

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

December 28, 2004

The Blue Range Mexican Wolf Reintroduction Project (hereafter Project) formally began on January 28, 1998, when Mexican wolves were brought to the Blue Range (near Alpine, Arizona) from pens on Sevilleta National Wildlife Refuge (in New Mexico). The planning processes that led to that event began nearly 20 years earlier, and they continue today.

From 1998 through 2002, the Project operated under direct supervision by the U.S. Fish and Wildlife Service, acting largely through the Mexican Wolf Recovery Coordinator. That approach evolved from 2002 through 2004 into a more collaborative adaptive management effort among several agencies, with State and Tribal leadership for the Project and participation by many other agencies and organizations and the public. An interagency Adaptive Management Oversight Committee (hereafter AMOC) now manages the Project, which is carried out on the ground by an Interagency Field Team (hereafter IFT). Public participation in the Project is ensured through an Adaptive Management Work Group (hereafter AMWG), which includes AMOC agencies and other state and county government agencies. AMWG meets quarterly in public sessions in the Project area, to provide a forum for open discussion of issues of concern and to gather public input that helps the agencies guide the Project.

The nature of wolf management is such that consistency and reliability in approving and carrying out actions are of paramount importance. If the “right things” are not done the “right way,” each and every time, experience shows that all kinds of problems can and most likely will happen. The high potential for controversy reflects the emotional significance that is attached to wolf reintroduction and recovery – the human dimension.

The margin for error in managing wolves is small, thus it is crucial to establish what the “right way” to do things is, and when and how departures from the “right way” should be allowed. The purpose of the Project’s Standard Operating Procedures (SOPs) is to delineate the “right way” to do the “right things,” regardless of which IFT or AMOC members are involved. The SOPs listed in the Table of Contents include those that have been identified since 1998 as vitally important to ensuring consistent and reliable Project operations. They provide greater certainty for the agencies and the public as to how decisions will be made, and implemented. They also allow for flexibility where circumstances are expected to require it (managing wolves is more complicated than baking a cake!). However, the SOPs also set sidebars on flexibility, by identifying how to approve significant departures (exceptions) from the procedures outlined.

The current set of SOPs is considered a final draft. The cooperating agencies have approved them for discussion with the public in January 2004, and will then revise them as necessary to address any significant issues surfaced through that review. Moreover, as time passes, other SOPs (including SOP 13) will be added and existing ones will be revised, as more is learned about what wolf management entails in the Southwest.

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

**Title:** Table of Contents and List of Abbreviations and Key Terms

**Number:** 0.A

**File:** MW SOP 0A.Table of Contents.Final.20041217.doc

**Purpose:** This SOP provides a list of the currently-approved SOPs, a list of abbreviations and key terms used throughout the SOPs, and “key contact” information. These SOPs guide the Project on non-tribal lands in Arizona and New Mexico. Actions on tribal lands are subject to authority of the appropriate Native American Tribe.

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

**Title:** List of Abbreviations and Key Terms

**Number:** 0.B

**File:** MW SOP 0B.List of Abbreviations and Key Terms.Final.20041217.doc

**Purpose:** This SOP provides a list of abbreviations and key terms used throughout other SOPs.

AGFD	Arizona Game and Fish Department
AMOC	Adaptive Management Oversight Committee
AMWG	Adaptive Management Work Group
BRWRA	Blue Range Wolf Recovery Area
CFR	Code of Federal Regulations
Cooperator	A non-Lead Agency state or county agency that has signed the Mexican Wolf MOU, or which is informally participating in AMOC and/or AMWG meetings
CWD	Chronic Wasting Disease
DEA	Drug Enforcement Administration
FAIR	Fort Apache Indian Reservation (owned and managed by WMAT)
Field Office	The IFT headquarters in Alpine, Arizona
Final Rule	The Mexican Wolf Final Rule authorizing the BRWRA reintroduction (50 Code of Federal Regulations 17.84(k)).
GPS	Global Positioning System; a satellite-based system for determining locations
IC	Incident Commander, as in a helicopter capture
IFT	Interagency Field Team
Lead Agency	One of the six government agencies that is: (a) primarily responsible for the Project, (b) a member of AMOC, and (c) a participant in AMWG. The Lead Agencies are: AGFD, NMDGF, USFS, USFWS, WMAT, and WS.
MOU	Memorandum of Understanding
NEPA	National Environmental Policy Act
NMDGF	New Mexico Department of Game and Fish
Project	The Blue Range Mexican Wolf Reintroduction Project
Program	The range-wide (i.e. U.S. and Mexico) USFWS Mexican Wolf Recovery Program
SCAR	San Carlos Apache Reservation
SCAT	San Carlos Apache Tribe
SOP	Standard Operating Procedure
TESF	Turner Endangered Species Fund
USFS	U.S. Forest Service (USDA Forest Service)
USFWS	U.S. Fish and Wildlife Service
UTM	Universal Transverse Mercator (a grid system used in mapping locations)
WMAT	White Mountain Apache Tribe
WS	Wildlife Services (USDA-APHIS Wildlife Services)

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

**Title:** Key Contact Information

**Number:** 0.C

**File:** MW SOP 0C.Key Contact Information.Final.20041217.doc

**Purpose:** This Standard Operating Procedure (SOP) provides contact information for agencies and individuals who assist in implementing the Project.

## Primary Contact Numbers

Mexican Wolf Hotline (toll free): (888) 459-9653

### IFT

- Alpine Field Office (928) 339-4329; Fax (928) 339-4218); P.O. Box 856, Alpine, AZ 85920
- Dan Groebner, AGFD Field Team Leader: Home (928) 369-3503; Cellular (928) 587-7274; Office (928) 367-4281x132
- Nick Smith, NMDGF Field Team Leader: Home/Office (505) 773-4845
- Krista Beazley, WMAT Field Team Leader: Pager (928) 367-8321; Home (928) 368-0766; Office (928) 338-4385 ext. 226
- John Oakleaf, USFWS Field Projects Coordinator: Home (928) 339-4249; Office (928) 339-4329
- Dan Stark, USFWS Wolf Biologist: Home (928) 339-4459; Office 928-339-4329
- Shawna Nelson, AGFD Wolf Technician: Home (928) 339-4040; Office (928) 339-4329, Fax (928) 339-4218
- Shawn Farry; AGFD Wolf Technician: Home (928) 339-4163; Office (928) 339-4329, Fax (928) 339-4218
- J. Brad Miller, USDA/APHIS/WS, Wolf Damage Specialist: Office (928) 333-5208; Primary AZ; Secondary NM
- Richard Grabbe, USDA/APHIS/WS, Wolf Damage Specialist: Office (505) 313-5041; Primary NM; Secondary AZ
- Deion Hinton, WMAT Wolf Technician: Office (928) 3385-4385 ext. 226

### AZ Game and Fish Department

- Radio Dispatch in Phoenix (available 24 hours/day, 7 days/week): (602) 789-3201
- Operation Game Thief (Recorder): (800) 352-0700
- Region 1 Pinetop Office: (928) 367-4281 or 367-4342 or 367-4941, Fax (928) 367-1258
- Research Branch for CWD reports: (602) 789-3246
- Wildlife Managers in the Project area:
  - Chris Bagnoli, Game Management Unit 1: Office (928) 333-3184; Home (928) 333-4585; Radio # GF173
  - Michael Sumner, Game Management Unit 1: Office: (928) 333-5644; Radio # GF171
  - Aaron Hartzell, Game Management Unit 27: Office (928) 333-2466; Home (928) 333-2827; Radio # GF174
  - Steve Najjar, Game Management Unit 27 south: Office (928) 687-2454; Radio # GF175

### NM Department of Game and Fish

- Radio Dispatch (available 24 hrs/day, 7 days/week): (505) 827-9376
- CWD reports: (505) 476-8040 or (505) 476-8035
- Possession of mule deer, white-tailed deer, and elk (CWD issues and road kill possession permission): (505) 476-8080
- Las Cruces Office: (505) 532-2100
- Conservation Officers in the Project area:
  - Leon Redman, Sergeant (Silver City): Office (505) 388-0770; Home (505) 388-0770; Radio # 43-NM
  - Bobby Griego, Law Enforcement (Reserve): Office (505) 533-6124; Home (505) 533-6124; Radio # 145-NM
  - Michael Larish, Law Enforcement (Quemado); Office (505) 773-4327; Radio # Unit 124 NM
  - Brian Gleadle, Area Chief (Albuquerque); Office (505) 841-8881; after hours have Dispatch (505 827-9376) call Gleadle's house; Radio # Car 2
  - Michael Matthews, Acting Sergeant (Socorro area): Office (505) 838-2117; Radio # Unit 147
  - Ray Aaltonen, Sergeant (Las Cruces): Office (505) 532-2101; Home (505) 522-0115; Radio # Car 1

#### USDA-APHIS Wildlife Services

- Chris Carrillo, District Supervisor – Arizona; Office (602) 870-2081, Fax (602) 870-2951
- Keel Price, District Supervisor – New Mexico; Office (505) 527-6980, Fax (505) 527-6982

#### USDA Forest Service

- Wally Murphy, AMOC Member: Office (505) 842-3195; Fax (505) 842-3152
- Bobbi Barrera, AMOC Alternate: Office (505) 842-3194; Fax (505) 842-3152
- Carl Holguin, Public Affairs Notices: Office (505) 842-3497

#### U.S. Fish and Wildlife Service

- Mexican Wolf Recovery Headquarters: (505) 761-4782 or (505) 346-2525
- Mexican Wolf Recovery Coordinator (John Morgart): Office (505) 761-4748; Fax (505) 346-2542
- Mexican Wolf Assistant Recovery Coordinator (Colleen Buchanan): Office (505) 761-4782; Fax (505) 346-2542
- Law Enforcement:
  - Special Agent in Springerville/Alpine (Jim Ashburner): Office (928) 339-5245; Cellular (480) 225-1615; Pager (928) 601-0965; Radio # GF99
  - Resident Agent in Charge in Mesa, Arizona (Doug McKenna): Office (480) 967-7900; Cellular (480) 225-2282; Pager (888) 556-1277; Radio # GF90
  - Special Agent in Albuquerque, New Mexico (Brian Lakes): Office (505) 346-2715; Cellular (505) 401-0552; Pager (888) 858-7243, x135609
  - Resident Agent in Charge in Albuquerque, New Mexico (Tom Karabanoff): Office (505) 346-7828; Cellular (505) 238-2438; Pager (888) 858-7243

#### White Mountain Apache Tribe Mexican Wolf Program

- Radio Dispatch: (928) 338-1023 or (928) 338-4385 ext. 231
- Wilbert Dale, WMAT WS Officer: Office (928) 338-4385 ext. 231; Pager (928) 367-8407
- Manuel Dazen, USDA WS Officer: Office (928) 338-4385 ext. 231; Pager (928) 367-8671
- Jefferson Cheney, Chief Ranger: Office (928) 338-4385 ext. 230 or (928) 338-1023

#### San Carlos Apache Tribe

- Radio Dispatch: (928) 475-2236
- Recreation and Wildlife Department: (928) 475-2343
- Wildlife Director Harold Nofchissey: Office (928) 475-2343; Fax (928) 475-2701
- Wildlife Biologist Stefanie White: Office (928) 475-4758 Fax (928) 475-2701
- Tribal Attorney Steve Titla: Office (928) 425-8137, Fax (928) 425-9048

#### Other Contacts

##### AMOC

- Chuck Hayes: (505) 476-8102, Fax (505) 476-8128; 1<sup>st</sup> Surrogate Lisa Kirkpatrick: (505) 476-8118, Fax (505) 476-8128
- Colleen Buchanan: Office (505) 761-4782, Fax (505) 346-2542; 1<sup>st</sup> Surrogate John Morgart: Office (505) 761-4748, Fax (505) 346-2542; 2<sup>nd</sup> Surrogate John Oakleaf: Office (928) 339-4249, Home (928) 245-1910, Fax (928) 339-4218
- David L. Bergman: Office (602) 870-2081, Fax (602) 870-2951; 1<sup>st</sup> Surrogate Alex Lara: (505) 346-2640, Fax (505) 346-2627, 2<sup>nd</sup> Surrogate Alan May (505) 346-2640, Fax (505) 346-2627
- John Caid: Office (928) 338-4385 ext. 228, Cell (928) 521-1590; Fax (928) 338-1712; 1<sup>st</sup> Surrogate Cynthia Dale: (928) 338-4385 ext. 233, Fax (928) 338-1712
- Terry B. Johnson: Office (602) 789-3507, Fax (602) 789-3926; 1<sup>st</sup> Surrogate Bill Van Pelt: Office (602) 789-3573, Fax (602) 789-3926; 2<sup>nd</sup> Surrogate Jon Cooley: Office (928) 367-4281 or 367-4342 or 367-4941, Cell (928) 242-3749; Fax (928) 367-1258
- Wally Murphy: Office (505) 842-3195, Fax (505) 842-3152; 1<sup>st</sup> Surrogate Bobbi Barrera, Office (505) 842-3194, Fax (505) 842-3152

#### Lead Agency Directors (or surrogates for Mexican wolf issues)

- AGFD: Duane L. Shroufe: Office (602) 789-3279; Fax (602) 789-3299
- NMDGF: Bruce C. Thompson: Office (505) 476-8008; Fax (505) 476-8124
- USDA-APHIS WS: David L. Bergman: Office (602) 870-2081, Fax (602) 870-2951
- USFS: Harv Forsgren: Office (505) 842-3000; Fax (505) 842-3110
- USFWS: H. Dale Hall; Office (505) 248-6282; Fax (505) 248-6910
- WMAT: John Caid: Office (928) 338-4385, Fax (928) 338-1712

#### DEA

- Field Office for New Mexico: Albuquerque District Office (505) 262-6283
- Field Office for Arizona: Phoenix Division (602) 640-5700

#### Defenders of Wildlife

- Compensation Program (Craig Miller): Office (520) 623-9653

# Blue Range Mexican Wolf Reintroduction Project

## Adaptive Management Oversight Committee

### Standard Operating Procedure

*NOTE: To help achieve the **Purpose** of this SOP, a brief description (parenthetically in italics) is provided after each section heading to describe the intended content of that section.*

**Title:** *(Be concise and descriptive)* Purpose and Content of SOPs

**Number:** *(An original SOP is numbered X.0; successive revisions are numbered X-1, X-2, etc.)*  
1.0

**File Name:** MW SOP 01.Purpose and Content of SOPs.Final.20041217.doc

**Purpose:** *(Briefly describe the purpose/objective of the SOP)* This SOP provides an overview of the intended purpose and content of the suite of SOPs that guide the Reintroduction Project.

