposed actions. If the Navy implemented the Eight Principles of Cumulative Impacts Analysis (CEQ 1998), the conclusion would be clear with respect to the Mojave desert tortoise; the cumulative impacts from the action alternatives are significant. We believe the Navy should prepare an EIS.

9. Finally, as outlined on pages 17 and 18 above, the Council contends that few of the 16 issues identified in our scoping comments letter of December 4, 2017 were addressed in the Draft EA. We contend that the Navy failed to incorporate most of these issues or address our comments in the Draft EA, thereby failing in its responsibility to provide an adequate environmental document. Although we contend that an EIS is more appropriate than an EA in analyzing impacts of the Proposed Action, if the Navy pursues a Final EA, that document must address our outstanding concerns. To facilitate this oversight, we are resubmitting our initial scoping comments letter and expect the Navy will adequately address these unresolved issues in the final environmental document.

We appreciate this opportunity to provide input and trust that our comments will further protect tortoises if this Project is authorized. Herein, we ask that the Desert Tortoise Council be identified as an Affected Interest for this and all other Navy projects that may affect species of desert tortoises, and that any subsequent environmental documentation for this Project is provided to us at the contact information listed above.

Regards,



Edward L. LaRue, Jr., M.S.
Chair, Ecosystems Advisory Committee

Literature Cited

Allison, L.J.. and A.M. McLuckie. 2018. Population trends in Mojave desert tortoises (*Gopherus agassizii*). Herpetological Conservation and Biology 13(2):433–452.

Ashton, R. E. and P. S. Ashton. 2008. The natural history and management of the Gopher tortoise *Gopherus polyphemus* (Daudin). – Malabar, Florida (Krieger Publishing), 275 pp.

Baerwald, M.R., and B. May. 2004. Characterization of microsatellite loci for five members of the minnow family Cyprinidae found in the Sacramento-San Joaquin Delta and its tributaries. Molecular Ecology Notes 4: 3385-390.

Beazley, K.F., T.V. Snaith, F. Mackinnin, and D. Colville. 2004. Road density and potential impacts on wildlife species such as American moose in mainland Nova Scotia. Proc. N.S. Inst. Sci. (2004) Volume 42, Part 2, pp. 339-357.

Belnap, J., R. Rosentreter, S. Leonard, J.H. Kaltenecker, J. Williams, and D. Eldridge. 2001. Biology of soil crusts: ecology and management. Technical Reference 1730-2. BLM/ID/ST-01/001+1730.

Boarman, W.I. 2002. Threats to Desert Tortoise Populations: A Critical Review of the Literature. U.S. Geological Survey, Western Ecological Research Center. San Diego, CA.

Boarman, W.I. 2003. Boarman, W.I. 2003. Managing a subsidized predator population: Reducing common raven predation on desert tortoises. Environmental Management 32(2):205–217. https://doi.org/10.1007/s00267-003-2982-x. https://link.springer.com/article/10.1007/s00267-003-2982-x

Boarman, W.I., and M. Sazaki. 1996. Highway mortality in desert tortoise and small vertebrates: Success of barrier fences and culverts. In: Highways and movement of wildlife: Improving habitat connections and wildlife passageways across highway corridors. Proceedings of the Florida Department of Transportation, Federal Highway Administration Transportation-Related Wildlife Mortality Seminar. G. Evink, D. Ziegler, P. Garrett, and J. Berry, editors. April 30 – May 2, 1996. Orlando, Florida.

Boarman, W.I, M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. Journal of Arid Environments 67 (2006) 248–261.

Bowles, A.E., S. Eckert, L. Starke, E. Berg, L. Wolski, and J. Matesic, Jr. 1999. Effects of flight noise from jet aircraft and sonic booms on hearing, behavior, heart rate, and oxygen consumption of desert tortoises (*Gopherus agassizii*). Sea World Research Institute, Hubbs Marine Research Center, San Diego, CA. For Human Effectiveness Directorate, Crew System Interface Division, 2255 H Street, Wright-Patterson AFB OH 45433-7022. United States Air Force Research Laboratory AFRL·HE·WP·TR·1999·0170.

Brocke, R.H., J.P. O'Pezio, and K.A. Gustafson. 1988 A forest management scheme mitigating impact of road networks on sensitive wildlife species. In: R.M. Degraaf and W.M. Healy (eds): Is forest fragmentation a management issue in the northeast? GTR-NE-140, U.S. Department of Agriculture, Forest Service, Northeastern Forest Experimental Station, Radnor, PA: 13-17.

Congdon, J.D., A.E. Dunham, and R.C. van Loeben Sels. 1993. Delayed sexual maturity and demographics of Blanding's Turtles (*Emydoidea blandingii*): implications for conservation and management of long-lived organisms. Conservation Biology 7:826–833.

