Mexican Wolf Experimental Population Area

Initial Release and Translocation Proposal for 2017

This document was developed by the Mexican Wolf Interagency Field Team and outlines management options for initial release(s) and translocation(s) of Mexican wolves into the Mexican Wolf Experimental Population Area (MWEPA) in Arizona and New Mexico in 2017. The initial releases and translocations proposed in this document are consistent with:

(1) the 2014 Final Environmental Impact Statement (EIS) for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf (Canis lupus baileyi),

(2) the 2015 Record of Decision for the Proposed Revision to the Regulations for the Nonessential Experimental Population of the Mexican Wolf (Canis lupus baileyi),

(3) the 2015 Final Rule - Revisions to the Regulations for the Nonessential Experimental Population of the Mexican Wolf,

These above documents analyzed the potential environmental and socioeconomic impacts of a Mexican wolf population in the MWEPA, including initial releases and translocations. This document is the initial release and translocation planning proposal for 2017, thus it is not a final agency action but rather an implementation planning document that may be changed during this planning period. During 1998-2016, we have conducted 32 initial release events (108 wolves) and 68 translocations events (120 wolves).

With only seven unrelated founders, the Mexican wolf endured a genetic bottleneck that has necessitated management of the population to retain remaining gene diversity. Specifically, the captive population is carefully managed to maintain or increase gene diversity by establishing breeding pairs through a process that considers mean kinship¹ (MK) and avoidance of inbreeding². Conversely, breeding pairs in the wild population are not prescribed, but typically establish through natural dispersal and pack formation. Thus, to maintain or increase gene diversity in the wild population, it is important to ensure the population as a whole is genetically diverse, increasing the probability that wolves pairing naturally are unrelated.

The wild population's MK is approximately 0.2409. This means that, on average, individuals within the population are as related to one another as full siblings. All current wild breeding pairs are producing pups related to the Bluestem Pack, specifically breeding female F521. Of the approximately 70 Mexican wolves in the wild for which individual genetics are known, analyses

¹ Mean kinship (MK) is an individual's degree of relatedness to the population. A wolf with low MK is less genetically represented in the population, and a breeding event by this animal would decrease the overall relatedness of the population. A wolf with higher MK is genetically well represented in the population, and a breeding event by this animal would increase the overall relatedness of the population. Because MK of an individual animal is relative to the current population, it is constantly changing. For example, an individual's MK will increase each time that animal successfully produces and raises offspring in the population.

² Inbreeding is the mating of closely related individuals, which tends to increase the number of individuals in the population that are homozygous for a trait which can reduce adaptive potential.

indicate only 4 – all of which are males – are not descendants of F521. Thus, there is very little potential for natural pair formation among unrelated wolves in the wild now or in the future. Analysis indicates that 3 of the 18 (17%) potential breeding pairs in 2017 will have one breeding adult that is a descendent of the Bluestem Pack, and 15 of 18 (83%) potential breeding pairs in the wild will have both of the breeding adults as descendants of the Bluestem Pack (Figure 1). Furthermore, there are five additional breeding-aged wolves in the population that are descendants of the Bluestem Pack, but it is unknown if they will be breed in 2017. Release of wolves from the more genetically diverse captive population is necessary to decrease the overall relatedness among wolves in the wild population. The following release and translocation actions are proposed in consideration of the current genetic status of the wild population.

The proposed actions within the MWEPA are to:

- (1) Conduct an initial release of one pack (male, female, one yearling and associated pups) within the Gila Wilderness in New Mexico.
- (2) Conduct an initial release/translocation of one pack (previously wild male, initial release female, and associated pups) into the Aldo Leopold Wilderness.
- (3) Cross-foster pups into as many as five packs throughout the MWEPA (with a maximum of six pups into the Arizona portion). Based on our experience, we estimate a maximum of 10 pups throughout the MWEPA.
- (4) Provide for the translocation of wolves for management purposes as needs rise during 2017 (primarily wolves that disperse outside of the MWEPA).

An initial release, translocation, or cross-foster is considered successful when those animals ultimately survive and produce pups in the wild.