Note: Although Reintroduction Project SOPs are developed with cooperation from the White Mountain Apache Tribe and the San Carlos Apache Tribe for the benefit of the overall Project, on tribal lands any Project activities are governed by tribal authorities, laws, rules, policies, etc. and Statements of Relationship between each tribe and the U.S. Fish and Wildlife Service. In other words, for wolf management on tribal lands, these Reintroduction Project SOPs will serve as background for discussions and decisions by the appropriate tribal authorities, and any IFT activities on tribal lands shall be conducted in full compliance with tribal decisions.

**Exceptions:** *(Describe any known exceptions to the SOP, and how and from whom dispensations will be requested and approved)* The purpose of an SOP is to standardize how a particular task, process, or situation is handled, to ensure compliance and consistency while still allowing sufficient flexibility to apply common sense and logic to meet immediate needs. Moreover, some future events or circumstances cannot be foreseen, so exceptions may be necessary. If, however, an SOP warrants foreseeable exceptions, the circumstances must be described in this section, and the approval process and authority must be described. However, if exceptions become the norm, the SOP must be revised. In any case, all exceptions must be appropriately documented (see SOP 2.0, Approval of SOPs).

**Background:** *(Brief background/justification on the significance/importance of the topic).* Standardization is important in any discipline, especially when consistency is needed to ensure compliance with law, policy, etc. SOPs help ensure that actions are conducted safely, under appropriate authority, and that data are collected and analyzed consistently. SOPs also provide for Project and individual accountability. The primary purpose of an SOP is to describe what to do and the order in which to do it, with pertinent background on why it must be done. Specific technical descriptions of how to do something can be included in an SOP, but the primary purpose of an SOP is not to teach someone how to do a particular technical task. An SOP is not a substitute for a training manual.

The USFWS is the lead federal agency for recovery of listed species under the Endangered Species Act. Mexican wolf reintroduction in the Blue Range Recovery Area is part of the Gray

Wolf Southwestern Distinct Population Segment recovery effort. The AGFD, NMDGF, USDA FS, USDA/APHIS WS, WMAT, and USFWS carry out the Reintroduction Project cooperatively, pursuant to permits, Statements of Relationships, and/or cooperative agreements with USFWS, and regulations issued by USFWS and other federal, state, and tribal governments. These SOPs reflect and conform to those higher authorities, and guide Project cooperators and especially the IFT that works on the ground with agencies, landowners, the public, and the wolves.

**Procedures:** (*Step-wise processes to follow regarding the topic of interest.*)

1. Decide the focus of the SOP (a common error is to address too many issues in an SOP, or to try to write an SOP for every issue).
  - What related SOPs already exist? Review them.
  - Unless specifically necessary to do so, do not duplicate an existing SOP – instead, cite the relevant SOP(s) in the appropriate portion of the new SOP’s Procedure.
  - If, while reviewing an existing SOP, you think it needs to be revised to maximize the effectiveness of a new SOP, bring this to the attention of the responsible party (See SOP #2, Approval of SOPs).
  - Weigh the benefits of a comprehensive SOP versus several SOPs that break the topic into smaller, perhaps more manageable parts. The ultimate test to apply is, “Which approach will be easier to understand, and more efficient and effective for the end-user to apply?”
  - Refer back to the Purpose and Background statements often to keep focus.
2. Decide what writing approach is most appropriate to describe the Procedure.
  - A step-down outline is often best, as it describes, to the degree possible, the order in which tasks are completed. A new heading number or letter marks each step (or sub-step). This makes for easier reference within and between SOPs, assists the revision process, and is a more effective way to help the reader understand the procedure.
  - In some situations, a dichotomous key approach is more appropriate. A dichotomous key poses questions on the topic and the reader’s answer directs them to an appropriate section of the SOP or to the next question. This is often useful in SOPs with multiple options for handling a situation. For example, a capture procedure might employ a dichotomous key approach to determine the appropriate type of capture (net gun, dart gun, from helicopter, from ground, trapped, netted in pen, etc.).
  - Sometimes, a combination of a step-down outline and dichotomous key may be useful.
  - It is *ineffective and thus inappropriate* to simply write paragraph after paragraph of narrative. A narrative approach is more difficult to follow, and counter to the purpose of an SOP: to provide concise, clear guidance that is easy to read and easy to apply correctly.

3. Describe the Procedure concisely but with sufficient detail to ensure clear understanding and correct application.
  - This is the “art” of SOP writing: balancing general guidance with specific instructions. Decide the key attributes of the SOP to which people following it must adhere, and which specific tasks may be done in more than one way.
    - For example, this SOP requires that an author of an SOP adopt a specific writing approach (step-wise progression or dichotomous key), but it does not dictate which approach to use. The preference for a step-wise approach is clearly noted, but an option (dichotomous key) is presented. Finally, an approach that is not acceptable (lengthy narrative paragraphs) is also identified.
    - Another example might be that a variety of techniques are available to capture wolves in a pen: using a salmon net, pining or using a snatch pole in a den box or under a tree, or darting a wolf are all options to capture wolves. It is clear to anyone who has captured of wolves in a pen that the situation and the individual wolf will dictate which technique is “best.” Therefore, it would be senseless to write an SOP that required any one technique. Instead, an appropriate SOP would focus on a step-wise list of priorities, based on appropriate questions or criteria. For example, the first question might be, “Does the wolf regularly use its den box?” If so, subduing the wolf in the den box is the best capture technique. In contrast, if the wolf runs a lot, rather than takes refuge in its den box, we might want to ensure that our “human capture line” is tight, and we corner and net the animal.
4. If the Procedure describes a process that involves data collection, or other documentation specific to the SOP, a blank datasheet should be included as an Appendix to the SOP.
  - Make sure the SOP includes clear instructions related to completion and handling of the data form and the data, including:
    - When and where to complete the form -- At the site, back at the office, etc.
    - What to do with the form when completed – copies to make, distribution, filing, etc.
    - Data entry instructions – what database is used and where it is located, data entry conventions, procedures and responsibilities for quality controlling the database (checking for errors), etc.

**Approval:** The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:** None

**Appendixes:** None

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

**Title:** Writing and Approving SOPs

**Number:** 2.0

**File:** MW SOP 02.Writing and Approving SOPs.Final.20041217.doc

**Purpose:** The purpose of this SOP is to establish the process for developing and approving SOPs for the Mexican Wolf Blue Range Reintroduction Project.

**Exceptions:** None existing. AMOC must approve any exceptions to Project SOPs, except SOP 2.0, for which the Directors of the Lead Agencies must approve exceptions.

**Background:** Under a Memorandum of Understanding (MOU) among cooperating agencies (Appendix A), AMOC has been delegated authority to develop and approve SOPs that guide Project cooperators, and especially the IFT that works on the ground with agencies, landowners, the public, and the wolves. In accordance with that MOU, Project SOPs must conform to (a) applicable state, federal, or tribal laws or regulations, and (b) Recovery Guidelines, Protocols, or other directives issued or approved by the Regional Director, Southwest Region, USFWS. Project SOPs are discussed in at least one AMWG public meeting before AMOC approval, to ensure substantive opportunities for public comment.

AMOC bears the primary burden of communication with regard to development, approval, and awareness of Project SOPs. AMOC shall collectively and individually ensure that Lead Agency Directors, the IFT, AMWG Cooperators, and the public are appropriately afforded opportunities to participate in developing and/or commenting on SOPs.

AMOC shall also ensure that copies of SOPs and any supporting documents are available as necessary to ensure that they serve the intended purpose of guiding employees working in or cooperating with the Project and informing the public about the guidelines under which the Project operates.

## **Procedures:**

1. Drafting or revising an SOP:
  - a. Drafting a new SOP or revising an existing SOP may be initiated by the IFT, or by AMOC request in response to comment from within or outside the Project, including but not limited to the IFT (collectively or an individual member), AMOC (collectively, an individual member, or a Lead Agency Director), AMWG Cooperator, or member of the public.
  - b. The three IFT Leaders (AGFD, NMDGF, and WMAT), in collaboration with the Field Projects Coordinator, jointly designate a Lead Author, typically an IFT member, to gather relevant information and develop a new or revise an existing SOP.

2. IFT review:
  - a. The Lead Author requests comment from the other IFT members; revises the SOP as appropriate; and integrates comment from other IFT members. Discussion within the IFT should occur to ensure that differences of opinion are resolved amicably, to the maximum extent possible.
  - b. The IFT communication liaison to AMOC (i.e. the Field Projects Coordinator) conveys the draft SOP, and information on any dissenting opinions within the IFT, to AMOC.
3. AMOC review:
  - a. Initial review -- each member of AMOC acting independently of the others:
    - i. Reviews the draft SOP;
    - ii. Vets the draft SOP within their agency to ensure appropriate concurrence; and
    - iii. Sends comment and requests for clarifications to the IFT (via the Field Projects Coordinator; with a cc: to the other Lead Agency representatives) to convey to the Lead Author, who revises the document as appropriate, in consultation with the IFT.
    - iv. When the IFT has concluded its revision, the Field Projects Coordinator conveys the draft SOP, and information on any dissenting opinion within the IFT, to AMOC.
  - b. Second review – AMOC acting in unison:
    - i. AMOC discusses the final draft SOP in an AMOC meeting;
    - ii. AMOC, after sufficient agreement is reached, discusses the final draft SOP in an AMWG public meeting;
    - iii. AMOC, if necessary after AMWG discussion, submits direction for changes through the Field Projects Coordinator to the Lead Author, who makes the appropriate changes in collaboration with the IFT Leaders before the Field Projects Coordinator returns the final draft SOP to AMOC for approval;
    - iv. AMOC, if AMWG discussion results in no changes, schedules consideration of approval of the final draft SOP as written.
4. Approval:
  - a. AMOC approves SOPs by:
    - i. Vote in an AMOC meeting;
    - ii. Conference call; or
    - iii. Email.
  - b. Only Lead Agencies vote, but concurrence by Cooperators will be sought before voting.
5. Dissemination:
  - a. After AMOC has approved an SOP, the AMOC Chair distributes it to the Lead Agencies, Cooperators, and IFT.
6. Lead Agency non-concurrence: As stated in the MOU among the Cooperators, “Conflicts between or among the Signatories concerning this Agreement that cannot be resolved at the lowest possible level shall be referred to the next higher level, et seq., as necessary, for resolution.”

**Approvals:**

The Directors of the six Lead Agencies participating in the Blue Range Mexican Wolf Reintroduction Project, under auspices of a Memorandum of Understanding among the Lead Agencies and with other agency Cooperators, approved this SOP on December 17, 2004.

**References:** None

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

**Title:** Outreach

**Number:** 3.0

**File Name:** MW SOP 03.Outreach.Final.20041217.doc

**Purpose:** This SOP affirms the Project's commitment to effective outreach, identifies various outreach mechanisms, and standardizes certain outreach activities to help ensure timely, accurate, and effective two-way communication between cooperating agencies and the public. It 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:** The Project is fully committed to comprehensive, effective outreach to ensure that cooperators and the public are aware of issues and activities of concern to them. Examples of target audiences include local residents and recreationists in the Arizona-New Mexico reintroduction area, cooperating agencies, and the general public (local, regional, and national).

News releases, self-subscription electronic update services, website postings, media interviews, and a host of other information dissemination methods are used to communicate with target audience(s). Presentations to and interactions with specific organizations, individuals, etc. are also used to reach the public and cooperators. The latter kinds of presentations are the primary focus of this SOP, but both areas of outreach are addressed in Project documents that supplement this SOP, including the AMOC and IFT "roles and functions" summary, guidelines for developing and issuing news releases (see Appendix A-1), monthly Project Updates (see SOP 4.0), and the Mexican Wolf Outreach Plan (see below) component of the IFT's Annual Work Plan, which is reviewed and revised annually.

These elements of the Project's overall outreach program provide guidance on what needs to be communicated, and how it can be or should be communicated. Nevertheless, it is crucial for AMOC, the IFT, and AMWG Cooperators to realize that the goal is effective, efficient communication, but the circumstances and timeframes under which communication must occur vary widely. Some situations may not be foreseeable. Thus, common sense and initiative must be applied liberally as necessary to complement guidelines and plans to ensure that the desired communication occurs as quickly and as accurately as appropriate to the circumstances at hand.

The Mexican Wolf Outreach Plan recommends that various activities be implemented to facilitate accurate, interesting, and effective communication about the reintroduction project to the interested public (1998 Mexican Wolf Interagency Management Plan). In accordance with this Plan, the Project regularly conducts outreach activities such as: quarterly public adaptive management meetings; special meetings to discuss initial releases and translocations; presentations to schools, conferences, and hunter education classes; information booths at fairs

and other outdoor “expos;” and one-on-one discussions with forest visitors (hunters, anglers, campers, guides/outfitters, and other recreationists). This procedure details specific outreach methods that will not disturb wolves. *Note:* Before engaging in an interpretive discussion, lecture or presentation, Project personnel must be thoroughly knowledgeable about the Project by reading the Project Reader (available at the Alpine Field Office) and reviewing the General Presentation (Appendix A-2).

### **Procedures:**

1. Acceptable outreach activities (it is essential that Project personnel, during outreach activities, adhere to the facts and refrain from injecting personal comments):
  - a. One-on-one discussions with ranchers, hunters, anglers, other recreationists, and forest visitors.
  - b. Interpretive discussions.
  - c. Lectures/Presentations. *Note:* Before engaging in an interpretive discussion, lecture or presentation, Project personnel must be thoroughly knowledgeable about the Project by reading the Project Reader and reviewing the IFT General Presentation.
  - d. Field activities in developed campgrounds or in other areas.
  - e. Radio-tracking wolves identifying no more than two bearings so the wolf’s actual location is not identified.
    - i. Hypothetical triangulations can demonstrate ground-tracking techniques.
  - f. Passively listening for wolves to howl, but not close enough to disturb known wolves.
    - i. Howling in a developed campground or building, or in accordance with SOP 16.0: Howling.
  - g. Using remains of an ungulate carcass after wolves have ceased using it to demonstrate how to age an ungulate, assess condition of the carcass at time of death, and what to look for in a necropsy to determine cause of death.
  - h. Making plaster tracks of wolf prints.
  - i. Collecting wolf scat (with appropriate handling precautions).
  - j. During an outreach field activity, photographing, videotaping, or otherwise recording free-ranging wolves.
  - k. Demonstrating radio-tracking techniques with a radio-collar, if no radio-collared wolves are nearby.
2. Prohibited outreach activities:
  - a. Radio-tracking wolves with more than two bearings, potentially revealing the actual location of the wolf.
  - b. Homing in on a collared wolf by walking towards the strongest signal.
  - c. Knowingly visiting wolf kill sites still in use, areas near wolf dens, or areas near active rendezvous sites.
  - d. Purposely pursuing or trying to attract wolves.
  - e. Conducting activities near a supplementary food cache, near active trap lines, or in the proximity of other management operations.

