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The Rewilding Institute (TRI) appreciates the opportunity to comment on the **Preliminary Draft of Chapters 1 and 2 of the Environmental Impact Statement for Proposed Revision to the Nonessential Experimental Population of the Mexican Wolf (*Canis lupus baileyi*).** It is our understanding that these draft chapters have been issued as part of the "scoping" stage of the NEPA process and that comments received will be used by the U.S. Fish and Wildlife Service (FWS) to develop the "range of alternatives" to be evaluated in the Draft Environmental Impact Statement (DEIS).

These comments have been prepared by TRI's Carnivore Conservation Biologist, David R. Parsons. Mr. Parsons served as the U.S. Fish and Wildlife Service's (FWS) first Mexican Wolf Recovery Coordinator from 1990-1999 and was the primary author of the original rule that established a *Nonessential Experimental Population of the Mexican Gray Wolf in Arizona and New Mexico*, which will be replaced by the proposed rule revision that will result from this NEPA process. Mr. Parsons has continued to follow the progress of the Mexican wolf recovery program from his retirement from FWS in 1999 to the present day. Mr. Parsons holds B.S. and M.S. degrees in Wildlife Biology, served as a career wildlife biologist for FWS for 24 years, and has lectured nationally and internationally on wolf biology, ecology, and conservation.

<u>The Chapters Pre-decisional</u>. It is unusual to initiate a scoping process with the alternatives, including the proposed action, as fully developed as they are in Chapters 1 and 2 (Chapters). That said, we must assume that these alternatives are presented as "straw men" and subject to significant revisions and even elimination and replacement by other alternatives based on input received from this scoping process.

<u>Definitions</u>.

> *Depredation.* We are concerned by the open ended provision that would allow FWS to authorize other "agencies" to confirm cases of wolf depredation. We would need to know the specific agencies and that may be granted this authority before we could support this definition. In addition we would need to know the

specific expertise and training of agency employees who would be conducting the investigations.

Pets. Defining pets as "any domestic animal" so inclusive as to render this definition an extreme overreach for authorizing take. This definition could include a tame rat. Later in these comments we advocate for eliminating provisions that authorize the taking of Mexican wolves that attack or kill pets.

Translocation. "Affixing a radio collar" should not be an absolute requirement of translocation. We hope there will come a time when the use of radio collars can be scaled back or eliminated.

1.1 INTRODUCTION. FWS states that "[T]hese actions would be implemented through a Final Nonessential Experimental Rule." We assert that FWS's declaration that the Blue Range Wolf Recovery Area (BRWRA) will be classified as a nonessential experimental population (NEP) under Section 10(j) of the ESA is pre-decisional and not supported by the best available science. We further assert that either "essential experimental population" (EEP) or "endangered" are the only appropriate classifications supported by the best available science.

The BRWRA Population of *Canis lupus baileyi* is Essential to the Continued Existence of the Subspecies in the Wild.

The draft Chapters and the draft proposed rule assume that the only wild population of Mexican gray wolves in existence (numbering 75 at the beginning of 2013) will retain its original classification as a NEP under provisions set forth in Section 10(j) of the Endangered Species Act (ESA) following the official listing of *Canis lupus baileyi* as an endangered subspecies. We demonstrate below that the NEP classification can no longer be supported by the best available science for both the wild and captive populations of Mexican gray wolves. We recommend at a minimum that the only existing wild population be reclassified as an Essential Experimental Population under Section 10(j) of the ESA. The only remaining appropriate classification would be full "endangered" status, and TRI would support and prefer that classification.

In 1998 the USFWS justified the determination that the BRWRA population of Mexican gray wolves is nonessential to the continued existence of the subspecies in the wild on the basis that there was no extant wild population of Mexican wolves and the genetic integrity of the subspecies was being protected in the captive population. In promulgating the existing rule, the FWS concluded that "even if the entire experimental population died, this would not appreciably reduce the prospects for future survival of the subspecies in the wild. That is, the captive population could produce more genetically fit surplus wolves and future reintroductions still would be feasible if the reasons for the initial failure are understood."

While such a conclusion may have been justified in 1998 and for a short time thereafter, it cannot be justified today as a safe harbor for mismanaging and excessively removing

wolves in the wild (USFWS 2010). The FWS (USFWS 1998) also asserted that "Releasing captive-raised Mexican wolves furthers the objective of the Mexican Wolf Recovery Plan"; and that "This reintroduction will establish a wild population of at least 100 Mexican wolves and reduce the potential effects of keeping them in captivity in perpetuity. If captive Mexican wolves are not reintroduced to the wild within a reasonable period of time, genetic, physical, or behavioral changes resulting from prolonged captivity could diminish their prospects for recovery" (underlining added). A review of research by Frankham (2007) entitled *Genetic Adaptation to Captivity in Species Conservation Programs* confirms this cautionary prediction and raises serious concerns about genetic deterioration leading to maladaptive traits in captive populations.