Background

Initial Release and Translocation Restrictions and Land Use:

Initial release and translocation strategies differ throughout the MWEPA to reflect various state, federal, and tribal agency direction and land-use patterns (e.g. higher and more complex land-use areas vs. wilderness). To the extent possible those realities are addressed in these initial release and translocation strategies while still promoting the health of the wolf population by addressing critical genetic issues. The Arizona Game and Fish Commission has directed the Arizona Game and Fish Department to conduct only cross-fostering of captive pups into wild wolf dens and translocations of wild-born and raised wolves in Arizona. The combination of strategies within the MWEPA that are outlined in this plan represent a critical and significant effort to increase gene diversity in the wild population. Gene diversity can continue to be improved through additional initial release and cross-fostering efforts in future years. However, it is easier to affect the gene diversity of the wild population when it is small and will become more difficult as the population increases.

Initial Release and Translocation Strategies:

Translocations: Involve moving a wolf for management purposes from one location to another location within the MWEPA. Mexican wolves that travel outside of the MWEPA or require

translocation for management purposes will be considered for translocation onto Federal land within the MWEPA in accordance with the 2015 10(j) Rule. The IFT will assess the specific reasons for translocation and effects and potential effects of behavior prior to recommending a translocation. Further, we will consider wolf distribution, breeding vacancies, and genetics associated with the potential translocation candidate(s). Most translocations will be single animals and can occur anywhere within Zone 1 or Zone 2 as a hard release (i.e., a release from a crate). The IFT may recommend that translocations be conducted at a previously established release site; potential new release sites within the MWEPA are undergoing National Environmental Policy Act (NEPA) analysis by the U.S. Forest Service (USFS). The IFT will also recommend the best available site based on relative site ranking, and the USFS decision on new sites. Translocated wolves may spend a period of time in captivity prior to translocation. Entering 2017, the USFWS has one preferred translocation candidate (M1336) available in captivity. M1336 was captured during the 2014 helicopter count (January of 2015) to prevent breeding between full siblings. M1336 does not have a depredation or nuisance history. Other wolves may be translocated for management purposes as additional needs arise. Other needs will be evaluated to determine if, where, and how a translocation should proceed based on SOP 6.1 (Wolf Translocations) and a full evaluation by the IFT.

Initial Releases: Involve the release of wolves from captivity without wild experience. Originally, initial releases were necessary to establish a wild population and subsequently augment population growth. Now initial releases are a management option to reduce MK of the wild population (see Figure 1). Captive wolves are selected for release based on their genetic value relative to both the captive and wild Mexican wolf populations, as well as other desirable characteristics (e.g. fear of humans). Artificial insemination or cross-fostering in captivity may also be utilized to further increase the genetic benefit of the proposed release actions.

Both initial releases and translocations are more successful when young pups are present and when they occur in areas with adequate native prey. For instance, initial releases of breeding animals with pups in areas of adequate native prey have resulted in the breeding animals being successful 66% (n = 9) of the time. Success, as we are using this term, means any released wolf that produces pups in the population in the future. Breeding pairs that are considered successful releases tend to persist and produce pups in successional years, continuing to increase gene diversity. Initial released wolves do not have wild experience, typically exhibiting some level of naivety towards humans, and can on occasions be a nuisance to people living and working in release areas for a period of time following release. Initial release wolves require intensive and prolonged management by IFT staff including supplemental feeding, monitoring, and potential hazing from human occupied areas until a period where the pack has acclimated to wild behavior. In extreme situations, the pack may also need to be removed if nuisance behaviors exceed acceptable thresholds. The IFT is proposing:

- An initial release of one breeding pair, one yearling and associated pups in the Gila Wilderness (AF1362 X AM1196 yearling f1494, and associated pups produced in 2017 [all initial releases]
- a second breeding pair, consisting of one animal that has wild experience (translocation) and one animal that does not (initial release) and associated pups into the Aldo Leopold Wilderness (AF1323 [initial release] X AM1336 [translocation] and associated pups produced in 2017) in New Mexico.

Current distribution of Mexican wolves suggest that there will be adequate sites within the Gila Wilderness (McKenna Park, Lilley Park, West Fork of the Gila, or Miller Springs) and in the Aldo Leopold Wilderness (North Seco) (Figure 2 and Figure 3).