3. Other activities not covered above that have any potential for wolf disturbance need to be approved by the IFT before they can be implemented. If the IFT cannot reach agreement regarding a specific activity, it will be forwarded to AMOC for a decision.
4. During interpretive activities to a group it should be explained that:
  - a. The activities have been designed to minimize disturbance to the reintroduced wolves, even though most wolves are relatively tolerant of low levels of disturbance.
  - b. The activities conducted here have been proven not to cause undue disturbance to wolves in other areas of their range.
  - c. The first priority is to do everything possible to encourage wolf recovery, with outreach activities conducted in a manner that will not jeopardize recovery.
5. Available outreach programs (see Appendix B for recommended equipment):
  - a. Schools and nonprofit organizations.
  - b. Information stations at campgrounds (setting up an information booth at established campgrounds within the Recovery Area).
  - c. Informal campground visits and hunter contacts.
  - d. Hunter education classes.
  - e. Booths (fairs and festivals).
  - f. Local resorts and ranches.
  - g. Field days (field personnel being accompanied by other persons for outreach purposes).
  - h. Professional and public meetings (including in association with or in support of AMOC or AMWG meetings).
6. When a request for an outreach activity is received, Project personnel will complete an Outreach Contact Form (Appendix C) and return it to the Alpine IFT Outreach Staff.
  - a. Distribute, when appropriate (i.e. classroom teachers), the Presentation Evaluation Letter (Appendix D) prior to the outreach program.
  - b. After each outreach program, AGFD employees must fill out an Affirmative Action Plan Outreach Activity Report form (Appendix E).
    - i. Fax the completed form to the Information and Education Program Manager at the AGFD Pinetop Regional Office.
    - ii. File the original form under “Completed Activity Reports” in the black binder in the Alpine Field Office.
7. All outreach activities will be recorded on the Outreach Summary Form (Appendix E) by Outreach Staff to track various statistics of outreach effort that will be summarized in the annual report and monthly updates (SOP 4.0: Monthly Project Updates).

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

### **References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Category (Level)	Behavior / Incident	Info Release Time Goal	Response Needed from Partners Within	Release to Whom
<b>1. An immediate threat or potential safety to public property</b>	<ul style="list-style-type: none"> <li>• Wolf acts in a confirmed aggressive or abnormal manner toward people</li> <li>• Aggressive action toward livestock or domestic animal, or pet killed</li> </ul>	Immediate upon confirmation the situation could be classified as an emergency	None required. Handle as emergency. Response/review from partners not needed. After emergency action has been completed, consider optional release under Category 2 and/or others below.	Category 1 uses Public Information Officers to help disseminate information to all persons who are affected, or who need to know for other management purposes. Include local and landowner contacts <b>if</b> not already done by IFT. Example: contact radio stations to notify public of a wolf present in an urban area.
<b>2. High-interest incident</b>	<ul style="list-style-type: none"> <li>• Dead wolf, on case-by-case basis. This does not include all mortalities (i.e. might not include a natural mortality), just those with unique circumstances or substantial Project impact. USFWS LE determines whether to release info in suspicious cases. In non-suspicious cases, put out info via monthly Project Update or special release.</li> <li>• IFT management of wolves 25+ miles outside of recovery zone or proximity to urban center</li> </ul>	24 hours from confirmation of report of incident	4-8 working hours	All affected stakeholders, local and landowner contacts, and all media.
<b>3. Incident or issue of interest to media or public</b>	<ul style="list-style-type: none"> <li>• Upcoming management actions</li> <li>• Pups born (significant or interesting circumstances surrounding birth)</li> <li>• Significant or interesting event related to Project</li> </ul>	48 hours from time of decision, action, or event	8 working hours	All affected stakeholders, local and landowner contacts, and all media.
<b>4. Need to correct inaccurate public information</b>	Erroneous media or other mass-distributed information about Category 1, 2, or 3 events	48 hours from discovery of inaccuracy	8 working hours, but because information has already been disseminated once, accuracy will have more emphasis than expediency in these cases.	Consult with partners and determine response on a case-by-case basis.

Notes: 1. Matrix purpose is to release information on the Mexican Wolf Reintroduction Project to stakeholders and potentially affected citizens in a timely manner.  
 2. Category 1 actions are considered emergencies, as determined by the lead entity (based on observations of the reporting party and assessment of IFT or others with experience in wolf behavior), and may be sent out without cooperator review in the interest of public safety. Category 1 releases would be then sent to cooperators after the emergency situation, to be handled as information fitting the appropriate category (e.g. Category 2 if a high-interest incident)

## **Guidelines for *developing* media releases regarding Mexican wolves:**

1. When appropriate, the lead management entity for a particular action will develop a news release, using the information in the attached matrix (e.g. if the cooperators chose to release information regarding the five-year review, USFWS would develop and circulate the draft release).
2. Draft media releases will be e-mailed to representatives of the participating entities. Draft news releases will be circulated for dual purposes. One is for review of the accuracy of technical information. The second is for awareness of other entities' public information personnel, to begin thinking about whether it is also appropriate for the individual entities to distribute this information via their internal processes. Therefore, an extensive list of contacts will receive draft media releases, as indicated below:

### **U.S. Fish and Wildlife Service:**

Elizabeth Slown: Elizabeth\_Slown@fws.gov  
Victoria Fox: Victoria\_Fox@fws.gov  
Colleen Buchanan: Colleen\_Buchanan@fws.gov  
John Oakleaf: John\_Oakleaf@fws.gov

### **Arizona Game and Fish Department:**

Bruce Sitko: bsitko@azgfd.gov  
Bob Miles: bmiles@azgfd.gov  
Rory Aikens: raikens@azgfd.gov  
Debbie Freeman: dfreeman@azgfd.gov  
Dan Groebner: dgroebner@azgfd.gov  
Shawn Farry: Howl@whitemtns.com

### **White Mountain Apache Tribe:**

Chadeen Palmer: Cpalmer@wmat.nsn.us  
Krista Beazley: Kbeazley@wmat.nsn.us  
Cynthia Dale: Cdale@wmat.nsn.us

### **San Carlos Apache Tribe:**

Harold Nofchissey:  
haroldnofchissey@yahoo.com  
Steve Titla: steve.titla@azbar.org

### **New Mexico Department of Game and Fish:**

Marty Frentzel: Mfrentzel@state.nm.us  
Marti Niman: Mniman@state.nm.us  
Nick Smith: nsmith@state.nm.us  
Chuck Hayes: CLHayes@state.nm.us  
Lisa Kirkpatrick: LKirkpatrick@state.nm.us

### **U.S.D.A.-APHIS Wildlife Services:**

David Bergman: David.L.Bergman@usda.gov  
Larry Hawkins: Lawrence.E.Hawkins@usda.gov

### **U.S.D.A. Forest Service:**

Carl Holguin: Cholguin@fs.fed.us  
Wally Murphy: Wmurphy@fs.fed.us  
Andrea Martinez: Andrea\_Martinez@fs.fed.us  
Bob Dyson: rdyson@fs.fed.us  
Eric Neitzel: eneitzel@fs.fed.us  
Frank Hayes: fhayes@fs.fed.us  
John MacIvor: jmacivor@fs.fed.us  
Phil Settles: psettles@fs.fed.us

### **New Mexico Department of Agriculture:**

Bud Starnes: bstarnes@nmda.nmsu.edu  
Doug Rains: drains@nmda.nmsu.edu

### **County and Other Representatives:**

Cochise-Les Thompson: lthompson@co.cochise.az.us  
Catron-Linda Cooke: ccommiss3@gilanet.com  
Sierra-Adam Polley: adam@riolink.com  
Greenlee-Hector Ruedas: kgale@co.greenlee.az.us  
Graham-Mark Herrington:  
mherrington@graham.az.gov  
Navajo-J.R. DeSpain: ncbos@co.navajo.az.us  
SWCRA-Alex Thal: thala@silver.wmu.edu

3. The lead entity will give deadlines to the cooperators for review of the draft media releases as described within the attached matrix. Lack of response to the draft releases will be interpreted as no comments or changes being suggested by any entities that do not respond.
4. No more than one person per entity will provide a (consolidated) response from that entity.
5. The lead entity for the media release will finalize it based on comments received, and will send a copy of the completed media release to the contact list above.
6. Public information officers from each cooperating entity will determine whether the news release is appropriate for dissemination by their organization, also. If so, public information officers will do any internally required reformatting etc. If the internal processes do not modify the primary content or intent of the media releases, no additional interagency review is required.

## **Guidelines for *responding* to information requests from reporters or other media:**

1. Questions from reporters will likely come initially to public information officers, but a reporter might contact almost anyone for initial information or to cross-check information. Thus, all individuals listed below should be prepared to receive media calls.
2. Do not automatically transfer a media call because it is “someone else’s business.” If a reporter begins asking questions regarding the Mexican Wolf Reintroduction Project, whoever is handling the call should try to answer all the questions they believe they can accurately address. All personnel should be on the list serve established for the Project by the Arizona Game and Fish Department to facilitate dissemination of information that may be of interest to the media.
3. Participating entities should provide information that is as accurate and complete as possible, but without jeopardizing the fate of Mexican wolves or disseminating information that is considered sensitive to a land owner or land manager. Participating entities will not release information containing exact locations (if known) of Mexican wolves. If locational information must be included, this information should be specific enough to inform those parties most likely to be interested or affected. However, locational information may not be so specific as to identify individual parcels of private land, individual grazing pastures on public lands, etc. Responses to reported sightings of wolves may include information sufficient to determine whether the reported sightings are or are not within normal (i.e. routine, non-dispersal) movement distances of wolf packs or individual wolves currently being monitored.
4. If a reporter begins asking questions that the person handling the call feels unable to answer accurately, the reporter should be given a recommended contact phone number. Before making a referral, determine whether the reporter is seeking field/biological/technical information, or information regarding Mexican wolf management/policy decisions. Based on the reporter’s response, make a referral to the appropriate field or management contact listed below.

### **Field information contacts:**

- 1<sup>st</sup> choice, wolves anywhere except White Mountain Apache tribal lands: Alpine Field Office 928-339-4329
- 1<sup>st</sup> choice, wolves on White Mountain Apache tribal lands: Krista Beazley, 928-338-4385x226
- 2<sup>nd</sup> choice, wolves in Arizona only: AGFD Pinetop office, 928-367-4281 (ask for person who works on wolves)
- 2<sup>nd</sup> choice, wolves in New Mexico only: Nick Smith, 505-773-4845
- 2<sup>nd</sup> choice, wolves on White Mountain only: Cynthia Dale, 928-338-4385x233
- 2<sup>nd</sup> choice, wolves anywhere else: USFWS Ecological Services, ABQ (Colleen Buchanan) 505-761-4782
- 3<sup>rd</sup> choice, wolves on White Mountain only: WMAT Dispatcher, 928-338-1023 (ask for wolf person)
- 3<sup>rd</sup> choice, wolves in Arizona only: AGFD Pinetop Office, 928-367-4281 (ask for best person available)
- 3<sup>rd</sup> choice, wolves in New Mexico only: NMDGF Conservation Services, 505-476-8101
- 3<sup>rd</sup> choice, wolves anywhere else: USFWS Ecological Services, ABQ (Maggie Dwire) 505-761-4783

### **Reporter calls regarding management decisions made by the respective participating Lead Agency should be directed to that Lead Agency’s AMOC representative or their alternate. These persons are:**

- Arizona Game and Fish Department—Terry Johnson (602-789-3507) and Bill Van Pelt (602-789-3573)
- New Mexico Department of Game and Fish—Chuck Hayes (505-476-8102) and Lisa Kirkpatrick (505-476-8118)
- U.S.D.A.-APHIS Wildlife Services—David Bergman (602-870-2081), Alex Lara (505) 346-2640, and Alan May (505) 346-2640
- U.S.D.A. Forest Service—Wally Murphy (505-842-3195)
- U.S. Fish and Wildlife Service—Colleen Buchanan (505-761-4782) and John Morgart (505-761-4748)
- White Mountain Apache Tribe—John Caid (928-338-4385x228) and Cynthia Dale (928-338-4385x233)

## Appendix A-2.

### GENERAL IFT PRESENTATION

#### Materials:

- Wolf and coyote pelts and skulls (in wolf box)
- Receiver, H-antennae, collar, white board, markers, topo maps
- Handouts (forest visitor info, etc.) in clear box
- Track Comparisons and Comparison Chart in clear box
- Posters (if have), rubber bands
- Skull anatomy diagram – carnivore and herbivore
- Small folding table (behind DS office door)—if one not available
- Rubber tracks (in wolf box)
- Rubber scats (in wolf box)
- Large photos of wolves and coyotes (in wolf box or clear box)
- PowerPoint Presentation / Laptop / Projector / Screen
- Or slides in blue carousel and slide projector in equipment closet

#### Objectives:

- To understand why wolves were eradicated and why we are bringing them back
- To have an understanding for wolves role in the environment

#### Time Frame:

Approx. 30-40min. – Last 10 min for Q/A

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## I. BACKGROUND

- (Slide 1—“A Call for the Wild”) Introduce yourself, background, etc. (if middle to high school students, stress college education).
- (Slide 2—cattle) In the 1800s, cattle ranching became big business in the SW. In addition, hunting was not yet regulated, causing some native prey populations to plummet (this included eventual extinction of the native Merriam’s elk).
- (Slide 3—trappers/pelts) The combination of these two factors caused many wolves to prey on readily available livestock, which led to intensive efforts by government agents and private trappers to eradicate wolves in the US.
- By 1970, Mexican wolves had been effectively eliminated from the wild; there have been no confirmed reports in MX since 1980 (Carrera 1994).
- (Slide 4—historic distribution of MX wolves) Before their near extinction, as many as 4000 MX gray wolves inhabited southeastern AZ, southern NM, southwestern TX, and northern and central MZ (south to Mexico City) in forests and grasslands above 4500 ft (Brown 1983).