The process of evolution causes animals to adapt to their environment. Frankham (2007), citing several peer-reviewed studies, states that "[C]haracteristics selected for under captive conditions are overwhelmingly disadvantageous in the natural environment," and that these adverse evolutionary changes "jeopardize the ability of captive populations to reproduce and survive when returned to the wild." He advises that "genetic adaptation to captivity should be minimized for populations likely to be used for reintroduction," and that the most effective way to minimize genetic adaptation to captivity is to "minimize the number of generations in captivity" and return the species to the wild "as rapidly as possible" (underlining added). Mexican wolves have been bred in captivity for approximately 35-50 years (many generations) or possibly longer (records of the establishment of the Aragon Lineage are not available), depending upon the lineage. This research reconfirms the FWS's cautionary concern in the 1998 rule about prolonged captivity cited above.

Endangered species recovery takes place in the wild, not in captivity (50 CFR §17.80(b)).

Both the wild and captive populations face critical genetic issues. The wild population is dangerously inbred and the captive population has lost substantial gene diversity present in the initial seven founders. FWS has been aware of this looming genetic problem for many years and describes the dire genetic status of wild and captive populations in elaborate science-supported detail in a section titled *Inbreeding, Loss of Heterozygosity, and Loss of Adaptive Potential—Canis lupus baileyi* (USFWS 2013a; Docket No. FWS-HQ-ES-2013-0073).

Here are some excerpts from that FWS document:

> *As of October 2012, the captive population of Mexican wolves consisted of 258 wolves, of which 33 are reproductively compromised or have very high inbreeding coefficients, leaving 225 wolves as the managed population (Siminski and Spevak 2012). The age structure of the population, however, is heavily skewed, with wolves 7 years old and older comprising about 62 percent of the population—meaning that most of the population is comprised of old wolves who will die within a few years. This age structure has resulted from the high reproductive output of the F1 wolves and their descendants in captivity, the combination of few releases of captive-born wolves to the wild in recent years,*

removal of wolves from the wild population to captivity, and limited pen space for pairings, and means that additional gene diversity will be lost as the captive population continues to age.

The SSP strives to minimize and slow the loss of gene diversity of the captive population but (due to the limited number of founders) cannot increase it. As of 2012, the gene diversity of the captive program was 83.37 percent of the founding population, which falls below the average mammal SSP (93 percent) and below the recognized SSP standard to maintain 90 percent of the founding population diversity. Below 90 percent, the SSP states that reproduction may be compromised by low birth weight, smaller litter sizes, and related issues.

Representation of the Aragon and Ghost Range lineages in 2012 was 18.80 percent and 17.65 percent, respectively (Siminski and Spevak 2012, p. 6). More specifically, the representation of the seven founders is very unequal in the captive population, ranging from about 30 percent for the McBride founding female to 4 percent for the Ghost Ranch founding male. Unequal founder contributions lead to faster inbreeding accumulation and loss of founder alleles. The captive population is estimated to retain only 3.01 founder genome equivalents, suggesting that more than half of the alleles (gene variants) from the seven founders have been lost from the population.

The genetically effective population size (Ne) of the captive population is estimated to be 20 wolves and the ratio of effective to census size (Ne / N; that is, the number of breeding animals as a percentage of the overall population size) is estimated to be 0.0846 (Siminski and Spevak 2012, p. 7). The genetically effective population size is defined as the size of an ideal population that would result in the rate of inbreeding accumulation or heterozygosity loss as the population being considered. The effective sizes of populations are almost always smaller than census sizes of populations. A rule of thumb for conservation of small populations holds Ne should be maintained above 50 to prevent substantial inbreeding accumulation, and that small populations should be grown quickly to much larger sizes (Ne≥500) to maintain evolutionary potential (Franklin 1980, entire). The low ratio of effective to census population sizes in the captive population reflects the limitations on breeding (due to a lack of cage space) over the last several years, while the low effective population size is another indicator of the potential for inbreeding and loss of heterozygosity.