Council on Environmental Quality. 1981. 40 CFR Parts 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, and 150. Forty Most Asked Questions Concerning CEQ's National Environmental Policy Act Regulations. March 17, 1981 https://www.energy.gov/sites/prod/files/G-CEQ-40Questions.pdf

Council on Environmental Quality. 1997. Considering Cumulative Effects under the National Environmental Policy Act. January 1997.

Desert Tortoise Council. 2017. Scoping comments for an Environmental Assessment for testing, evaluation, and training activities at the Cuddeback Range at Naval Air Weapons Station China Lake. Dated 4 December 2017.

Doak, D., P. Karieva, and B. Klepetka.1994. Modeling population viability for the Desert Tortoise in the Western Mojave. Ecological Applications 4:446–460.

Fahrig, L. 2007. Non-optimal animal movement in human-altered landscapes. Functional Ecology 21:1003–1015.

Forman, R.T.T., 2000. Estimate of the area affected ecologically by the road system in the United States. Conservation Biol. 14, 31–35.

Forman, R. T. T. 2002. Foreword. Pages vii - x *in* K. J. Gutzwiller, editor. *Applying landscape ecology in biological conservation.* Springer, New York, New York, USA

Forman, R.T.T., D.S. Friedman, D.Fitzhenry, J.D.Martin, A.S. Chen, and L.E. Alexander. 1997. Ecological effects of roads: toward three summary indices and an overview of North America. In: Canter K (ed) Habitat fragmentation and infrastructure. Minister of Transport and Public Works and Water Management, Delft, Netherlands, p 40-54.

Gagno, S. 2013. The Auditory Sense in Tortoises, using Hermann's Tortoise, *Testudo Hermann I* (Gmelin, 1789), as an Example. Radiata 22 (2): 1-15. https://www.researchgate.net/publication/265379185_The_Auditory_Sense_in_Tortoises_using_Hermann's_Tortoise_Testudo_hermanni_Gmelin_1789_as_an_Example

Gucinski, H., M. Furniss,, R. Ziermer, and M. Brookes. 2001. Forest Service roads: a synthesis of scientific information. Gen Tech Rep PNW-GTR-509.1, U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR.

Hagerty, B.E., and C.R. Tracy. 2010. Defining population structure for the Mojave Desert Tortoise. Conservation Genetics 11:1795–1807.

Jaeger, J. A. G. 2002. Landscape fragmentation. A transdisciplinary study according to the concept of environmental threat.] Verlag Eugen Ulmer, Stuttgart, Germany.

Jaeger, J., L. Fahrig, and K. Ewald. 2005a. Does the configuration of road networks influence the degree to which roads affect wildlife populations? International Conference on Ecology and Transportation 2005 Proceedings, Chapter 5 - Integrating Transportation and Resource Conservation Planning - Landscapes and Road Networks, pages 151-163. August 29, 2005.

Jaeger, J., J. Bowman, J. Brennan, L. Fahrig, D. Bert, J. Bouchard, N. Charbonneau, K. Frank, B. Gruber, and K. Tluk von Toschanowitz. 2005b. Predicting when animal populations are at risk from roads: an interactive model of road avoidance behavior. Ecological Modelling 185 (2005) 329–348.

Jalkotzy, M.G., P.I. Ross, and M.D. Nasserden. 1997. The effects of linear developments on wildlife: a review of selected scientific literature. Arc Wildlife Services Ltd, prepared for Canadian Association of Petroleum Producers, Calgary, Alberta.

Kilgo, J., R. Labisky, and D. Fritzen. 1998. Influences of hunting on the behavior of white-tailed deer: implications for conservation of the Florida panther. Conservation Biology 12:1359-1364.

Leunda, P.M., R. Miranda, J. Madoz, S. Parmenter, Y. Chen, and B. May. 2005. Threatened fishes of the world: *Siphateles bicolor mohavensis* (Snyder, 1919) (Cyprinidae). Environmental Biology of Fishes 73:109-110.

McLellan, B. and D. Shackleton, 1988. Grizzly bears and resource extraction industries: effects of roads on behavior, habitat use and demography. J. Appl. Ecol. 25, 451–460.

Moyle, P.B. 2002. Inland Fishes of California. University of California Press, Berkeley, California.

Murphy, R.W., K.H. Berry, T. Edwards, and A.M. McLuckie. 2007. A genetic assessment of the recovery units for the Mojave population of the Desert Tortoise, *Gopherus agassizii*. Chelonian Conservation and Biology 6:229–251.

Nafus, M.G., T.D. Tuberville, K. A. Buhlmann, and B.D. Todd. 2013. Relative abundance and demographic structure of Agassiz's desert tortoise (*Gopherus agassizii*) along roads of varying size and traffic volume. Biological Conservation 162 (2013) 100–106.