## II. RECOVERY EFFORTS

- (Slide 5—“Endangered”) 1976 (April)—MX wolf listed as an endangered subspecies under the ESA (six years after the last known MX wolf was killed)
- Between 1977 and 1980—Trapper Roy McBride caught five wolves (4 males and 1 pregnant female) in Durango and Chihuahua, MX. This led to the 1<sup>st</sup> certified captive lineage (McBride lineage), from three of the five wolves (1 pregnant F and 2 M—the other 2 males were related to one of the males, i.e. duplicate genetic material).
- (Slide 6—RP) 1982—Recovery Plan (explain what is) approved by USFWS.
- 1990 (seven yrs later)—Several environmental organizations filed suit against the Departments of Interior and Defense—claiming failure to implement the MX Wolf Recovery Plan—settlement resulted in an EIS for Mexican wolf reintroduction.

- 1994—Establishment of MX Wolf Species Survival Plan (SSP), which helps manages the captive breeding program.
- 1995—two additional lineages (from four wolves that had been in zoos since the 1960s) were certified for inclusion—bringing the total founders to seven wolves (3 from McBride; 2 from Ghost Ranch; and 2 from Aragon – names are from facilities where originally from—one 1 MX and other in US).
- (Slide 7—wolf in pen, 8—media, 9—511 release) 1998 (April), 22 yrs after being listed—the first 11 MX wolves were released from holding pens into the Apache-Sitgreaves National Forest in Arizona.

### III. ADMINISTRATIVE COOPERATION

Partnership among six federal, state, and tribal agencies (alpha order):

- Arizona Game and Fish Department
- New Mexico Department of Game and Fish
- U.S. Fish and Wildlife Service
- U.S. Forest Service
- U.S.D.A. APHIS-Wildlife Services
- White Mountain Apache Tribe

### IV. CURRENT STATUS

#### 1. Captive Breeding Program:

- (Slide 10—ASDM; and 11—PHX Zoo) From the original seven MX wolves, there are now about 200 in more than 40 zoos and breeding facilities in the US and MX that participate in captive breeding (30 facilities in US and 13 in MX).
- Wolves slated for release are brought to or born at these pre-release facilities; human contact is minimized; and they are provided a diet of dead (usually road killed) elk and deer supplemented with carnivore logs and dry dog food.
- (Slide 12—Sevilleta) Three pre-release facilities—Sevilleta NWR (nine pens) and (Slide 13—LR) Ted Turner’s Ladder Ranch (7 pens) in NM, and Wolf Haven International in WA.

#### 2. Wild Population (as of 04/04):

- Currently 19 wolves radio-collared wolves in 9 packs, 3 groups, and 4 single wolves
- 74 wolves have been released since Project began in 1998 (as of March 2003)
- (Slide 14—elk) Are wild wolves killing natural prey? YES! Elk represents approx. 75% of their diet.
- (Slides 15 and 16—wild pups) Are wolves reproducing in the wild? YES! 2000—1<sup>st</sup> documented wild-conceived pups; 2002—documented first 2<sup>nd</sup> generation wild born litter.
- Are wolves pairing on their own? YES!
  - M619 (Cienega) joined with Hawk’s Nest F486 (her original mate died)
  - M639 (Bluestem) and F644 (Francisco) formed the Cerro Pack

## V. GOAL

- “To conserve and ensure the survival of *C. l. baileyi* by maintaining a captive breeding program and re-establishing a viable, self-sustaining population of at least 100 Mexican wolves within the middle to high elevations of a 7,000 square mile area within the Mexican wolves historic range” (in the Apache and Gila National Forests).
- \*\* Reintroduced wolves are classified as **nonessential experimental under Section 10(j) of the ESA**, which allows more management flexibility when they cause problems for local people, but still enforces protection that will promote recovery. In addition, a provision that allows landowners to kill wolves caught attacking livestock on private property. The MX Wolf Reintroduction Project follows an adaptive management approach (learn as we go—modify, change).

## VI. RECOVERY AREA

- (Slide 17—recovery area) **Blue Range Wolf Recovery Area (BRWRA) = 4.4 million acres** (Apache-Sitgreaves National Forest in Arizona and the Gila National Forest in New Mexico).
- **White Mountain Apache Reservation (WMAR) = 1.6 million acres** in Arizona.
- = **6 million acres available to wolves** (2.7 times larger than Yellowstone National Park).
- \*\* Recovery area for MX wolves currently limited to within the BRWRA and WMAR. Wolves that disperse out of the recovery area and establish territories are recaptured and re-released or sent back into captivity, unless this occurs on private or tribal lands and the landowner approves.
- The recovery area contains four encompassing divisions: (a) the Primary Recovery Area (in which wolves are released), (b) the Secondary Recovery Area (where wolves can disperse to), the Mexican Wolf Experimental Population Area (if wolves are found here outside (a) or (b)), they will be returned to the Primary Recovery Area or a captive facility), and the White Mountain Apache Reservation (where wolves can disperse to as per a Five Year Agreement). Different management techniques and restrictions apply in each of the four areas.

## VII. CHALLENGES TO PROGRAM (6)

1. (Slide 18—cow, 19 dead cow) Prevalence of livestock—significant issue and also have to re-wild captive wolves (in captivity for several generations)—learning curve to becoming wild.
2. (Slide 20—opposition) Local opposition (hunters/ranchers).
3. (Slide 21—landscape) Large wilderness area with limited access. Access difficult for capture, supplemental feeding, pen construction, and releases.
4. Small founder population – no evidence of inbreeding depression has been detected so far (Hedrick 1995, Kalinowski et al. 1999).
5. Release of captive-raised wolves—no choice, seven founder wolves and no more wild wolves known in Mexico. Makes program more costly.
6. Recovery area limitation—recovery currently limited to within the BRWRA and WMAT.

**VIII. WHY REINTRODUCE THE MEXICAN GRAY WOLF?** (After \$\$\$ and effort to eradicate??)

**(\*\*Ask for audience participation)**

Four reasons:

1. Mandated by ESA (which requires recovery of endangered species).
2. (Slide 22—pro wolf) For people (public support).
3. (Slide 23—deer) For the environment (as top predator to keep prey populations in check)
  - The wolf is considered a keystone species, which means other plants and animals depend on it.
  - Has different effect on ecosystem than coyotes (scavengers) and mountain lions (ambush predator)—wolves tend to take the weak, or young (culling effect keeping ungulate populations healthy).
4. (Slide 24—pretty wolves) For the wolf itself (intrinsic value—right to exist).

## **I. THE MEXICAN GRAY WOLF**

- The Mexican gray wolf (*Canis lupus baileyi*) is the rarest, most genetically distinct subspecies of the North American gray wolf.
- Has the highest priority of gray wolf recovery throughout the world.
- **Currently, it occupies less than 1% of its former range.**

## **II. DESCRIPTION (show photos)**

- Females weigh 50-65 pounds and males as much as 85 pounds (vs. gray wolves weigh 70-115lbs) (Brown 1983, McBride 1980, Leopold 1959).
- Approx. 5.5 feet long – nose to tail (about the size of an adult German shepherd)
- Richly colored coat of buff, gray, rust, and black (**SHOW PELT**)
- Ears rounded, relatively short, never hang down
- Long legged with large feet, narrow keeled chest, broad muzzle
- Holds tail straight when running, never curled
- Most active at night but may be active any time.

## **III. SOCIAL STRUCTURE (show behavior photos)**

- Complex social behaviors. Lives in family groups called "packs," the structure of which is maintained by communication through vocalizations, body postures, and scent marking.
- Average pack size about five individuals, including the breeding pair (McBride 1980).
- Wolves become sexually mature at 2 years of age.
- An adult "alpha" (or breeding) pair, usually the parents of other pack members, breed around February and 63 days later, produces a litter of about five pups in April or May. Normally, only the alpha pair breeds, but the other pack members often assist in raising the young.
- At about 6-10 weeks, the pups and the pack move to the first rendezvous site (about 1-6 miles from the den) with each subsequent site 1-4 miles from the previous one.
- Territories are approximately 200 mi<sup>2</sup> (but this varies with pack size and prey base availability) (Bednarz, 1988).

## **IV. HABITAT**

- Primarily found above 4500 ft, in or near woodlands of pine, oak, or pinyon-juniper interspersed with grasslands (Brown 1983).

## **V. HOME RANGE**

- Most packs use about 150-200 square miles.
- Most packs consist of 3-6 wolves.
- Large migrations between summer and winter ranges have not been seen, although packs along the Mogollon Rim use areas of high elk density just below the Rim in the winter.

## VI. DIET

- Opportunistic—will scavenge when carrion is available
- Tend to take the weak, old, or young prey, as this is usually what they are able to kill
- Predators of large hoofed mammals:
  - 75% of scat collected analyzed contained elk;
  - 11% contained small mammals and unknown;
  - 10% contained deer; and
  - 4% contained livestock.
- Cooperatively hunt to bring down prey animals usually much larger than themselves—adult elk can weigh 600-800 lbs. (**show elk series photos**)
- \*\* **Predator success rate**. A basic theory of predator ecology is that the killing rate of a predator is a product of three factors:
  1. Rate of prey encounter
  2. Rate of prey detection (as prey animals have evolved and adapted their own predator-avoidance behavior)
  3. The probability of successful capture once a prey is detected (mention prey defense mechanisms)

= **Predators fail more than 90% of the time at taking prey!**

## VII. CATTLE DEPREDAATION

- Although small in comparison to all available livestock present, depredation is measurable and usually focused on 1 or 2 allotments.
- If a depredation is found, the rancher can be reimbursed by Defenders of Wildlife (Defenders).
- Compensation programs for depredations not found are being discussed.
- To date, Defenders has paid approximately \$23,000 to ranchers throughout AZ and NM.

## VIII. WOLF MORTALITIES

- 12 wolves have been shot.
- 4 wolves have been hit by vehicles.
- 1 wolf each died from snakebite, lion, infection and capture complications.

## IX. FOR HUNTERS: WOLVES (VS. DOGS and COYOTES) – *give out handouts, pull out pelts and skulls, and tracks of coyote, wolf, mountain lion, photos*

- One breeding season / year (dogs have 2)
- White tufts of hair below ears
- Different gait due to dimensions of chest cavity and placement of legs
- Gland on tail (as do dogs)
- Different tracks – use **TRACKS** to point out differences
- Show **PHOTOS** pointing out differences

## MISCELLANEOUS

### I. THIRD WOLF REINTRODUCTION IN THE US:

1. 1987 Red wolf, NC
2. 1995 Gray wolf, Yellowstone (MT) and Idaho
3. 1998 MX wolf, AZ

\*\* “For the Mexican wolf reintroduction to be successful, there must be public acceptance. Some people perceive wolves as a threat to them or their livelihood—reintroduction of the Mexican is unlikely to pose any threat to people, but, like other predators, wolves do sometimes kill livestock.

### II. WHAT WE DO:

- Daily locations—ground/air
- Scat collection
- Kill investigations of native ungulates
- Hazing and behavior modification through “aversive conditioning”
- Release of wolves into the wild (discuss hard vs. soft release; initial release vs. translocation)
- Supplemental food
- Capture and transport
- Process road kill to feed to wolves (i.e. just released)
- Depredation investigations of livestock (Wildlife Services, NGO Defenders’ role)
- Public outreach – talk to hunters, post bi-weekly updates in local public areas and emailed to more than 150 people, school presentations

### III. MISCELLANEOUS

- Cost of collar, life of battery, weight.
- Cost of receiver \$800, H-antenna and range.
- Program costs—\$800,000/year.
- Bergman’s Rule—body mass increases as increase latitude.
- Two species of gray wolf native to North America: timber and tundra. Found everywhere but arid deserts and rainforests.
- Defenders of Wildlife (established Wolf Compensation Trust in 1987 to compensate cattle losses due to wolf depredation): amount paid out about \$95,000 (\$85k in 2001); Fair Market Value (calf as full grown).
- Wolves prefer wild prey.
- Number of depredations and discuss the process for depredation compensation (Wildlife Services/Defenders).
- Of the 21 reports of human injuries by presumably healthy wild wolves in the 20<sup>th</sup> century in North America (but no reliable reports of deaths): 3 occurred during agonistic encounters between a dog and wolf; 18 from habituated wolves. \*\*Stress, feeding, and close contact with wildlife may result in human injuries and death of the animal.
- Breeding pairs and release candidates are selected each year at the MX SSP Annual Meeting.

- Average wolf requires 0.1 lb of food per pound of wolf/day – average MX wolf weighs about 60 lbs and therefore requires 6 lbs of food per day (Mech 1977). Can also fast for up to 2 weeks.
- Coyote populations will decrease as wolf populations increase.
- Wolves are vaccinated for rabies, parvovirus, distemper, hepatitis, and leptospirosis while in captivity, and immediately before release—vaccines also given to wild wolves caught during trapping season.
- Captive wolves are selected for release based on genetics, reproductive performance, behavioral compatibility, response to the adaptation process, and other factors.
- MX wolves are genetically pure and show no signs of inbreeding depression.
- Soft release used to reduce the likelihood of quick dispersal away from the release area. Involves holding the animals in pens at the release site for several weeks to a few months, in order to acclimate them and to increase their affinity for the area.
- Causes of death: 16 have been shot, 5 hit by cars, 3 died of parvo, 1 killed by mountain lion, 1 killed by snakebite, 1 died from an infection, 1 died from helicopter capture complications, 1 died from a brain tumor, and 6 have died of unknown causes.

#### IV. TOUGH QUESTIONS

- Issues of hybridization
- WHY?
- Others?
- Amount of elk taken / competition w/ hunters, change in number of permits
- Predators of wolves: bears have been known to kill wolves (Rogers and Mech 1981)
- Effects on other endangered or threatened species? Wildlife of Special Concern in Arizona: Water Shrew and Jumping Mouse – not likely to result in impact
- What if get too many wolves—is this possible (not really – predator/prey cycle, carrying capacity). Habitat will limit population carrying capacity, management actions of wolf control, intraspecific competition, and translocation

#### REFERENCES:

- Bednarz, J.C. 1988. The Mexican wolf: biology, history, and prospects for reestablishment in New Mexico. USFWS Endangered Species Report No. 18, USFWS. Albuquerque, New Mexico.
- Brown, D.E. 1983. The wolf in the southwest. University of Arizona Press, Tucson, Arizona. 195 pp.
- Carrera, J. 1994. Mexican wolf recovery program. Annual Report. PROFAUNA, A.C. Saltillo, California.
- Hedrick, P. 1995. Genetic evaluation of the three captive Mexican wolf lineages and consequent recommendations. Unpublished Report of Mexican Wolf Recovery Team Genetics Committee to U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 23 pp.