The gene diversity of the reintroduced population of C. l. baileyi can only be as good as the diversity of the captive population from which it is established. Based on information available on July 11, 2012, the genetic diversity of the wild population was 74.99 percent of the founding population (Siminski and Spevak 2012, pp. 6–7), with 4.97 percent and 13.80 percent representation of Aragon and Ghost Range lineages, respectively. Although C. l. baileyi (in the reintroduced population) reached an all-time high population size in 2012 (minimum estimate of 75 wolves), it is currently a poor representation of the genetic variation

remaining in the captive population. Founder representation in the reintroduced population is more strongly skewed than in the captive population. Mean inbreeding levels are 61 percent greater (0.1924 versus 0.1197), and founder genome equivalents are 33 percent lower (2 vs. 3.01) than in the captive population. In addition, the estimated relatedness of C. l. baileyi in the reintroduced population is on average 50 percent greater than that in the captive population (population mean kinship: 0.2501 vs. 0.1663; Siminski & Spevak 2012, p. 8). This suggests that C. l. baileyi in the reintroduced population are on average as related to one another as outbred full siblings are related to each other. Without substantial management action to improve the genetic composition of the population, inbreeding will accumulate and heterozygosity and alleles will be lost much faster than in the captive population.

There is evidence of strong inbreeding depression in the reintroduced population. Fredrickson et al. (2007, pp. 2365–2371) estimated that the mean observed litter size (4.8 pups for pairs producing pups with no inbreeding) was reduced on average by 0.8 pups for each 0.1 increase in the inbreeding coefficient of the pups. For pairs producing pups with inbreeding coefficients of 0.20, the mean litter size was estimated to be 3.2 pups. Computer simulations of the Blue Range population incorporating the Mexican wolf pedigree suggest that this level of inbreeding depression may substantially reduce the viability of the population (Carroll
et al. in prep ; Fredrickson et al. in prep).

The recent history of Mexican wolves can be characterized as a severe genetic bottleneck that began no later than the founding of the Ghost Ranch lineage in 1960. The founding of the three lineages along with their initial isolation likely resulted in the loss of most rare alleles and perhaps even some moderately common alleles. Heterozygosity loss was accelerated as a result of rapid inbreeding accumulation. The merging of the captive lineages likely slowed the loss of alleles and heterozygosity, but did not end it. The consequences to Mexican wolves of the current genetic bottleneck will be future populations that have reduced fitness (for example, smaller litter sizes, lower pup survival) due to inbreeding accumulation and the full expression of deleterious alleles. The loss of alleles will limit the ability of future Mexican wolf populations to adapt to environmental challenges.

Based on data from the SSP documenting loss of genetic variation, research documenting viability–related inbreeding effects in C. l. baileyi, and our awareness that the wild population is at risk of inbreeding due to its small size, we conclude that inbreeding, and loss of heterozygosity, and loss of adaptive potential are significantly affecting C. l. baileyi and are likely to continue to do so in the future. If C. l. baileyi was not protected by the Act, these risks would remain, and may increase if states or other parties did not actively promote genetic diversity in the reintroduced population by releasing wolves with appropriate genetic ancestry to the population.

TRI commends FWS for presenting the best available science on the critical genetic issues present in both the captive and reintroduced populations. This information alone justifies a protective classification of at least EEP for the BRWRA reintroduced population, and we believe would support listing the Mexican as "endangered" wherever found. The FWS admits above that the reintroduced population is significantly less genetically fit than the captive population, yet the captive population is classified as endangered. How can a less protective classification be justified for the wild population?

Additionally, this information should be an immediate call to action for FWS to take extraordinary measures to improve the genetic composition of the BRWRA population. Indeed, FWS admits, disingenuously, (USFWS 2010; p. 73) that "intensive management of genetic variation is an integral component of the recovery effort." The urgency of such intensive genetic management of the BRWRA population and the FWS's squandering of opportunities to implement such management are described in Hedrick and Fredrickson (2010). Both the 3-Year Review (Paquet et al. 2001) and the 5-Year Review (AMOC and IFT 2005) recommended that the 1998 rule be revised to allow wolves from captivity to be released throughout the BRWRA, rather than only within the Primary Recovery Zone. FWS refused to take action on that critical recommendation, and the genetic makeup of the BRWRA population has deteriorated as a result.

To be fair, genetic management of the captive population under the direction of the independent Species Survival Plan (SSP) Management Group has followed state-of-the-art science, modeling, and planning in its management of the captive population. But small captive populations with limited founders naturally deteriorate over time (Frankham 2007).

Further justification for EEP classification comes from the leaked recommendations of the SPS (SPS 2011) of the current Mexican Wolf Recovery Team. We note that the scientists on SPS were appointed by FWS Regional Director Dr. Benjamin Tuggle for their recognized expertise in scientific disciplines relevant to Mexican wolf recovery. As we point out below, the SPS scientists have recommended three interconnected subpopulations averaging at least 250 wolves each with not less than 200 wolves in any of the three subpopulations (SPS 2011). One of these populations is identified as the existing BRWRA population. Clearly, the SPS has determined that the BRWRA population is essential to the survival and recovery of Mexican gray wolves in the wild.