Cross-fostering: Involves placing captive-born pups (<14 days old) into wild dens with similarly aged pups, and is an additional method to increase gene diversity in the wild population. Cross-fostering can be logistically complicated because it requires synchronicity between captive and wild born litters produced during a short time window. Cross-fostering is a relatively new method for the Mexican Wolf Project, and therefore its overall efficacy as a genetic management tool is not yet fully known. However, the IFT have high expectations for success based on both recent successes within the Mexican Wolf Program and the more in depth experience of the red wolf program in North Carolina.

Recent observations have shown increased success and validation for the cross-fostering method. In 2014, two wild-born pups were cross-fostered into a wild den. One of those wolves has reproduced in 2016 and the other has paired and is a potential breeder for 2017. In 2016, a total of six captive born pups from 3 different captive litters were cross-fostered into the dens of 3 wild packs (2 pups in each den). At least two of the six are known to have survived at the time of this writing (fates of the other 4 are unknown, but monitoring continues). The IFT proposes to cross-foster pups into as many as five packs throughout the MWEPA (with a maximum of six pups into the Arizona portion). Based on our experience, we estimate a maximum of 10 pups cross-fostered into the MWEPA in 2017. Cross-fostering will occur within packs that den on Federal land within Zones 1 and 2 of the MWEPA, in accordance with the guidance of Phase 1 (see 2015 10(j) Rule).

Cross-fostering does not appreciably change the distribution of wolves on the landscape, and depends on complex coordination of logistics between captive facilities and the wild population (see SOP 31.0) to succeed. Thus, the IFT is proposing to conduct cross-fostering as logistical constraints allow (into a maximum of five packs, with a maximum of 6 pups total into the Arizona portion of the MWEPA). Cross-fostering will occur in April or May and will only occur within packs that den on Federal land.

Initial releases and cross-fostering are the preferred methods available to improve gene diversity in the wild population. The 2017 will attempt as many cross-fostering efforts as logistically possible, while continuing to evaluate the efficacy of the method. Since cross-fostering occurs at active den sites and does not directly expand the distribution of wolves on the landscape, it tends to be less controversial. Conversely, the IFT has more experience with initial releases. However, initial releases can be controversial because they occur in areas not currently occupied by wolves, and can directly expand the distribution of wolves, linitial release animals also have a higher probability of nuisance behavior, relative to wild wolves, during the initial year following release. The 2017 plan addresses these issues in part by initially releasing wolves: (1) into areas that have had wolf presence in the past, but are not currently occupied, (2) with pups to reduce pack movement and allow for increased site-focused management, (3) into sites that are either within or adjacent to (< 3miles) the Gila Wilderness and Aldo Leopold Wilderness that have low human presence to minimize nuisance impacts to humans, and (4) releasing one of the packs that has a male with wild experience (no depredation or nuisance history) to the Aldo Leopold Wilderness to promote wild behavior in an area more prone to human nuisance.

Initial Releases and Translocations

The IFT is proposing the following actions.

Action 1 – Cross-fostering of Wolf Pups Produced in Captivity into Wild Mexican Wolf Pack Dens in the MWEPA.

The IFT will cross-foster pups into as many as five packs throughout the MWEPA (with a maximum of six pups into the Arizona portion) to increase the gene diversity of the wild Mexican wolf population. Cross-fostering will only occur on Federal land in Zones 1 and 2.

Captive pups placed into wild Mexican wolf dens will be of a different genetic profile than existing wolf packs in the MWEPA and, if successfully established, can increase gene diversity to the existing wild wolf population. Figures 2 and 4 give a general distribution of existing packs where cross-fostering may occur. At least eighteen packs and pairs (ten in Arizona and eight in New Mexico) are potential breeding pairs for proposed cross-fostering in 2017.

Associated Management Actions

The IFT will develop a specific cross-foster plan for the 2017 breeding season. This management option requires the following circumstances and considerations:

- Wild Mexican wolf packs display denning in Zone 1 and Zone 2 of the MWEPA.
- Donor pack(s) in captivity are identified and produce viable pups.
- Wild and donor pups are <14 days old.
- Whelping dates of wild pups and donor pups must be within 10 days of one another (with less age difference preferred).
- Wild litter size needs to be small enough to accept donor pups (i.e. approximately 6, but dependent on other vital data).