Kalinowski, S.T., P.W. Hedrick, and P.S. Miller. 1999. No inbreeding depression observed in Mexican and red wolf captive breeding programs. *Conservation Biology*. Vol. 13, No.6:1371-1377.

Leopold, A.S. 1959. *Wildlife of Mexico: The game birds and mammals*. Univ. of California Press, Berkeley, California.

McBride, R.T. 1980. *The Mexican wolf (Canis lupus baileyi): A historical review and observation on its status and distribution*. Endangered Species Report 8, U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 38 pp.

## Appendix B.

### Equipment List for Mexican Wolf Presentations

1. Schools and Nonprofit Organizations
  - a. Script presentation (K-3 or General)—in Wolf Box
  - b. Coloring pages and crayons—in Wolf Box
  - c. Slide carousel—in equipment closet
  - d. Slide projector and screen—in equipment closet
  - e. Wolf Box—in Field Office
  - f. Laptop, projector, and screen for PowerPoint presentations
2. Information Stations at Campgrounds.
  - a. Fact Sheets—master copies in file cabinet, copy as needed
  - b. Recovery pamphlets
  - c. Telemetry equipment
  - d. 8 x 10 wolf and coyote photographs
  - e. Portable canopy—in equipment shed
  - f. Roll-top table—in equipment shed
  - g. Coloring pages and crayons
  - h. Portable CD player and CD (in Wolf Box) of wolf howling
3. Informal Campground Visits—conducted on a regular basis by all IFT personnel
  - a. Fact Sheets
  - b. Recovery Brochures
4. Hunter Education Classes
  - a. Video “Was that a Wolf?”—in Wolf Box
  - b. Wolf and coyote pelts—in Wolf Box (coyote pelt at Alpine Ranger District Office)
  - c. Comparison handouts (Wolf/Coyote/Dog Traits and Tracks)
5. Booths (fairs and festivals)
  - a. Table Display—in equipment room
  - b. Wolf and coyote pelts
  - c. Wolf mount from Alpine Ranger District Office (obtain a traveling case for her and transport permission from USFWS Law Enforcement)
  - d. Wolf Box
  - e. Fact Sheets and Recovery Brochures
  - f. Telemetry equipment
  - g. Table, chair(s)
6. Local Resorts and Ranches
  - a. Script talk (General)
  - b. Slide carousel
  - c. Wolf Box
  - d. Laptop, projector, and screen for PowerPoint presentations
7. Field Days
  - a. Wolf box (rubber scats/tracks)
  - b. Telemetry equipment
  - c. Old carcass site (if available)
  - d. Plaster for tracks—in Wolf Box

**Appendix C.**

**OUTREACH CONTACT FORM**

*- Please return to Alpine Outreach Staff -*

TODAY'S DATE: \_\_\_\_\_

CONTACT NAME: _____
AFFILIATION: _____
PHONE NUMBER: _____
EVENT (if applicable): _____

NUMBER IN GROUP: _____
AGE (S) (if children): _____

TYPE OF PROGRAM DESIRED: _____
EMPHASIS: _____

LOCATION: _____
DATE: _____
TIME: _____

NOTES:
_____
_____
_____
_____

<b>** DATE CONFIRMED AND INITIALS:</b> _____
<b>PROGRAM TO BE PRESENTED BY:</b> _____
PRIORITY: <input type="checkbox"/> HIGH <input type="checkbox"/> MEDIUM <input type="checkbox"/> LOW

*Also complete "Affirmative Action Plan Outreach Activity Report" & fax: to PIO, AGFD, and Region 1*

**Appendix D.**

**PRESENTATION EVALUATION**  
**Mexican Wolf Reintroduction Project**

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P.O. Box 856 · Alpine, AZ 85920

Email: [alpinewolf@fws.gov](mailto:alpinewolf@fws.gov)

Phone: 928-339-4329

Please complete the following and return to presenter after presentation

1. (Or mail to the above address): Date of presentation and location:

\_\_\_\_\_

2. Was the presentation appropriate for the audience? Yes / No

What would you like to see included? \_\_\_\_\_

3. What would you like to see omitted? \_\_\_\_\_

4. Was the presenter effective? Yes / No

(If "No", please explain): \_\_\_\_\_

5. Would you like to have this presentation again in the future? Yes / No

6. How would rate the overall presentation?

1 - 2 - 3 - 4 - 5 (Highest)

7. Any additional comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Thank you for your time ☺

**Appendix E.**

**Affirmative Action Plan  
Outreach Activity Report**

Department participants(s):

Institution/Organization/Group/Individuals contacted:

County in which activity occurred:

How many hours were committed to this activity (including planning, travel, implementation, and follow-up):

Date(s) of contact:

Nature or purpose of activity:

Approximate number of individuals contacted during activity: \_\_\_\_\_

Gender/Ethnicity/Physically Challenged Breakdown (use visual estimate or self-reporting cards):

- \_\_\_ Male
- \_\_\_ Female
- \_\_\_ White
- \_\_\_ Hispanic
- \_\_\_ Black
- \_\_\_ American Indian
- \_\_\_ Pacific Islander
- \_\_\_ Asian
- \_\_\_ Physically Challenged
- \_\_\_ Other

Comments/Suggestions regarding this activity:

Was this activity part of your Operational Plan?

Report submitted by: \_\_\_\_\_

Work Unit: FOR1

cc: Field Operations Regional Coordinator



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

**Title:** Monthly Project Update

**Number:** 4.0

**File Name:** MW SOP 04.Monthly Project Update.Final.20041217.doc

**Purpose:** This SOP provides specific steps intended to ensure timely and accurate dissemination of approved Project information to interested parties and stakeholders. It 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:** Once each month, a narrative summary of Project activities is developed and distributed to specific target audiences. The update includes information on wolf activities, management activities, communication and coordination, outreach activities, personnel, and law enforcement news. A list of people and organizations that have asked to receive the update via email is maintained electronically, and can be updated as needed. Interested parties can also sign up to receive the monthly update through the AGFD website at <http://azgfd.gov> and the USFWS website at <http://mexicanwolf.fws.gov>. The IFT drafts the update, and then sends it to the Lead Agencies for input before the final version is distributed. The update addresses the entire Project, serves as part of the administrative record, is a public record, and is scrutinized very closely. Thus, it is vital at all stages that care is taken in both preparation and review of this document.

## **Procedures:**

1. Preparing the Draft Update:
  - a. The IFT writes the first draft during the last week of the month.
    - i. Open the “Update Template” in C:/ALLDATA/Word/Final Updates (see Appendix A).
    - ii. Review printouts of “Weekly Journals” on clipboard at the Alpine Field Office for information of interest. Include all reported wolf sightings.
    - iii. Review “Observation Reports” for possible inclusion into the Draft Update.
    - iv. Review office calendar for possible information.
    - v. Include dates when events occurred (e.g. depredations, nuisance complaints, wolf captures, observations).
    - vi. Do not use campgrounds and other human-occupancy areas (e.g. ranches) as references for wolf locations.
    - vii. Do not name WS personnel or identify individual WS cooperators.
    - viii. For depredation information, do not name ranches or provide specific location information beyond (if appropriate) County and State/Reservation.
    - ix. For dates and numbers, do not use “March 2<sup>nd</sup>” rather use “March 2.”
    - x. After finishing the draft, use “Save As” in month-day-year.doc format.
    - xi. Print out the draft and review it *carefully* for tense agreements and typing errors.

2. Reviewing the Draft Update:
  - a. Have an IFT Leader or the Field Projects Coordinator review the Draft Update.
  - b. Make changes as necessary.
  - c. File the Update Draft and comments in “Update” file (file cabinet in Field Office).
3. Sending out the Draft Update:
  - a. By the second day of the following month, send out the draft as an attachment to “Wolf Update Draft” (Primary Cooperators) under “Groups” in the Lotus address book.
  - b. Type “Draft Wolf Update” and date in the subject line.
  - c. Type “Please return your comments by (time) on (date), Thank you.” (Provide a minimum of two full days for response time).
4. Finalizing the Draft Update:
  - a. The IFT incorporates comments from cooperators and completes the final Update.
  - b. Save all comments received in the file “Update Comments” folder in the “Update” file.
  - c. Check with an IFT Leader or the Field Projects Coordinator on questionable comments.
5. Sending out and distributing the final Update:
  - a. In Lotus Notes, create a “New Memo” and type “Wolf Update” in the “bcc:” field (this will automatically send it to the entire electronic update list – approximately 150 recipients, without revealing members on the list to others). You must enter an e-mail address, e.g. USFWS Field Projects Coordinator, in the “To:” field, or “bcc:” will not work. *Note:* to add someone to the Wolf Update list, open “Wolf Update” under “Groups” in the Address Book in Lotus Notes, enter email address, save, and close.
  - b. Type “Wolf Update” and reporting period date in subject line.
  - c. Type, “Attached is the (date of reporting period) Wolf Update” in the body of the email.
  - d. Attach the final Update and send.
  - e. Then, print a copy of the Final Update and fax it to the list in Appendix B.
  - f. Make 11 photocopies.
  - g. 2-hole punch the original and put on the “Update” clipboard in the Field Office.
  - h. Make individual contacts to distribute the field update in accordance with Appendix B.
  - i. File Check List (Appendix B) in Update File.
6. Repeat the process again each month!

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

### **References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

## Appendix A.

# Mexican Wolf Reintroduction Project Monthly Update

## February 1 - 29, 2004

This is a summary of the Mexican gray wolf reintroduction project in Arizona and New Mexico. Additional information can be obtained by calling (928) 339-4329 or toll free at 1-888-459-WOLF, or by visiting the U. S. Fish and Wildlife Service's web site at <http://mexicanwolf.fws.gov>. Past updates may also be viewed on this website or interested parties may sign up to receive the update electronically by visiting <http://azgfd.gov>. This update is public property and can be used for any purpose. Please distribute as you see fit. The reintroduction project is a multi-agency cooperative effort between the U.S. Fish and Wildlife Service (USFWS), Arizona Game and Fish Department (AGFD), New Mexico Department of Game and Fish (NMDGF), USDA-APHIS Wildlife Services (USDA-WS), U.S. Forest Service (USFS), the White Mountain Apache Tribe (WMAT) on the Ft. Apache Indian Reservation (FAIR), the San Carlos Apache Tribe (SCAT) on the San Carlos Apache Reservation (SCAR), and other supporting organizations including the Turner Endangered Species Fund (TESF) and Defenders of Wildlife (DOW).

**Please report any wolf sightings, incidents of take or harassment of wolves, or suspected livestock depredations to:** (928) 339-4329 or toll free at (888)-459-WOLF, or the Arizona Game and Fish Department's 24-Hour Dispatch (Operation Game Thief) at (800) 352-0700.

**Numbering System:** Mexican wolves are given an identification number recorded in an official studbook that tracks the history of all known Mexican wolves. Capital letters (M = Male, F = Female) preceding the number indicate adult animals 18 months or older. Lower case letters (m = male, f = female) indicate sub-adults (younger than 18 months) or pups. The capital letter "A" preceding the letter and number indicate alpha wolves.

### **Definitions:**

For the purpose of this report, a "wolf pack" is defined as two or more wolves, one being collared, which maintains an established territory and are proven breeders. In the event that one of the two alpha wolves die, the pack status or name is retained by the remaining alpha wolf, regardless of pack size. A "group" of wolves is defined as two or more wolves that travel together.

### **CURRENT POPULATION STATUS**

As of the end of February, the population consisted of 21 wolves with radio collars in nine packs, three groups, and four single wolves.

**Arizona:** Hawks Nest Pack (AF486, AM619), Cienega Pack (AF487) traveling with another uncollared wolf, Bluestem Pack (AF521, AM507), Saddle Pack (AM574, F797), M798 (traveling with an uncollared wolf), F858 (traveling with an uncollared wolf); and Bonito Creek Pack (AM794) and, Hon-Dah Pack (AM578), both located on the FAIR. **New Mexico:** Luna Pack (AF562, AM583), Gapiwi Pack (AF624), Francisco AF511 (traveling with an uncollared wolf), and pair F799 and M729.

**New Mexico:** There are four lone wolves: M795, and M859 in Arizona; and M832 (traveling with another wolf), and M796 in New Mexico. Based on other field data (sightings, tracks, howling etc.), there are approximately 10-15 additional wolves, not including pups born last year, distributed among the groups, as well as wolves traveling separately from known groups.

### **MONITORING**

Field efforts continue to focus on monitoring wolf activity throughout the Blue Range Wolf Recovery Area, as well as on both the SCAR and the FAIR in Arizona.

The following is a brief status of wolf activities:

**Arizona:**

On February 5, M859 was hazed from the residential area of Nutrioso. He headed southeast and on February 17, project personnel observed him with two uncollared wolves in the vicinity of Escudilla Mountain. He was later located west of Alpine, and has since moved north out of the area.

The Bluestem Pack has been located in their traditional home range, which also includes portions of the FAIR, and recently was located just south of the Black River on SCAR.

F797 has been traveling with the Saddle Pack AM574 throughout the February breeding season. The group has primarily been located on the Apache-Sitgreaves National Forest; however, recently they have been located inside the SCAR border.

M795 was located on SCAR and in the Bear Wallow Wilderness in the Apache-Sitgreaves National Forest.

M798 was located on FAIR and then in the northern portion of the Blue Range Wolf Recovery Area and is presumed to still be traveling with an uncollared wolf.

F858 has been located in Hawk's Nest traditional home range, along the Mogollon Rim, and on the FAIR.

**New Mexico:**

During February, M796 was located in the vicinity of the San Mateo Mountains on the Cibola National Forest.

On February 6, F799 and another collared wolf (presumed to be M729, whose collar is not functioning), were located north of the Gila Wilderness in the Reserve Ranger District.

On February 6, M832 was located with Gapiwi AF624. However, AF624 could not be located during aerial flights on February 11, 17, and 25 despite search attempts. On February 11, M832 was observed with a possibly collared wolf.

On February 10, during an aerial telemetry flight, project personnel observed AF511 with another wolf chasing a cow elk. Personnel hiked into the area and evidence of a chase and attack was observed, but no confirmation of a kill was documented and AF511 was no longer in the area.

On February 17, project personnel observed the Luna Pack pair feeding on an elk carcass.

Observation reports of wolves from the public are important as many of the wolves are currently dispersing. Please call the toll free number listed above to report wolf sightings.

**INCIDENTS**

On February 10, WS personnel investigated a report of a wolf incident with a dog near Nutrioso, AZ. It was determined that it was probable that the dog was bitten by M859 as he was in the area at the time and the bites were consistent with a wolf attack.