Indeed FWS admits in the draft proposed rule on pages 35732-35733 (USFWS 2013b) that the BRWRA population is essential to Mexican wolf recovery:

> *Continuing the effort to reestablish the nonessential experimental population, and making modifications to improve it, will substantially contribute to the recovery of the species, as it is currently extirpated in the wild except for the nonessential experimental population in the United States and a fledgling reestablishment effort in Mexico. We recognize that more than one population of Mexican wolves will need to be established for recovery (Service 2010, pp. 68-70); therefore,*

> *achieving the objective of at least 100 wolves for this population serves as a fundamentally necessary component of Mexican wolf recovery. (underlining added)*

This refreshing admission is a fundamental component of our argument, as well, in support of a more protective classification for the BRWRA population of Mexican gray wolves – either EEP or full endangered. We note that Webster's Dictionary lists "necessary" as a synonym for "essential" (www/Merriam-webster.com/dictionary/essential).

The opportunity for revising the classification of the BRWRA population of Mexican wolf is ripe because FWS is proposing to list Mexican gray wolves (*Canis lupus baileyi)* separately as an endangered subspecies; whereas, the previously listed entity was *Canis lupus.* Fifteen years following its initial establishment, an argument that the BRWRA population of 75 Mexican wolves at last count is not essential to the continued existence of *Canis lupus baileyi* is not supported by material facts fully admitted to by the FWS.

The draft proposed rule states "[O]ur finding of whether a population is nonessential is made with our understanding that Congress enacted the provisions of section 10(j) to mitigate fears that reestablishing populations of threatened and endangered species into the wild would negatively impact landowners and other private parties." A designation of "essential" can "mitigate fears that reestablishing populations of threatened and endangered species into the wild would negatively impact landowners and other private parties" in exactly the same ways that a designation of "nonessential" can mitigate these "fears." Rules established for either classification can be sufficiently "flexible." This is not a valid argument for justifying a "nonessential" designation.

The draft proposed rule states that "[I]t is instructive that Congress did not put requirements in section 10(j) to reevaluate the determination of essentiality after a species has been reestablished in the wild." Perhaps the reason for this omission is that Congress expected the Secretary of the Interior to abide by the requirement that releases of experimental populations must "further the conservation of the species"—a requirement that FWS affirms at the bottom of the following paragraph.

The draft proposed rule states "[I]f importance to recovery was equated with essentiality, no reestablished populations of a species would qualify for nonessential status." So far, FWS has refused to complete recovery planning for Mexican wolves. And no proposal for resuming recovery planning has been put forth. For all we know, establishment of the BRWRA may be the only wild population of Mexican gray wolves ever established in the wild. The current "nonessential" rule has not resulted in the "conservation" of that population even at a level (≥100 wolves) that the FWS now admits does not equate to recovery and leaves the population vulnerable to extinction. Furthermore FWS admits that identified threats occurring under the current nonessential regulation are "putting the population at risk of failure" (USFWS 2010). And failure of the BRWRA population would end its "existence in the wild." Until FWS adopts a new recovery plan for

Mexican wolves and establishes another wild population, "essential" is the only supportable classification.

The draft proposed rule states that Congress' expectation was that the designation of an essential population would be a "special case" and not the general rule. This expectation and their establishing the authority for designating "essential" experimental populations implies an expectation that there would arise from time to time circumstances justifying such classification. We submit that this is clearly one of those anticipated "special" cases, and that FWS has provided in this and related documents more than ample justification.

The draft proposed rule states that federal regulations (50 CFR §17.80(b)) define "survival" as the condition in which a species continues to exist in the future while retaining the potential for recovery." Both the FWS and TRI have presented substantial evidence of a high likelihood that this is not the current "condition" of the BRWRA population. Currently and for the foreseeable future the BRWRA population of Mexican gray wolves represents the entire "species as a whole" in the wild.

FWS concludes that the draft proposed rule revalidates the nonessential experimental population determination set forth in the 1998 Final Rule and that "even if the entire population died, this situation would not appreciably reduce the prospects for future survival of the subspecies because Mexican wolves are still maintained in the captive-breeding program." "Furthermore, the captive Mexican wolf population could produce enough wolves that future reintroductions in the wild would be feasible and we have a now proven capacity to successfully start a wild population from captive stock."

This recycled 15-year-old determination is not supported by the best available science presented by both the FWS in related documents and by TRI herein. Indeed this determination is not supported by any references to published literature or modern scientific analyses conducted by FWS or others in support of this claim. Significant genetic decline in the captive population has been documented by the SSP Management Group (Siminski and Spevak 2012) and acknowledged by FWS. We are aware of no analysis of the capacity of the captive population to completely replace the BRWRA population, let alone support two additional reintroductions in addition to that replacement. Just because this proposed rule says it is so doesn't make it so. ESA requires the support of best science for decisions made under the ESA.