Favorable Attributes of Action 1:

- 1. Cross-fostering allows for the integration of genetically different Mexican wolves to be introduced without having to release naïve packs/adults.
- 2. Cross-fostering allows captive-born wolf pups to be raised in the wild by experienced wolves and reduces the potential for nuisance wolf interactions that are often associated with the release of naïve captive adult wolves.

Less Favorable Attributes of Action 1:

1. Cross-fostering requires significant disturbance of the targeted wild pack(s) dens, and may result in packs moving pups to another location. However, red wolf recovery program data indicate that, of the number of cross-fostered pups with known outcomes (17 of 31, or 55%), pup survival into the next year is 92% regardless of den movement. The Mexican Wolf Program has successfully cross-fostered 8 pups into 4 wild dens. All 4 dens were moved as a consequence of the disturbance. At the time of this writing, a minimum of 4 have survived, there are no known mortalities, and 4 fates are not known, but monitoring continues.

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2. Cross-fostering requires a series of specific events to occur simultaneously (e.g. packs den in Zones 1 or 2 in the MWEPA, both the donor and wild packs have pups with ten days of each other, the cross-foster event occurs within the first 14 days of life, wild pack den sites are located within 10 days of whelping, etc.), thus is self-limiting on the number of opportunities within a whelping season. Thus, we cannot specify individual recipient or donor packs, until the time that key information is available.

Action 2 – Initial Release of a captive pair, yearling, and pups into the Gila Wilderness (AF1362 X AM1196, their yearling f1494, and associated pups).

This action involves the initial release of a captive pack of wolves (AF1362 X AM1196, their yearling f1494, and associated pups) into a release site in the Gila Wilderness (McKenna Park, Lilley Park, West Fork of the Gila, or Miller Springs depending on current wolf distribution). A temporary mesh pen would restrain the wolves for a short duration of time prior to release. The release would occur June – July. To the degree possible (dependent on pup age) the release should correspond with elk calving (~June 1) to facilitate natural hunting behavior.

Favorable Attributes of Action 2:

- 1. A release within the Gila Wilderness limits the potential for interactions with humans.
- 2. The release areas are not grazed, although grazing does occur within ten miles. The IFT will develop mitigation measures with affected permittees dependent on where the pack settles. A helicopter may be utilized if removal actions are required outside of the wilderness (use of helicopters is restricted inside wilderness areas).
- 3. The release of a naïve pair of wolves, their yearling offspring, and associated pups will increase the gene diversity within the current MWEPA population. If successful, the pair would provide long-term genetic benefits to the population.
- 4. The presence of young pups should localize the pack in the wilderness for a period of time (from the time of release through approximately September).

Less Favorable Attributes of Action 2:

- 1. While the potential for livestock depredation is low in the release area (Figure 2), the released wolves could overlap with livestock if they leave the release area. These wolves will be actively monitored and managed whether outside or inside the wilderness. Although the potential for nuisance scenarios is reduced in wilderness areas, campers and hunters have had encounters with newly released wolves in these areas.
- 2. If the pups from the release do not survive, there is a high likelihood that the adult and yearling wolves will travel widely across the MWEPA.

Action – 3 Initial Release/Translocation of a pair and associated pups into the Aldo Leopold Wilderness (F1323 (initial release) X M1336 (translocation) and pups).

M1336 is a wild-born wolf currently in captivity and paired with a captive-born wolf F1323. M1336 was previously approved for translocation as either a single wolf or with a wolf captured from the wild in 2016. However, this action did not take place because an appropriate female was not captured and beneficial scenarios (e.g., a breeding vacancy) of translocating M1336 were not observed during 2016. The current proposed action involves the initial release of a pack of wolves

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(F1323 X M1336 and associated pups) into the Aldo Leopold Wilderness (North Seco). A temporary mesh pen would restrain the wolves for a short duration of time prior to release. The release would occur June – July. To the degree possible (dependent on pup age) the release should correspond with elk calving (~June 1) to facilitate natural hunting behavior.