On February 26, WS personnel investigated a report of a cattle depredation in the northern portion of the Gila Forest, NM. It was determined that the cow died of non-predatory causes.

**MORTALITIES**

Nothing new to report.

**CAPTIVE MANAGEMENT**

At last summer's SSP meeting, it was determined that M648 at Sevilleta was a high priority wolf for semen collection. On February 6, M648 was captured and Cheri Asa and Karen Bauman collected his semen for banking. He was also given his annual exam.

### **COMMUNICATION AND COORDINATION**

On February 4, Dan Groebner gave a wolf biology presentation to 42 Blue Ridge Pre-schoolers in Pinetop, AZ.

On February 5-7, Rich Bard gave a project update at the 37<sup>th</sup> Joint Annual Meeting of the Arizona and New Mexico Chapters of The Wildlife Society in Safford, Arizona. Approximately 150 attended the presentation.

On February 12, John Oakleaf gave a presentation to approximately 40 people at the FWS Regional Office in Albuquerque, NM.

On February 19, Melissa Woolf gave a presentation to approximately 30 people at Elephant Butte State Park in NM.

On February 19-22, Bruce Sitko and Dan Groebner manned a wolf information booth at the 2004 International Sportsman's Expo in Phoenix, AZ. Approximately 2,000 people visited the booth.

On February 24, Melissa Woolf gave a presentation to 20 kids at the Hot Springs High School Biology Club in NM.

On February 26, Maggie Dwire gave a project presentation to 35 members of the Sierra Club at the Sevilleta National Wildlife Refuge.

On February 26, the Interagency Field Team met to discuss the 2003 Annual Report, the five-year review, and other logistical issues.

### **PROJECT PERSONNEL**

Janet Reed, USFWS volunteer, left the project this month. Thanks Janet for your hard work!

### **REWARDS OFFERED**

The U.S. Fish and Wildlife Service is offering a reward of up to \$10,000 for information leading to the conviction of the individual or individuals responsible for the shooting deaths of Mexican gray wolves. An additional \$10,000 is being offered by Defenders of Wildlife, and \$5,000 is being offered by the Center for Biological Diversity.

Individuals with information they believe may be helpful are urged to call one of the following agencies: U.S. Fish and Wildlife Service special agents in Mesa, AZ, at (480) 967-7900, Pinetop, AZ, at (928) 367-5689, or Albuquerque, NM, at (505) 346-7828; the White Mountain Apache Tribe at (928) 338-1023 or (928) 338-4385; Arizona Game and Fish Department Operation Game Thief at 1-800-352-0700; or New Mexico Department of Game and Fish Operation Game Thief at 1-800-432-4263.

***Killing a Mexican gray wolf is a violation of the federal Endangered Species Act, and can invoke criminal penalties of up to \$25,000 and/or six (6) months in jail or a civil penalty of up to \$25,000.***

**Appendix B.**

<b>Update Check List for Month of:</b>	Date/Initials
--	---------------

**Hand Deliver by Alpine Staff:** (make 12 copies)

- Alpine Wolf Office (2 hole punch and post original in office)
- Alpine Country Store
- Alpine Library (tack on entry bulletin board)
- Alpine Post Office (ask for key to glass case)
- Alpine Tackle Shop
- Blue Post Office
- Eagar Post Office (get “date” stamped, then tack on bulletin board)
- Nutrioso Post Office (tack on bulletin board)
- Springerville Library (give to staff person)
- Springerville Post Office (get “date” stamped, then tack on bulletin board)

**Individual Fax:**

- Alma Store, Glenwood 505-539-2641
- Apache Creek General Store 505-533-6817
- Barbara Marks 928-339-4946
- Becky Campbell 505-536-9551 (Call first so they can turn on the fax)

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

**Title:** Initial Wolf Releases

**Number:** 5.0

**File Name:** MW SOP 05.Initial Wolf Releases.Final.20041217.doc

**Purpose:** This SOP describes the process for proposing, approving, and facilitating initial releases (including release sites) of captive Mexican wolves on lands other than those within the Fort Apache Indian Reservation. It 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:** Approved exception to this SOP: When necessary for management purposes (e.g. to compensate for a wolf mortality with genetically more valuable animals, or enhance genetics among free-ranging wolves through placement of genetically valuable pups in a den), the IFT, with approval from AMOC, may make an initial release in the Primary Recovery Zone in Arizona within five miles of an area that is currently occupied by an established pack or elements of an established pack. Such releases will be in accordance with Procedures 6b and 6c of this SOP. In addition, the IFT shall notify local livestock permittees, local county officials, and the local USFS District Ranger prior to any release of this nature.

Per SOP 2.0, AMOC must approve any additional exceptions to this SOP, with concurrence from the Director of the state wildlife Lead Agency responsible for the proposed release.

Note: Releases of wolves on the Fort Apache Indian Reservation are subject to decision-making processes and approval of the White Mountain Apache Tribe, and the San Carlos Apache Reservation is not an authorized release area.

**Background:** Initial releases are essential to Mexican wolf management and recovery. They involve release of captive wolves that have no previous experience in the wild. Under the current Mexican Wolf Final Rule (50 CFR 17.84(k)), initial releases may only occur within the Primary Recovery Zone in Arizona.

Each initial release of Mexican wolves requires substantial coordination among, and input from, all parties involved in the Reintroduction Project, including AMOC, the IFT, the captive breeding program, AMWG Cooperators, other stakeholders, and the public. Each release requires careful planning and discussion.

## **Procedures:**

Note: To facilitate monitoring and management, prior to placement in release pens adult-sized Mexican wolves will receive permanent identification marks and functioning radio-collars. If an animal is not large enough to wear a collar when it is released, reasonable effort shall be made to re-capture it for collaring when it reaches an appropriate size.

1. Initial release proposal and approval.
  - a. The Field Projects Coordinator shall plan and coordinate, with assistance from the IFT Leaders, the identification and review of areas and sites for release or translocation of Mexican wolves.
  - b. Initial releases shall be proposed in writing, with description of relevant material for each of the factors or considerations noted below (and any others deemed relevant by the IFT or AMOC), and comparison of the alternative sites (see Appendix A for an imperfect example that will be refined as experience and knowledge are gained).
  - c. The IFT Leaders, in collaboration with the Field Projects Coordinator, shall assign one or more IFT members to draft each proposal.
  - d. The IFT (acting through the Field Projects Coordinator) shall discuss with AMOC each release proposal early in its development, to ensure initial awareness as to concept and strategy.
  - e. Each proposal shall be fully discussed and vetted within the IFT as it is drafted. Every effort shall be made within the IFT to reach consensus among the members on each element of the proposal.
  - f. The IFT (acting through the Field Projects Coordinator) shall submit the written draft proposal to AMOC for Lead Agency review, including discussion in an AMOC meeting.
  - g. AMOC shall provide comment to the IFT through the Field Projects Coordinator to indicate concurrence, suggestions or requests for revision, and/or disagreement with the proposal. Every effort shall be made within AMOC to reach consensus among the Lead Agencies on each element of the proposal, before providing comment to the IFT.
  - h. The Field Project Coordinator shall coordinate IFT consideration of AMOC comment, and appropriate revision of the proposal.
  - i. When AMOC is satisfied with the draft proposal, it shall be (in the following order):
    - i. Discussed with the Cooperators in an AMOC meeting; and
    - ii. Discussed as an agenda discussion item in the annual (January-February) AMWG “release/translocation” public meeting, which shall alternate between Arizona and New Mexico.
  - j. The state wildlife Lead Agency for the state for which the release is proposed may opt to hold additional public meetings to discuss the proposal.
    - i. The public meeting(s) shall be as close as possible to the proposed release area, which includes but is not limited to the specific release pen site (if multiple releases are involved, multiple meetings may be held, or a single meeting may be held in a reasonably central location);
    - ii. The County in which a public meeting will be held shall be asked to convene and facilitate the meeting; and
    - iii. The IFT member presenting the proposal at a public meeting shall provide AMOC with a written summary of public comment from the meeting.
  - k. The IFT shall then:
    - i. Ensure compliance with the National Environmental Policy Act (NEPA), and any applicable site permitting processes, by vetting the proposal with the U.S.D.A. Forest Service (USFS) District Ranger and other USFS staff responsible for a proposed release site; and

- ii. Discuss the proposal with each local permittee within five miles of the proposed release.
  - l. AMOC and the IFT shall then collaborate to modify the proposal as appropriate to address the comment received during the public review process outlined above.
  - m. If/when AMOC concurs that the proposal is acceptable, the state wildlife Lead Agency representative responsible for the release shall submit the proposal, and any relevant background information, such as dissenting Lead Agency or Cooperator opinion, to their Director.
  - n. The state wildlife Lead Agency Director shall approve or reject the proposal, and their AMOC representative shall then inform AMOC and the IFT of the decision.
  - o. The AMOC Chair shall then inform AMWG Cooperators of the decision.
  - p. The Lead Agency public information officers shall then inform the public of the decision (see Step 6, below).
  - q. The proposal and documentation of the decision on it shall be filed in the IFT office, and available to the public on request.
2. Selecting wolves for initial release
- a. The following information shall be considered in determining which wolves to release, and how many wolves to include in a release:
    - i. Determining which wolves to select for release.
      - (1) Reproductive history of parents
      - (2) Breeding potential
      - (3) Genetic contribution to the wild population
      - (4) Sex and age
      - (5) Prior behavior, whether in captivity or the wild
      - (6) Health
    - ii. Determining numbers of wolves to release in any given area.
      - (1) Prey density and distribution
      - (2) Proximity to other wolves
      - (3) Logistical support required and available
      - (4) Desired pack composition: sex ratio, ages, and genetics
3. Release methods
- a. Soft release – Use of a pen designed to hold wolves up to several months to acclimate them to a specific area. Such pens are typically chain link or soft plastic, and constructed with (as appropriate) electrified or non-electrified mesh.
  - b. Hard release – Direct release of a wolf or wolves into the wild, as in direct release from crates into the wild or into a fladry enclosure constructed of rope with attached flagging.
4. Timing of releases
- a. Releases may occur any time during the year. However, consideration must be given to the following factors in the release area:
    - i. Weather and snow cover
    - ii. The wolves' reproductive cycle
    - iii. Presence and vulnerability of native prey
    - iv. Presence and timing of livestock operations

- v. Hunting seasons
- vi. Recreational and other uses

5. Release area criteria

- a. Releases sites must be:
  - i. Five or more miles from a town.
  - ii. Three or more miles from a dwelling occupied year-round.
  - iii. Three or more miles from Recovery Area boundaries.
  - iv. In areas of adequate prey densities (e.g. elk, deer, and other native ungulates), based on the best available information from the appropriate state or tribal wildlife agency.
- b. All release site evaluations shall also consider and address:
  - i. Previous use of the site (if any), and outcomes from such use.
  - ii. Presence of wolves – a release site shall not be used when it is within five miles of a den site that a pack of wolves is known to occupy.
  - iii. Presence of humans – all human presence within five miles of the release site shall be evaluated.
  - iv. Presence of livestock –all livestock use within five miles of the release site shall be evaluated, and all release sites should be as far away as possible from active livestock calving pastures.
  - v. Recreational uses in the area – conflicts are to be avoided when possible.
  - vi. Access to the area and security of the location – consider how much public use occurs (release pens should be safe from human intrusion), but also consider the ease of logistical (management) access by the IFT.
  - vii. Habitat and site topography.
  - viii. Availability of water – year-round access to water within two miles of the release site is preferred, but water is not a decision criterion for releases.
  - ix. Expected need for supplemental feeding and monitoring (see SOP 8.0).
  - x. Expected need for temporary area closures – proposals may recommend closure of areas within a one mile radius of where a release pen would be built, for protection of wolves that will be temporarily restrained in the pen and which might use the pen area immediately post-release (see SOP 7.0). Whenever possible, travel on trails and roads shall be allowed, but travel off trail or road may be prohibited. If a wolf pack is suspected to have pups, a closure to prohibit dogs along open trails may also be recommended to prevent conflicts.

6. Public outreach for approved initial releases.

- a. The IFT shall notify (by phone or personal visit) local livestock permittees (i.e. those within five miles of the proposed release site), a local county official, and the local District Ranger not less than 30 calendar days prior to the release.
- b. The Lead Agencies shall collaborate in issuing a general news release, with copies to the local county government, not less than seven calendar days prior to the release.
- c. The Lead Agencies' shall collaborate in issuing a second general news release, with copies to the local county government, within seven calendar days following the release.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

**Appendix A.** Format for an Interagency Field Team proposal for a Mexican wolf release that was approved, and implemented. This format may be expanded, but no fields may be deleted or not fully completed.

**Mexican Wolf Reintroduction Project  
Interagency Field Team Recommendation**

**Summer 2004 Arizona Release Site**

**July 10, 2004**

The Interagency Field Team (IFT) recommends releasing a pack of Mexican wolves at Long Cienega, in the Primary Recovery Zone (PRZ) on the Alpine Ranger District, Apache-Sitgreaves National Forests, Greenlee County, Arizona. This document provides a justification for the release, an overview of the release-site selection process, a release-site profile, and a summary of public comment on the four candidate sites from which Long Cienega was selected.

**Justification for Release**

Population Status

During 2003 and January 2004, the IFT documented 15 mortalities in the reintroduction project. Most of these deaths were caused by humans. The deaths included six alpha wolves and one group of two sexually mature wolves traveling together for an extended period of time. Since the last of these mortalities occurred, the IFT has documented re-establishment of three packs and formation of three new groups of wolves. These new packs and groups resulted from uncollared wolves replacing some of the 15 mortalities. One pack and one group were subsequently removed from the population, because of depredation incidents. As of June 30, 2004, only six potential breeding units (pairs) were present in the wild population. This is well below the 12 breeding pairs the Final Environmental Impact Statement for the reintroduction project anticipated would be in the wild at this time. Thus, additional releases are necessary to continue progress toward project objectives.

Genetic Considerations

After incurring the losses discussed above (in Population Status), and removal of other wolves for management purposes, the number of free-ranging breeding units in this project had been reduced from ten to six pairs as of June 2004. Release of additional wolves is required to offset both the loss of breeding pairs, and to increase genetic diversity in the wild population.