If there ever is a case to be made for the first ever designated "essential" experimental population under Section 10(j) of the ESA, this is it.

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION. The documents states "[T]he purpose of our proposed action is to establish a viable, self-sustaining experimental population of Mexican wolves within the MWEPA.…"

The draft proposed rule states that "Mexican wolf dispersal from the BRWRA into the MWEPA will further the conservation of the species by allowing wolves access to

additional habitat for establishment." This statement is false if the proposed rule establishes a population objective of ≥100 wolves, liberalizes take throughout the MWEPA above a threshold of 100 wolves, and prevents dispersal outside the MWEPA. It would be true if the proposed rule establishes a population objective of ≥350 wolves and includes protections that will allow the expanded BRWRA population to grow to ≥350 without restricting dispersal. See discussion below for why the BRWRA population needs to be ≥350 wolves.

Proposed Rule and related NEPA documents Are Not Supported By The Best Available Science. An overriding concern is that the draft proposed rule is not supported by the best available science (as required by the ESA) and is not guided by a modern science-based recovery plan for the Mexican gray wolf (also required by the ESA).

In the last decade (2003 and 2010) the FWS has convened two official Recovery Teams to develop a new and up-to-date (both legally and scientifically) Mexican Wolf Recovery Plan. The 2003 Recovery Team was disbanded for no valid reason in 2005 before completing its work, but the Science Subgroup made significant progress in developing criteria for full recovery. According to Dr. Philip Hedrick (personal communication), a member of that Science Subgroup, "a majority of the Science Subgroup of the recovery team concluded that three populations of 250 wolves each, connected by dispersal constituted a recovery criterion supported by the best available science."

The 2010 Recovery Team began meeting in early 2011 and last met in November 2011. Subsequent meetings scheduled by FWS were canceled and no further meetings have been announced. Again, no valid reason has been given for suspending the work of the current Recovery Team. The Science and Planning Subgroup (SPS) of the 2010 Recovery Team has completed a substantial amount of work toward developing recovery criteria for Mexican wolves based on the best available science. The SPS's review and development of the best available science and their recommendations for recovery criteria have been made available to the FWS through direct submission of draft documents, and have been made available to the public through a document (*Draft Mexican Wolf Revised Recovery Plan: Sections I.g, III, and Appendix B* dated September 16, 2011) (SPS 2011) leaked by a member of the Arizona Game and Fish Commission and other sources with connections to the Stakeholder Subgroup of the MWRT.

In brief, the recommendations of the SPS support the establishment of at least three interconnected (by dispersal linkages) subpopulations of Mexican gray wolves averaging at least 250 (but ≥200) wolves each within portions of the states of Arizona, Utah, New Mexico, and Colorado. If two subpopulations have 200 wolves, then the remaining subpopulation must have ≥350 wolves to meet the ≥750-wolf recovery criterion. Since it is impossible to know which subpopulation, if any, will need to support a higher population, it is prudent and precautionary to establish a ≥350 wolf threshold for the only subpopulation currently in existence. This is the minimum population objective that will be certain to contribute to eventual recovery of the newly listed *Canis lupus baileyi*.

The consistency of recommendations from the scientists of two different recovery teams further corroborates the strength of the science that informs recovery of the Mexican gray wolf.

The FWS admits that the existing Mexican Wolf Recovery Plan (USFWS 1982) does not comply with current ESA requirements, and does not set forth criteria for full recovery of the Mexican gray wolf. And without question the science available prior to 1982 is no longer the "best available" science. Yet the 1982 Recovery Plan remains the only approved recovery plan for Mexican wolves and the acknowledged guiding document for this proposed rule. This is wrong and misguided, and could lead to decisions and established regulations that would preclude the implementation of future recovery actions without being rescinded and without repeating another lengthy and costly NEPA process.

Even in the absence of an approved recovery plan, the current proposals must, by law, be based on the best available science relative to the recovery of Mexican gray wolves (50 CFR §17.81(a)&(b)). The best available science has been developed and compiled by the Science and Planning Subgroup (SPS) of the Mexican Wolf Recovery Team (MWRT) and the peer-reviewed published literature they relied upon. We incorporate by reference all of the literature cited in *Draft Mexican Wolf Revised Recovery Plan: Sections I.g, III, and Appendix B* dated September 16, 2011) (SPS 2011)on pages 13-17 (*LITERATURE CITED IN SECTION 1.G.*) and the section titled *LITERATURE CITED IN SECTION III* on unnumbered pages.