Favorable Attributes of Action 3:

- 1. The release area has had prior wolf occupancy, thus affected stakeholders are familiar with wolves and the wolf program
- 2. M1336 is wild-born and has wild experience. While in the wild, M1336 was not documented in conflicts involving humans or cattle. M1336's wild experience should lead to reduced chance of nuisance behavior that is otherwise observed with initial release animals during the first few months following release.
- 3. The presence of young pups should localize the pack in or adjacent to the wilderness area for a period of time (from the time of release through approximately September).
- 4. If released in the wilderness, the potential for interactions with humans is reduced.
- 5. The release of F1323 X M1336 and associated pups will increase the gene diversity in the current MWEPA population. If successful, the pair would provide long-term genetic benefits to the population.

Less Favorable Attributes of Action 3:

- 1. The pack has the potential to overlap with livestock. The IFT will develop conflict mitigation measures dependent on where the pack settles. A helicopter may be utilized if removal actions are required outside of the wilderness. These wolves will be actively monitored and managed whether outside or inside the wilderness. Although the potential for nuisance scenarios is reduced in the wilderness, campers and hunters have had encounters with newly released wolves. M1336's previous wild experience avoiding livestock and people may help mitigate nuisance and depredation behavior by the pack.
- 2. If the pups from the release do not survive, there is a high likelihood that the adult wolves will travel widely across the MWEPA.

Action 4 - Translocation of Wolves That May Be Moved for Management Purposes During 2017 (primarily for wolves dispersing outside of the MWEPA).

Mexican wolves that travel outside of the MWEPA or require translocation for management purposes will be considered for translocation onto Federal land inside the MWEPA in accordance with the 2015 10(j) Rule. The IFT will assess the specific reasons for translocation and effects and potential effects of behavior prior to recommending a translocation. In addition, we will consider the distribution of wolves, breeding vacancies, and genetics associated with the potential translocation candidate(s). Most translocations under these scenarios will be single animals and can occur anywhere within Zone 1 or Zone 2 as a hard release. Recommendations may be to utilize an established release site; recognizing new sites are undergoing National Environmental Policy Act (NEPA) analysis by the U.S. Forest Service (USFS). The IFT will recommend the best available site based on relative site ranking, the USFS decision on new release sites, and current wolf distribution. The IFT will follow SOP 5.1 (Translocations) for communication with permittees and local officials prior to these translocations if they occur.

Favorable and Less Favorable Attributes of Action 4:

- 1. These wolves are maintained inside the MWEPA population as potential breeders.
- 2. Translocated wolves are radio collared and could pair with an uncollared wolf.
- 3. Translocated wolves may travel widely and repeat the behavior causal to the translocation (e.g. leaving the MWEPA).

Figure 1. Potential Breeding Pairs for 2017. Light blue filled ovals represent established pairs confirmed as having one breeding animal that is a descendent of the Bluestem Pack. Dark blue filled ovals represent established pairs confirmed as having both breeding animals as descendants of the Bluestem Pack. Light blue outlined ovals represent breeding aged individuals that are descendent of the Bluestem Pack, but are not known to be paired at this time. Hatched blue line ovals represent a pack where the male breeder is not a descendent of the Bluestem Pack and is not known to be currently paired, but all potential female pairs in the population are likely descendent of Bluestem Pack.



Figure 2. Initial release and translocation sites in New Mexico that remain authorized for use in comparison to wolf home range areas in 2014.



Figure 3. Initial release and translocation sites in Arizona that remain authorized for use in comparison to wolf home range areas from 2014. Note that releases conducted south of Engineer Springs were discontinued in 1999 due to low prey density and lack of successful releases in those areas. The prey density remains low in these areas.



Figure 4. Proposed release sites in New Mexico outside of the current distribution of wolves. These release sites are undergoing NEPA analysis by the U.S. Forest Service. The IFT will determine the specific release site based on the decision by the USFS and potential availability of sites relative to wolf distribution.



Figure 5. Proposed release sites in Arizona outside of the current distribution of wolves. These release sites are undergoing NEPA analysis by the U.S. Forest Service. The IFT will determine the specific release site based on the decision by the USFS and potential availability of sites relative to wolf distribution.