Two wolves are available for release that would address both issues. Two were paired in the captive breeding program. They were paired because, as a pair, they would have a lower inbreeding coefficient (i.e. a measure of how closely they are related to each other) and lower mean kinship (i.e. a measure of how closely the two wolves are related to other wolves) than any of the current wild pairings. In addition, the male is more genetically diverse than any wolf in the wild or at the Sevilletta or Ladder Ranch acclimation facilities. The influx of genes into the wild population associated with this release would thus greatly enhance the genetic diversity of the

wild population. It would also balance representation of the various Mexican wolf lineages. Since this pair has bred in captivity, it is likely to contribute to the wild reproducing population.

### **Overview of Release Site Selection Process**

Eighteen sites have been identified as potential release areas in Arizona. The IFT used seven criteria to review these sites to determine which one(s) to recommended for a 2004 release:

- Proximity to other wolves
- Available prey populations
- Proximity to livestock
- Proximity to humans
- Availability of water
- Site accessibility
- Recreational use

The IFT reduced the pool of candidate sites to four, due to presence of established packs or an inadequate prey base within the other release sites. The four remaining sites were: Long Cienega, Maness Peak, Fish Bench, and Campbell Flat (Table A). The IFT presented an overview of the proposed release and the four potential release sites at the January and April 2004 Mexican Wolf Adaptive Management Work Group meetings, and at a local stakeholder meeting in Blue River (Arizona) in April 2004. Questions and concerns were addressed at each meeting. Comments from the public were recorded in the form of meeting summary notes and personalized letters. The IFT carefully considered all concerns and comments while developing this recommendation.

### **Public Comments and Concerns**

AGFD took summary notes for the AMWG meeting, and the Greenlee County Administrator took minutes for the Blue River stakeholder meeting. Both meetings affirmed strong opposition from local residents and ranchers to release of any wolves within the PRZ. The AMWG meeting also affirmed strong support within other sectors of the public for releases as a means of progress toward recovery objectives. Both meeting records are on file at the AGFD and the Greenlee County Commissioners' Office.

At both meetings, the local public conveyed long-standing frustration with the reintroduction project as it has operated from 1998 through 2004. They feel disenfranchised by the past decision-making process, by designation of the PRZ, and by lack of consideration of local opinions prior to approving the reintroduction project. In addition, they expressed concerns about the high cost of the reintroduction project; they consider it an inappropriate use of taxpayer dollars. None of the comment in these areas provided information the IFT could use to identify which, if any, of the four sites should be recommended for a 2004 wolf release.

Of the approximately 30 people at these meetings who expressed opposition to release of wolves into the PRZ, only two provided release-site location recommendations. One preferred Fish Bench, and the other suggested using Maness Peak. No specific reason was provided for either preference.

Specific concerns raised about the Long Cienega release site in the AMWG and Blue River meetings were: proximity to humans, proximity to domestic livestock and pets, inadequate prey base, and the ability of the IFT to respond to critical incidents and problem wolves. These concerns are addressed in the site analysis below. However, it should also be noted that wolves do travel long distances, so regardless of where they are released they can reasonably be expected to inhabit or travel through virtually any area or community in the PRZ.

Concern was also expressed in the AMWG and Blue River meetings regarding the potential for rabies to be transmitted from wild mammals (skunks, foxes, etc.) to released wolves, and the possible subsequent impact of rabid wolves on humans. The IFT noted that all wolves released, recaptured, or captured (i.e. wild-born wolves) are immunized against rabies.

With regard to other aspects of human safety, the AMWG and Blue River meeting participants were advised that the IFT continues to conduct public education/outreach efforts that include recommendations that humans take the same precautions with wolves that they do with black bears, mountain lions, coyotes, and other predators. The IFT noted that the wolf reintroduction project also has protocols and other mechanisms in place to provide for prompt handling of any critical incidents and conflicts with wolves.

### **Preferred-Site Analysis**

Previous experience has shown that successful release sites require an appropriate prey base of elk, limited or no domestic cows calving in the area, and sufficient separation from established wolf pack territories. In addition, releasing wolves during the elk calving season provides them with a vulnerable source of prey, encourages them to feed on elk, and assists with the learning curve associated with killing prey (a behavior that released wolves are not accustomed to in captivity). Releasing wolf packs with pups also helps anchor the pack to an area, minimizing dispersal from the release site. Overall, synchronizing the time of release with the calving period of elk and releasing wolf packs with pups increases release success.

All of the aforementioned criteria, public comments, and past experience were considered in the release-site selection process (see attached Table). Based on these criteria, the IFT recommends Long Cienega as the preferred release site. The IFT also recommends that the release should involve the breeding pair of adults (with their pups) mentioned above, and should occur in mid-July while elk calves are still young.

Specific criteria and comments that IFT considered in the decision and responded to are:

- Fish Bench is occupied by a wolf pack that is denning close to the available release site. Also, it is located along the Black River, about five miles from the San Carlos Apache Reservation. The IFT is concerned that releasing wolves in Fish Bench (1) might cause inter-pack strife or mortality, and (2) likely would force wolves onto the Reservation – inevitably resulting in their removal, due to Tribal policy. Neither of these likely outcomes is desirable, so Fish Bench is not recommended as a 2004 release site.
- Maness Peak is vacant of wolves, but has a higher density of domestic cows with calves than any of the other candidate release sites. In addition, the area only has moderate elk

density, thus increasing the probability of wolf-cattle conflicts. Furthermore, Maness Peak is within three miles of many permanent dwellings along the Blue River road.

- Moonshine Park is three miles closer to the Blue River corridor of human occupancy than Long Cienega (thus some members of the public preferred Lon Cienega to Moonshine Park).
- Campbell Flat and Maness Peak are closer to permanent human dwellings and livestock than the Long Cienega site.
- The Long Cienega site has been approved by the U.S. Forest Service (USFS), in accordance with the National Environmental Policy Act.
- The Long Cienega site was used in 2000 for release of the Cienega pack. Appropriate documentation is on file at the Forest Supervisor's office, Springerville, Arizona.

### **Recommended Release Site Profile – Long Cienega**

Long Cienega is in a mixed-pine transition to spruce-fir habitat, with high ungulate density, limited presence of cattle, one human residence within five miles, no resident wolves, and ready access to perennial water. This site was used in 2000 for release of the Cienega pack, which reproduced successfully in the area for two years before shifting their territory to the north. When the Cienega pack was in the release site area, it had no documented conflicts with cattle or humans.

In 2003, the Steeple Creek fire burned a portion of the area surrounding the Long Cienega release site. Since the burn, aspen regeneration has been moderate to high, depending on the intensity of the fire. Initial surveys of the area by USFS and IFT personnel, revealed that elk have browsed on approximately 60-90 percent of the new aspen growth. USFS biologists believe that consumption of aspen by elk will eventually compromise aspen regeneration. This could increase the erosion potential, and decrease the rate at which the area will recover from the Steeple Creek fire. Based on these considerations, the USFS supports release of wolves in the Long Cienega area as a biological control to suppress the current and future effects of elk on the landscape.

To ensure that domestic cattle are not close to the proposed release site, the IFT coordinated with range personnel on the Alpine Ranger District. The range staff confirmed that the Long Cienega release site is in the Hannagan Allotment, which is currently vacant of livestock. Adjacent allotments in the surrounding area have cattle during the fall, winter, and spring, but most of the area within these allotments is more than five miles from the proposed release site.

When compared to the other three candidate sites, Long Cienega has fewer cattle and calves in proximity to the release site. It also has the lowest stocking density. USFS range personnel agree that Long Cienega is the most appropriate area in which to release wolves, from the perspective of minimizing conflicts with cattle.

The Long Cienega also is an acceptable distance from human residences, and has successfully been used as a release site in the past.

Based on these criteria, the IFT recommends Long Cienega as the 2004 release site.

Table A. Comparison of candidate release sites for 2004 Mexican wolf release in Arizona.

	Long Cienega Release Site	Maness Peak Release Site	Campbell Flat Release Site	Fish Bench Release Site
General Location	E of Hannagan Meadow and NW of Blue Crossing.	SSE of Alpine, near AZ-NM Border.	SE of Blue Crossing, near AZ-NM Border.	WNW of Hannagan Meadow on Black River.
Prey Populations	Elk and deer densities in the area are high in comparison to other population estimates in the Alpine District. High elk densities are found at the higher elevations. High deer densities occur at mid-lower elevations, and moderate deer densities at higher elevations.	Elk and deer densities are moderate. These estimates are relative to other population densities within the Alpine District.	Elk and deer densities in the area are moderate and high respectively. These estimates are relative to other population densities within the Alpine District.	Elk and deer densities in the area are high. These estimates are relative to other population densities within the Alpine District.
Livestock (within five miles)	The allotment where the release site is located is currently in non-use, and there are no livestock in the surrounding area during the time of release. Three permittees with livestock during the fall, winter, and/or spring; Steeple Mesa 32 cow/calf, Red Hill, four horses, and Foote Creek 110 cow/calf. However, livestock are rotated seasonally throughout the allotments and only a portion of the allotments fall within five miles of the release site.	No livestock in Arizona during the time of release. Four permittees with livestock during winter and spring; private land 32 cow/calf, Bobcat-Johnson 15 cow/calf, Cow Flat 110 cow/calf, and Red Hill four horses. Livestock present in New Mexico on two allotments; one is active from late spring through early fall (226 cow/calf) and the other is active in summer (up to 247 cow/calf). During the release period, these cattle are actually using a distant pasture within the allotment. However, livestock are rotated seasonally throughout the allotments and only part of the	No livestock in Arizona during the time of release. Three permittees with livestock during the winter and spring; Bobcat-Johnson 15 cows, Cow Flat 110 cow/calf, and Red Hill, four horses. Livestock present in New Mexico on one allotment, active during the summer, with up to 247 cow/calf. However, livestock are rotated seasonally throughout the allotments and only a portion of the allotments fall within five miles of the release site.	The allotment where the release site is located is currently in non-use. Three permittees with livestock from late spring to early fall; combination of private and Sprucedale-Reno allotment with approximately 230 cow/calf and 85 horses, Grandfather 32 cow/calf, and PS 110 cow/calf. However, livestock are rotated seasonally throughout the allotments and only a portion of the allotments fall within five miles of the release site.

	Long Cienega Release Site	Maness Peak Release Site	Campbell Flat Release Site	Fish Bench Release Site
		allotments fall within five miles of the release site.		
Proximity to Humans (within five miles)	One permanent residence, Hannagan Meadow Lodge, in the area. Residents along the Blue River drainage, located approximately seven miles southeast of the proposed release site. However, the population is low and residents are sparsely located along the river.	Permanent residents are present along the Blue River drainage, located approximately two miles west of the proposed release site. However, the population is low and residents are sparsely located along the river.	Permanent residents are present along the Blue River drainage, located approximately six miles northwest of the proposed release site. However the population is low and residents are sparsely located along the river.	No residents in the area. Two permanent residences within seven miles.
Proximity to Other Wolves	The area is in close proximity to other wolf packs but does not fall within an established territory.	Wolves are absent from this area.	Wolves are absent from this area.	Area close to another wolf pack and within an established wolf pack territory. Release site adjacent to Black River, a direct corridor to the San Carlos Apache Reservation.

Availability of Water	Year round access to water is available along Steeple Creek and Grant Creek.	Perennial water flow is available via streams and springs in the area including the Blue River, the Dry Blue, and Nolan Creek.	Year round access to water is available via Lamphier Creek and Little Blue Creek.	Year round access to water is available via the Black River, as well as several springs and tanks along Fish Bench and Fish Creek.
Accessibility	This area is within the Blue Range Primitive Area causing limited access. Due to the isolated location of the Long Cienega (Moonshine Park) site, equipment, wolves, and supplemental feed will have to be brought in by way of mules.	This site is road accessible via Forest Road 14 at its termination. The Blue River Road, Forest Road 28l is about 1.5 miles to the west, but the land in between is very rugged and very difficult to traverse, even on foot.	This area is within the Blue Range Primitive Area causing limited access. Due to the isolated location of the Campbell Flat site, equipment, wolves, and supplemental feed will have to be brought in by way of mules.	This area provides road access to the release site via Forest Road 83A.
Recreational Use	Low-moderate level of hunting, hiking, and camping in the area. Primitive modes of transportation required. These estimates are relative to other levels of hunting and recreational use within the Alpine District.	This area has moderate hunting and low recreational use, due to isolated conditions. These estimates are relative to other levels of hunting and recreational use within the Alpine District.	This area has low hunting and recreational use due to isolated conditions and limited accessibility. These estimates are relative to other levels of hunting and recreational use within the Alpine district.	Moderate level of hunting and fishing within the area. These estimates are relative to other levels of hunting and recreational use within the Alpine district.

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

**Title:** Wolf Translocations

**Number:** 6.0

**File Name:** MW SOP 06.Wolf Translocations.Final.20041217.doc

**Purpose:** This SOP describes the processes for proposing and approving translocations of Mexican wolves on lands other than the Fort Apache Indian Reservation. It 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:** Approved exceptions to this SOP include:

1. When necessary for management purposes (e.g. to relocate a problem wolf, compensate for a wolf mortality, or enhance genetics among free-ranging wolves), the IFT may make a translocation to any location on non-tribal lands within five miles of:
  - a. An area that was previously approved for an initial release (see SOP 16.0) or translocation; or
  - b. An area that is currently occupied by an established pack or elements of an established pack; or
  - c. An area that is vacant but which was previously occupied by an established pack.
  - d. Note: Such translocations must be conducted in accordance with Procedure 6 of this SOP.
2. Translocations may also be made onto any tribal lands with advance concurrence from the appropriate tribal authority. Translocations of wolves on the Fort Apache Indian Reservation are subject to decision-making processes and approval of the White Mountain Apache Tribe. The San Carlos Indian Reservation is not an authorized translocation area.
3. Note: Based on precedence established by the USFWS Region 2 (Southwest) Director in 2004, release of pups of less than one year of age that have been born in captivity to a captured female that was impregnated in the wild and which is re-released to the wild with her pups is also considered translocation, rather than initial release.

Per SOP 2.0, AMOC must approve any additional exceptions to this SOP, with concurrence from the Director of the state wildlife Lead Agency responsible for the proposed translocation.

**Background:** Translocations move wolves from one location in the wild to another, whether directly or with an intermediate stay in captivity. They are essential to Mexican wolf management and recovery. Under the current Mexican Wolf Final Rule (50 CFR 17.84(k)), they can be used to move wolves from any location within the Blue Range Wolf Recovery Area (BRWRA) to any other location within the BRWRA.

Translocations are typically responses to management issues that need immediate attention. Each one requires substantial coordination among, and input from AMOC, the IFT, AMWG Cooperators, other stakeholders, and the public. However, advance planning can identify and approve locations to use when necessary, thus shortening the time and complexity involved in translocations.