One example of a future conflict arising from the current proposal follows: Two of the geographic areas recommended by the SPS for the establishment of subpopulations of Mexican wolves lie well outside the proposed Mexican Wolf Experimental Population Area (MWEPA) boundary delineated in the proposed rule. And the proposed rule requires the capture of and return to the wild or to captivity wolves that disperse outside the MWEPA. Thus, natural migration of wolves among the three proposed subpopulations would be precluded by this proposed rule.

Another conflict arises from restricting Mexican wolves to the proposed MWEPA. A separate proposal (Docket No. FWS-HQ-ES-2013-0073: *Endangered and Threatened Wildlife and Plants; Removing the Gray Wolf (Canis lupus) from the List of Endangered and Threatened Wildlife and Maintaining Protections for the Mexican Wolf (Canis lupus baileyi) by Listing It as Endangered*) (USFWS 2013a) would officially add the Mexican gray wolf (*Canis lupus baileyi*) to the list of endangered species and grant the subspecies "endangered" status "throughout its range," or "wherever found." Dispersal restrictions and capture requirements set forth in the proposed rule would prevent Mexican wolves from establishing their own "range" thus restricting and controlling where they can be "found." Essentially, they would only be found in places where FWS decides they are allowed to exist.

Page 19, Lines 32-35. TRI concurs with the following conclusion reached by FWS: "These reports [3 and 5 Year Reviews and Conservation Assessment] universally identified inflexible management regulations resulting a low number of releases and a

high number of removals as counterproductive to the achievement of the population growth needed for the establishment of a viable, self-sustaining experimental population of Mexican wolves." Yet FWS continues to promote regulations that could result in a high level of removals and has made no commitment to increase the number of releases.

Page 21, Lines 8-9. FWS admits that "[W]e do not consider a minimum population of around 100 wolves to equate to 'self-sustaining' or 'viable' (USFWS 2010)." Yet, the Proposed Action is based on a "population objective of establishing a population of at least 100 wolves" (Page 52, Lines 12-13). This equates to a de facto upper limit of "only" 100 wolves because nowhere does FWS recommend exceeding 100 wolves. In fact, the proposed rule for implementing the proposed action relaxes prohibitions on taking Mexican wolves at a population threshold of 100 wolves. In practice, the proposed action could be deemed completed at a population of 100 wolves even though FWS admits that such a population is neither "self-sustaining" nor "viable."

The disconnect between the declaration of non-viability on page 21 and the population objective of the Proposed Alternative stems from FWS's allegiance to the obsolete 1982 Mexican Wolf Recovery Plan as the guiding document for the proposal. Adherence to the recommendations in a Recovery Plan by FWS is discretionary and not required by the Endangered Species Act (ESA); however, adherence to the best available science is required by the ESA. And a Recovery Plan written in 1982 cannot possibly represent the best available science in 2013—31 years later.

Page 22, Line 8. In addition to "genetic variation" within members of a population or species, "representation" also refers to the distribution of members among a variety of ecosystem types.

Page 22, Lines 41-43. The document states that the release of Mexican wolves in Mexico creates a "requirement" for a "management plan for Mexican wolves that enter the United States and occur in areas…outside of the MWEPA." TRI is unaware of such a legal or regulatory requirement. The only requirement we are aware of is the requirement to enforce Section 9 of the ESA which defines "prohibited acts" with respect to endangered species. If such a requirement exists for a management plan, the document should provide a citation to that authority.

Page 23, Lines 8-15. TRI applauds FWS's recognition that ultimate recovery of the Mexican will require multiple populations connected by dispersing wolves also referred to as a "metapopulation." However, as we discuss above, the proposed action will prevent dispersal among future individual populations by requiring the "capture and return [of] Mexican wolves originating from the nonessential experimental population that disperse outside of the MWEPA" (Page 25, Lines 44-45). This deficiency can be corrected by expanding the MWEPA and eliminating the "capture and return" provision as we recommend below.

1.3.1.3 Expansion of the Mexican Wolf Experimental Population Area. TRI would support this recommendation to expand the MWEPA to the border with Mexico only

with a similar expansion of the MWEPA northward to Interstate Highway 70. Such expansion would include additional areas of suitable wolf habitat identified by the SPS (2011) as essential to full recovery of Mexican wolves. And wolves dispersing from an expanded BRWRA population would be allowed to reach these areas without requirements for their "capture and return."

1.3.2.3 Modification to the provisions for take… The provision to issue take permits for livestock owners or their agents on public lands throughout the MWEPA when 100 wolves are established within the MWEPA cannot be supported by the best available science. This provision could trigger a substantial increase in authorized take of Mexican wolf at a population threshold which the FWS admits could leave the Mexican wolf "in danger of extinction."

