Blue Range Mexican Wolf Reintroduction Project
Adaptive Management Oversight Committee
Standard Operating Procedure

Title: Population Monitoring of Mexican Wolves
Number: 27.0
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Purpose: The purpose of this Standard Operating Procedure (SOP) is to define the method by which the Reintroduction Project annually records the minimum number of wolf packs and a minimum count of the total population size of reintroduced Mexican wolves within the Blue Range Wolf Recovery Area (BRWRA). Information regarding population size and distribution is useful in deciding when and where to translocate and initially release wolves.

The number of wolves and breeding pairs within the BRWRA is projected in the Final Environmental Impact Statement for the Reintroduction of the Mexican Wolf within its Historic Range in the Southwestern United States (USFWS 1996) and can be used as a measure of progress, or in developing and implementing management plans.

This procedure supersedes relevant sections of the 1998 Mexican Wolf Interagency Management Plan (USFWS 1998), and therefore represents, in part, the "Service Approved Management Plan" referenced in the Mexican Wolf Final Rule (50 CFR 17.84(k)).

Exceptions: None. Per SOP 2.0, AMOC must approve any exceptions to this SOP.

Background: Most wolf management or research projects base their population estimates on calendar year-end or mid-winter counts (Kunkel et al. 2005). Wolves are much more difficult to count in the spring, summer, and fall, as their numbers fluctuate widely with pup production, pup mortality, sub-adult dispersals, and natural and human caused mortalities. Documented Mexican wolf mortality is low during the winter, which provides a stable population for a relatively long period. Winter counts are also used because snow cover provides a contrasting background that facilitates detecting and observing wolves.

However, to make more accurate assessments of year-end wolf populations, monitoring throughout the year is also crucial. Reproductive success must be documented for each known pack and efforts must be made to document additional, previously unknown packs. Documentation of pup presence throughout the late summer and fall may aid in determining the relative rate of wolf dispersal and mortality. Through intensive monitoring and capture/collaring, the Project will also emphasize documenting pup survival into their second year of free-ranging existence.

The objectives of this SOP are to:

1. Describe the methods used to record the minimum number of wolf packs and minimum population size for the year-end annual count.
2. List the specific products of population assessments resulting from implementing this SOP.
3. Measure progress toward achieving approved population objectives for the Reintroduction Project.

General Year-Round Confirmation Criteria

Wolf presence can be confirmed in many ways, such as observation of scats, tracks or howling. Generally, more than one form of evidence is used to confirm the presence of wolves. Reports from the public will be encouraged and agency efforts will focus on locating breeding pairs or pack units. Reports of lone wolves can be difficult to validate because of the high mobility of such animals. Therefore, suspicions of lone wolf activity will be low priority and will typically not result in agency field response unless conflicts (e.g. depredation, nuisance activities) are documented. Confirmation of breeding units and packs will be dependent on evaluation of all the available evidence by appropriate agency personnel.

Confirmation of Non Radio-collared Packs

Reports of wolves or wolf sign outside of radio-collared wolf home ranges may be investigated as a potential new pack. Confirmation of persistent wolf presence may require many types of sign (tracks, scats, vocalizations, etc.) or repeated visuals with photographic evidence. Once an area is identified as a new pack territory, extensive trapping efforts will be made to radio-collar these wolves. If trapping is unsuccessful, wolves may be documented through systematic or opportunistic howling, tracks, scat collections, feeding site investigations and/or visuals. Breeding status may be confirmed through field documentation of paired raised-leg urinations and bloody urine. Remote cameras on carcasses or lures may also be used to document wolf presence.

End-of-Year Population Minimum Count

Because the current BRWRA Mexican wolf population is relatively small, the most appropriate population measure is a minimum count (which does not have confidence intervals) near the end of winter, as has been the case with other studies monitoring small wolf populations (USFWS et al. 2007). When the BRWRA population reaches a point at which statistical sampling techniques are more appropriate, this SOP will be updated to reflect that change. Meanwhile, the IFT shall be responsible for producing an annual, end-of-year minimum count of the number of Mexican wolves and breeding pairs in the BRWRA by February 7 of each year.

The end-of-year minimum count will include:

1. All currently radiocollared wolves and their pack associates actively being monitored as of December 31 of each year**;**
2. Radiocollared wolves whose collars are not functioning but for which evidence exists indicating they were likely to have been on December 31, as determined by the IFT**;** and
3. Uncollared wolves confirmed by IFT personnel anytime during November, December, and January.

BRWRA end-of-year counts extending from November into January are not likely to be significantly different than if they had they been conducted solely at the end of December. There is virtually no possibility of recruitment through breeding during that period, and immigration seems almost equally unlikely. Winter at these latitudes is not likely to create significant wolf population stresses (e.g. starvation or disease) and mortality, as has been documented in the more severe winters typical of northern states. Weekly monitoring throughout the count period reduces the likelihood that dispersal of known wolves (e.g. collared wolves or uncollared wolves associating with collared wolves) will occur undetected. Also, variability in snow cover in the Southwest emphasizes the need to conduct more intensive aerial monitoring when the best survey conditions exist, and that typically occurs in January. Thus, annual helicopter capture and survey activities are normally conducted in January, which provides more opportunity to confirm collared pack numbers that have been documented in November and December, or earlier. By consistently conducting minimum counts during November through January of each year, the results over time will also reliably indicate trends in the population.

Products

Each Project Annual Report will include the following population measures obtained through the end-of-year count and other pertinent information from year-round monitoring:

1. Minimum number of breeding pairs as of December 31;
2. Minimum number of free-ranging wolves as of December 31;
3. A map of the size and location of the minimum occupied wolf range (per 10(j) Rule);
4. Maps of locations of packs and minimum pack size with different symbols used for radiocollared packs and uncollared but agency-confirmed packs; and
5. A description of the annual survival and cause-specific mortality rates of all radio-collared wolves and a comparison of those rates with annual changes in the wolf population level.

Reviewers

The following individuals contributed to the development of this SOP, but they are not responsible for its content: Adrian Wydeven, Wisconsin Department of Natural Resources; Richard Thiel, Wisconsin Department of Natural Resources; L. David Mech, United States Geological Survey (Adjunct Faculty, University of Minnesota); Warren Ballard, Texas Tech University; and Ed Bangs, USFWS.

Approval:

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP (with Lead Agency Director concurrence) on April 22, 2008.

Literature Cited

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