Noss, R. F. 1993. Wildlife corridors. Pages 43-68 in D. S. Smith and P. C. Hellmund, editors. Ecology of Greenways. University of Minneapolis Press, Minneapolis, Minnesota.

Novack, E. 2015. Segmentation of Environmental Review: Why Defenders of Wildlife v. U.S. Navy Threatens the Effectiveness of NEPA and the ESA, 42 B.C. Envtl. Aff. L. Rev. 243 (2015). http://lawdigitalcommons.bc.edu/ealr/vol42/iss1/9

Parendes, L.A., and J.A. Jones. 2000. Role of light availability and dispersal in exotic plant invasion along roads and stream in the H.J. Andrews Experimental Forest, Oregon. Conservation Biology 14(4): 64-75.

Roedenbeck, I., L. Fahrig, C. Findlay, J. Houlahan, J. Jaeger, N. Klar, S. Kramer-Schadt, and E. van der Grift. 2007. The Rauischholzhausen Agenda for Road Ecology. Ecology and Society 12(1): 11. [online] URL: http://www.ecologyandsociety.org/vol12/iss1/art11/

Rudis, V.A. 1995. Regional forest fragmentation effects on bottomland hardwood community types and resource values. Landsc Ecol 10:291-307

Servin, J., V. Sanchez-Cordero, and S. Gallina. 2003. Distances traveled daily by coyotes, C*anis latrans*, in a pine–oak forest in Durango, Mexico. Journal of Mammalogy 84(2):547–552.

Simons, A.M. and R.L. Mayden. 1998. Phylogenetic Relationships of the Western North American Phoxinins (Actinopterygii: Cyprinidae) as Inferred from Mitochondrial 12S and 16S Ribosomal RNA Sequences. Molecular Phylogenetics and Evolution 9(2): 308-329. https://www.sciencedirect.com/science/article/pii/S105579039790467X?via%3Dihub

Spencer, R.-J., J.U. Van Dyke, and M.B. Thompson. 2017. Critically evaluating best management practices for preventing freshwater turtle extinctions. Conservation Biology 31:1340–1349.

Turtle Conservation Coalition. 2018. Turtles in Trouble: The World's 25+ Most Endangered Tortoises and Freshwater Turtles. www.iucn-tftsg.org/trouble

U.S. Department of the Navy (Navy). 2014. Integrated Natural Resources Management Plan Naval Air Weapons Station China Lake, California. Prepared by Tierra Data, Inc., Escondido, CA.

U.S. Fish and Wildlife Service (USFWS). 1994a. Desert tortoise (Mojave population) Recovery Plan. U.S. Fish and Wildlife Service, Region 1, Portland, Oregon. 73 pages plus appendices.

U.S. Fish and Wildlife Service (USFWS). 1994b. Endangered and threatened wildlife and plants; determination of critical habitat for the Mojave population of the desert tortoise. Federal Register 55(26):5820-5866. Washington, D.C.

U.S. Fish and Wildlife Service. 2009. Desert Tortoise (Mojave Population) Field Manual: (*Gopherus agassizii*). Region 8, Sacramento, California.

U.S. Fish and Wildlife Service. 2010. Common Raven Predation on the Desert Tortoise. Ventura Fish and Wildlife Office. November 2010.

U.S. Fish and Wildlife Service. 2011. Revised Recovery Plan for the Mojave Population of the Desert Tortoise (Gopherus agassizii). U.S. Fish and Wildlife Service, California and Nevada Region, Sacramento, California.

U.S. Fish and Wildlife Service. 2014b. Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition To Reclassify *Astragalus Jaegerianus* as a Threatened Species. 79 Federal Register 25084-25092.

U.S. Fish and Wildlife Service. 2015. Range-wide Monitoring of the Mojave Desert Tortoise (Gopherus agassizii): 2013 and 2014 Annual Reports. Report by the Desert Tortoise Recovery Office, U.S. Fish and Wildlife Service, Reno, Nevada.

U.S. Fish and Wildlife Service. 2017. Preparing for any action that may occur within the range of the Mojave desert tortoise (*Gopherus agassizii*). USFWS Desert Tortoise Recovery Office. Dated 21 August 2017. Reno, NV.

van der Ree R., J. A. G. Jaeger, E. A. van der Grift, and A. P. Clevenger. 2011. Effects of roads and traffic on wildlife populations and landscape function: Road ecology is moving toward larger scales. Ecology and Society 16(1): 48. [online] URL: http://www.ecologyandsociety.org/vol16/iss1/art48/

von Seckendorff Hoff, K., and Marlow, R.W. 2002. Impacts of vehicle road traffic on desert tortoise populations with consideration of conservation of tortoise habitat in southern Nevada. Chelonian Conservation and Biology 4:449–456.