Regarding, take by private landowners and without knowing the "conditions that must be met before such a permit is issued," TRI also opposes proposed take provisions by private landowners. At a minimum, the numerical threshold for triggering additional take must be consistent with the best available science that informs the parameters of full recovery of the Mexican wolf (i.e., ≥350 wolves).

Based on the best available science, and in keeping with the "Precautionary Principle," TRI recommends the threshold for liberalizing take provisions be raised to ≥350 wolves. See justification above for the ≥350 wolf threshold.

Page 34, Lines 41-47. The document states that the use of lethal and non-lethal techniques builds "greater social tolerance for wolves by the affected community (Bangs et al. 1998, Mech 1995, Fritz et al. 2003)." We reviewed these references to see if they supported this assertion. They did not. The only relevant content in Bangs et al. (1998) is one unsubstantiated statement as follows: "Effective control may translate into increased tolerance of nondepredating wolves by livestock producers on private and public lands." Mech (1995) provides no data or supporting references but concludes: "Because wolf-taking by landowners or the public is the least expensive and most acceptable to people who do not regard the wolf as special, there will be greater local acceptance for wolf recovery in areas where such control is allowed." And Fritz et al. (2003) also fail to provide any science-based evidence of a relationship between wolf-taking and tolerance for the presence of wolves. These claims may represent professional opinions, but such opinions are not "science" because they are not based on results of rigorous scientific inquiries into this question.

However, there are some scientifically designed studies that have addressed this and related questions. A press release by the University of Wisconsin - Madison (8/21/13) states: "While the state's wildlife managers had hoped that the 2012 hunt would increase tolerance for wolves, the study suggests that this is not the case - at least, not yet. Fifty-one percent of the wolf country residents surveyed in 2009 had indicated that they would be more tolerant of wolves if people could hunt them. But in 2013, these respondents had shown a net shift to disagreeing that their tolerance had risen after the 2012 wolf hunt." Members of the research team were Adrian Treves, Jamie Hogberg, Bret Shaw, and Lisa

Naughton. Another study also conducted in Wisconsin (Treves et al. 2013) found that "Approval of public hunting and trapping and official, lethal control of wolves implicated in domestic animal attacks were associated with diminished individual tolerance for wolves." The authors state that "Contrary to the claim by the U.S. Fish and Wildlife Service (USFWS 2009 [see 74 FR 15070-15123]), we found unstable attitudes toward, declining tolerance of, and a growing threat of poaching wolves." See also Bruskotter et al. (2010) for a review of this issue.

Page 35, Line 2-4. The document states "We expect that modifying the provisions governing the take of Mexican wolves will reduce the likelihood of indiscriminate, illegal killing of wolves and will substantially lessen the overall risk of human caused wolf mortality." While TRI wishes this to be a true statement, we submit that there is no science-based evidence to support this expectation. In fact, there is emerging scientific evidence that refutes the statement. See discussion immediately above.

Page 36, Lines 11-13. The document states "We propose to enter into agreements on private land within the MWEPA in order to engage willing landowners as partners in actions to benefit the expanded reintroduction of wolves." TRI supports this proposal.

Page 38, Line 11. The document states that one purpose of the *Management Plan* is to "enhance recovery of Mexican wolves in suitable portions of their historical range." No scientific consensus currently exists on the geographic extent of the "historical range" of Mexican wolves. However consensus does exist among the Science and Planning Subgroup of the Mexican Wolf Recovery Team (SPS 2011) on the "geography of recovery." We recommend replacing "their historical range" with "areas necessary for their recovery."

Page 38, Lines 38-39. The document states "Without management of problem wolves, human tolerance for all wolves, including the majority that does not depredate on livestock, decreases (Mech 1995)." While Dr. Mech may strongly believe this statement to be true, his 1995 paper does not present credible scientific data in support of this claim. See discussion above on this topic. TRI recommends that FWS stop making this claim without referencing science-based evidence supporting its veracity, which to our knowledge does not exist.

Page 41, ALTERNATIVE SELECTION CRITERIA. We submit that the criteria for evaluating and selecting alternatives will fail to result in any alternative that will substantially or even marginally contribute to the eventual recovery of Mexican wolves. One provision in particular sets up every alternative to fail. That is the criteria that each alternative "contributes to, reaching our population objective to establish a viable, self-sustaining experimental population of Mexican wolves as defined in the 1982 Mexican Wolf Recovery Plan" (underlining added). We point out elsewhere that this outdated and insufficient objective of ≥100 wolves can no longer be supported by the best available science. FWS agrees (see 78 FR 35695, column 1), "We continue to acknowledge that this population target is…insufficient for recovery and delisting of *C. l. baileyi*, as the subspecies would still be in danger of extinction with a single population of this size

(Service 2010, pp. 78-79)." The population size FWS is referring to in this statement is ≥100 wolves.

The final criterion that selected alternatives support the goal of "the establishment of a viable, self-sustaining experimental population of Mexican wolves" is also self defeating because none of the alternatives can achieve this objective under the 100-wolf population objective criterion.

Page 46, Lines 11-23. The discussion in this paragraph is not informed by the best available science, which TRI contends includes SPS (2011), Carroll et al. (2013) and all of the references cited by these two documents. This paragraph starts by declaring that "recovery and long-term conservation of the Mexican wolf in the southwestern U.S. and northern Mexico is likely to 'depend on establishment of a metapopulation or several semi-disjunct but viable populations spanning a significant portion of its historic range in the region (Carroll et al. 2006)." SPS (2011) has identified areas including portions of Utah and Colorado that are important to achieving recovery of the Mexican wolf. Yet, the document concludes that "we do not believe the addition of the area north of I-40 to the MWEPA and the extension of the 10(j) management authority to this area is necessary to the achievement of our objective to establish a viable, self-sustaining experimental population of Mexican wolves in the MWEPA."

TRI agrees with the claim that a viable self-sustaining population of Mexican wolves could be established in the area lying between I-10 and I-40. However, the FWS's proposal to "capture and return" wolves leaving the MWEPA would preclude long-term recovery of the Mexican wolf by precluding the establishment of a metapopulation which FWS states is necessary for recovery and long-term conservation of the Mexican wolf.

What we fail to understand is why FWS insists on establishing barriers to the free dispersal of Mexican wolves into areas it knows will be necessary for establishing additional subpopulations that are critical to achieving full recovery of Mexican wolves.

For this reason, TRI cannot support prohibition of the dispersal of Mexican wolves outside the MWEPA.

Page 46, Line 34. The document states the "We designated the WSWRA as a wolf recovery area primarily because it lies within the probable historic range of the Mexican wolf, has a low density of human use and is largely free of livestock." While the WSWRA did possess these attributes, it lacks sufficient suitable habitat to support a viable, self-sustaining population of Mexican wolves. The truth is that WSWRA was included in the FEIS as an alternative reintroduction area largely because of political considerations.

Regardless of the reason for initially including the WSWRA, TRI supports the recommendation to eliminate the WSWRA as a reintroduction area, but we would not support its elimination from the MWEPA.

Page 49: 2.3 PROPOSED ACTION AND ALTERNATIVES CONSIDERED. For reasons presented throughout these comments, TRI cannot support any of the four alternatives presented, nor can we support the no-action alternative. None of the alternatives will accomplish the stated objective of establishing a viable, self-sustaining population of ≥100 Mexican gray wolves within the BRWRA or an expanded BRWRA because a population of 100 Mexican wolves would be neither "viable" nor "self-sustaining." FWS freely admits this fact. None of the alternatives would substantially contribute to eventual recovery and delisting of the Mexican gray wolf. And the nonessential, experimental population classification is not supported by the best available science and would not adequately protect the BRWRA population of Mexican gray wolves.

An Alternative Proposal—The Conservation Alternative

TRI offers the following alternative for consideration as the "Proposed Alternative" in the DEIS. It is a modification of Alternative Two presented in this document.

1. *Expand BRWRA by adding the Forest Service districts specified in 2.3.2 Alternative Two, Page 55 of Preliminary Draft EIS, 02 August 2013.*

2. *Reclassify the expanded BRWRA population as an "essential" experimental population.*

3. *Adopt a population objective of ≥350 wolves for the expanded BRWRA population.*

4. *Allow unrestricted dispersal of Mexican wolves outside the expanded BRWRA.*

5. *Move the southern boundary of the MWEPA to the US/Mexico border and the northern boundary to I-70, and remove the "capture and return" provision allowing wolves to disperse unrestricted throughout and outside the MWEPA.*

6. *Implement a Mexican Wolf Management Plan for areas outside of the MWEPA if deemed necessary.*

7. *Authorize releases of captive wolves anywhere within the expanded BRWRA and translocations throughout the BRWRA and MWEPA.*

8. *Increase the threshold for relaxing take to ≥350 wolves in the expanded BRWRA population.*

This alternative proposal is based on the best available science in support of the establishment of a viable, self-sustaining population of Mexican gray wolves in the expanded BRWRA and in support of future recovery of *Canis lupus baileyi*. It would meet the ESA mandates of furthering the conservation and ensuring the continued existence of Mexican wolves in the wild.

The Rewilding Institute appreciates the opportunity to comment on this document.

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