Note: To facilitate monitoring and management, prior to translocation, adult-sized Mexican wolves will receive permanent identification marks and functioning radio-collars (recaptured wolves may already have both), unless enough animals from their family group are already radio-collared. If an animal is not large enough to wear a collar when it is translocated, reasonable effort shall be made to re-capture it for collaring when it reaches an appropriate size.

### **Procedures:**

1. Translocation site proposal and approval.
  - a. Preferably, proposals will be developed for suites of sites sufficient to meet Project needs for an entire calendar year, or longer.
  - b. The Field Projects Coordinator, with assistance from the IFT Leaders, shall plan and coordinate development of proposals, with written description of relevant material for each of the factors or considerations noted below, and any others deemed relevant by the IFT or AMOC.
  - c. The IFT Leaders, in collaboration with the Field Projects Coordinator, shall assign one or more IFT members to draft each proposal.
  - d. The IFT, acting through the Field Projects Coordinator, shall discuss with AMOC each proposal early in its development, to ensure initial awareness as to concept and strategy.
  - e. Each proposal shall be fully discussed and vetted within the IFT as it is drafted. Every effort shall be made within the IFT to reach consensus on each element of the proposal.
  - f. The IFT, acting through the Field Projects Coordinator, shall submit the written draft proposal to AMOC for Lead Agency review.
  - g. AMOC shall provide comment to the Field Project Coordinator to indicate concurrence, suggestions or requests for revision, and/or disagreement with the proposal. Every effort shall be made within AMOC to reach consensus on each element of the proposal, before providing comment to the IFT.
  - h. The Field Project Coordinator shall coordinate IFT consideration of AMOC comment, and appropriate revision of the proposal.
  - i. When AMOC is satisfied with the draft, the proposal shall be (in the following order):
    - i. Discussed with the Cooperators in an AMOC meeting; and
    - ii. Discussed in the annual (January-February) AMWG “release/translocation” public meeting, which shall alternate between Arizona and New Mexico.
  - j. The state wildlife Lead Agency for the state in which a proposed translocation site occurs may opt to hold additional public meetings to discuss the proposal.
    - i. The public meeting(s) shall be as close as possible to the area of the proposed translocation site (if multiple translocation sites are involved, multiple meetings may be held, or one meeting may be held in a reasonably central location);
    - ii. The County in which a public meeting will be held shall be asked to convene and facilitate the meeting; and

- iii. The IFT member presenting the proposal at the public meeting shall provide AMOC with a written summary of public comment from the meeting.
      - k. The IFT shall then:
        - i. Ensure compliance with the National Environmental Policy Act, and applicable site permitting processes, by vetting the proposal with the U.S.D.A. Forest Service (USFS) District Ranger and other USFS staff responsible for the proposed site; and
        - ii. Discuss the proposal with each local permittee within five miles of the proposed site.
      - l. AMOC and the IFT shall then collaborate to modify the proposal as appropriate to address the comment received during the public review process outlined above.
      - m. If/when AMOC concurs that the proposal is acceptable, the state wildlife Lead Agency representative responsible for the proposed translocation shall submit the proposal, and relevant background information, such as dissenting Lead Agency or Cooperator opinion, to their Director.
      - n. The state wildlife Lead Agency Director shall approve or reject the proposal, and their AMOC representative shall then inform AMOC and the IFT of the decision.
      - o. The AMOC Chair shall then inform AMWG Cooperators of the decision.
      - p. The Lead Agency public information officers shall then inform the public of the decision (see Step 6, below).
      - q. The proposal and documentation of the decision on it shall be filed in the IFT office, and available to the public on request.
    2. The following information shall be considered in determining whether to translocate a wolf:
      - a. Previous behavior of the wolf. Carefully evaluate the reasons for considering translocation. If a problem or nuisance animal is involved, evaluate whether such behavior might be likely at the new location.
      - b. Genetic and reproductive importance of the wolf
      - c. Physical condition of the wolf, including but not restricted to reproductive cycle
      - d. Site conditions at the time of translocation:
        - i. Weather and snow cover
        - ii. Presence and vulnerability of native prey
        - iii. Presence of livestock
        - iv. Hunting seasons
        - v. Recreational and other uses
    3. Release methods
      - a. Soft release – Use of a pen designed to hold wolves up to several months to acclimate them to a specific area. Such pens are typically chain link or soft plastic, and constructed with (as appropriate) electrified or non-electrified mesh.
      - b. Hard release – Direct release of a wolf or wolves into the wild, as in direct release from crates into the wild or into a fladry enclosure constructed of rope with attached flagging.
    4. Translocation area criteria
      - a. Translocation sites must be:
        - i. Five or more miles from a town

- ii. Three or more miles from a dwelling occupied year-round
  - iii. Three or more miles from Recovery Area boundaries
  - iv. In areas of adequate prey densities (e.g. elk, deer, and other native ungulates), based on the best available information from the appropriate state or tribal wildlife agency
- b. All translocation site evaluations shall also consider and address:
- i. Previous use of site (if any), and outcomes from such use.
  - ii. Presence of wolves – a translocation site shall not be used when it is within five miles of a den site that is occupied by a pack of wolves.
  - iii. Presence of humans – all human presence within five miles of the translocation site shall be evaluated.
  - iv. Presence of livestock – all livestock use within five miles of the translocation site shall be evaluated; all translocation sites should be as far away as possible from active livestock operations.
  - v. Recreational uses in the area – avoid conflicts when possible.
  - vi. Access to the area and security of the location – consider how much public use occurs (translocation pens should be safe from human intrusion), but also consider the ease of logistical (management) access by the IFT.
  - vii. Habitat and site topography.
  - viii. Availability of water – year-round access to water within two miles of the translocation site is preferred, but water is not a decision criterion.
  - ix. Expected need for supplemental feeding and monitoring (see SOP 8.0).
  - x. Expected need for temporary area closures – proposals may recommend closure of areas within one mile of where a translocation pen would be built, for protection of wolves that will be temporarily restrained in the pen and which might use the pen area immediately post-translocation (see SOP 7.0). Whenever possible, travel on trails and roads shall be allowed, but travel off trail or road may be prohibited. If a wolf pack is suspected to have pups, a closure to prohibit dogs along open trails may also be recommended to prevent conflicts.
5. If an approved translocation site on USFS lands requires a temporary closure, the IFT shall comply with SOP 7.0: Temporary Closures.
6. Public outreach for authorized translocations.
- a. The IFT shall notify AMOC, local permittees (i.e. those within five miles of the proposed translocation), local county officials, and local District Rangers as soon as the need for translocation is identified and before the translocation occurs.
  - b. The Lead Agencies shall collaborate in issuing a general news release, with copies to the county government of the county in which the translocation will occur within seven calendar days following each translocation.

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 24, 2004.

**References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

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

**Title:** Temporary Closures

**Number:** 7.0

**File Name:** MW SOP 07.Temporary Closures.Final.20041217.doc

**Purpose:** This SOP describes the process for coordinating and facilitating temporary closures of public lands in association with wolf management activities. It 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, with concurrence from the Director of the state wildlife Lead Agency responsible for recommending the proposed closure.

**Background:** Temporary closures are sometimes needed for wolf releases to buffer or protect wolves that are denning or which have pups in rendezvous sites, wolves temporarily restrained in pens, or wolves using a pen area immediately post-release. Whenever possible, such closures should allow travel on trails and roads. If a wolf pack might have pups, a closure to prohibit dogs along open trails may also be recommended to prevent conflicts with adult wolves protecting pups. Temporary closures are limited to a radius of one mile around the release pen, den site, or rendezvous site.

Each temporary closure requires substantial coordination among, and input from, all parties involved in the Reintroduction Project, including AMOC, the IFT, AMWG Cooperators, other stakeholders, and the public.

## **Procedures:**

1. If a proposed wolf release on U.S.D.A. Forest Service (USFS) lands includes a temporary closure, or the IFT wants to use a closure to protect an occupied den site or rendezvous site:
  - a. The IFT shall contact the USFS District Ranger and law enforcement agent responsible for the area to discuss the closure and the timeframe in which a decision is needed, and assistance with enactment and enforcement of the closure.
  - b. Immediately upon Lead Agency approval of a wolf release including a proposed pen, den-site, or rendezvous-site closure, the IFT shall request that the Forest Service enact and begin enforcing the closure on the appropriate date.
  - c. Not more than 72 hours before the date on which the closure takes effect, and not more than 72 hours after that date, the IFT, USFS, and/or any cooperators shall post easily visible closure notices or signs: at local USFS District Ranger Stations; at nearby trailheads; in information centers; along trails, roads, or ridges that allow access into the closed area; and in other areas as appropriate.

- d. Each closure notice or sign must clearly indicate what activities are allowed or prohibited, including but not limited to travel on trails and roads, travel off trails or roads, overnight camping, and/or dogs along open trails.
  - e. Each closure notice location must be recorded on a standard form to help ensure that all signs and notices can be located and removed when the closure is lifted.
2. Closures should remain in effect while wolves are in the pen or using the immediate area of the pen, den site, or rendezvous site.
3. Within 24 hours after the IFT has determined the wolves are no longer using the protected area, the IFT Leader for the appropriate jurisdiction shall request that the USFS rescind the closure.
4. Within 72 hours of the USFS lifting the closure, the IFT Leader for the appropriate jurisdiction shall:
  - a. Ensure that all closure notices and signs are removed.
  - b. Notify the local permittees, local county officials, and local USFS District Rangers that the closure has been lifted.
  - c. Collaborate with the Lead Agencies in issuing a general news release, with copies to the county government of the county in which the closure occurred, announcing the closure has been lifted.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

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

**Title:** Supplemental Feeding and Monitoring

**Number:** 8.0

**File Name:** MW SOP 08.Supplemental Feeding and Monitoring.Final.20041217.doc

**Purpose:** This SOP describes when and how released wolves will be offered supplemental food, or monitored after release. It 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:** Supplemental feeding is sometimes needed to enable wolves released from captivity to make the initial adjustment to the wild. Supplemental feeding is discontinued as soon as possible to encourage hunting behavior and to discourage human association with food. Released wolves must also be monitored closely to ensure they are adequately protected while adjusting to life in the wild. Supplemental feeding and post-release monitoring require substantial coordination among, and input from, all parties involved in the Reintroduction Project, including AMOC, the IFT, AMWG Cooperators, other stakeholders, and the public.

**Procedures:**

1. Supplemental feeding of released wolves.
  - a. Wolves may be offered supplemental food by the IFT at a rate of approximately five pounds of meat per wolf per day.
  - b. Salvaged wildlife carcasses and/or carnivore logs (commercial meat logs designed to be fed to canids) may be used as supplemental food.
  - c. The IFT shall record all feedings in one specific database with weights and species of edible meat, UTM location, date and time of drop-off, and usage.
  - d. The IFT shall check supplemental food caches at least once weekly to determine use by wolves or other wildlife.
  - e. To avoid wolves becoming dependent upon human-provided food:
    - i. IFT members and other individuals involved in placing or otherwise managing supplemental food caches shall use appropriate resources (e.g. scent killers) and handling techniques to minimize mixing human scent or behavior with supplemental food or placing or otherwise managing such food. This includes providing appropriate attention to the manner in which supplemental food is stored, delivered, and placed.
    - ii. Supplemental feeding periods/duration shall be limited as much as possible, and shall be discontinued if evidence exists that wolves are finding or killing food on their own. Examples of evidence:
      - (1) Wolves stop using an active feed site.
      - (2) Kills of wild ungulates are found.

- (3) Adult travel patterns indicate wolves are finding other food.
  - (4) Scat – easily determined if carnivore logs are used as supplemental food.
  - iii. If wolves become habituated to IFT members feeding (wolves appear at feeding sites, etc.) Appropriate aversive conditioning techniques should be used, such as less-than-lethal munitions, cracker shells, moving the feeding site to a near by location, etc.
  - f. The IFT shall adjust specific feeding locations, frequency, and techniques as circumstances require (e.g. using different sites for food caches if other predators are nearby or to discontinue feeding when wolves begin feeding on their own).
  - g. Translocated wolves that have previously been free-ranging may not need to be supplementally fed as long as newly released wolves, unless extenuating circumstances arise that require continued supplemental feeding.
  - h. Food caches may be used by the IFT for management purposes many weeks or months post-release (i.e. bait for trapping, feeding pups that lost parents)
2. Monitoring of recently released wolves.
- a. The IFT should monitor newly released wolves (wolves that have not been in wild before) daily for two weeks after the release, and a minimum of three times per week after release to determine when wolves start feeding on wild prey.
  - b. The IFT shall monitor longer and more intensively if wolf movements or behavior indicate likelihood of nuisance behavior or other problems, and shall continue this monitoring until the situation is resolved.
  - c. The IFT shall make intensive efforts at attempting to document the transition of wolves from feeding on supplementary food to killing or scavenging native prey on their own (e.g. by marking supplementary food with phosphorescent dye and checking all scats found near the wolves). If wolves are documented feeding on their own, supplemental feeding will cease.
  - d. When the wolves settle into normal routines without exhibiting problems and/or nuisance behavior, intensive IFT monitoring may be terminated.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

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

**Title:** Road Kill Salvage

**Number:** 9.0

**File Name:** MW SOP 09.Road Kill Salvage.Final.20041217.doc

**Purpose:** The purpose of this SOP is to ensure efficient and safe collection of road-killed carcasses, without jeopardizing criminal investigations or causing unnecessary call-outs of wildlife managers. Furthermore, this SOP has been established to ensure that cervids potentially infected with Chronic Wasting Disease (CWD) are not transported across state lines or uninfected areas within a state, or used as supplemental food for wolves. It 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:** Collecting road-killed ungulates is necessary to accumulate a ready supply of native prey for wolves held in acclimation pens and for the supplemental feeding of wolves immediately post-release. However, before road-killed elk and deer are collected, the carcass needs to be cleared of any suspected criminal poaching activity. Depending on the situation and other circumstances, some road-killed ungulates will have to be examined by a wildlife manager prior to their processing to collect evidence. Some road kills are reported at locations quite distant from the Alpine IFT Field Office, the USFWS New Mexico Ecological Services Field Office, or the Turner Endangered Species Fund Ladder Ranch office. Therefore, it is imperative that accurate location information be gathered to reduce the chances of the IFT or other personnel going to collect road-killed ungulates at the wrong location. It is also important to use a marked vehicle or to be in uniform to reduce the number of erroneous reports by the public of unauthorized people collecting the road kill. These reports assume a possible poaching incident and require unnecessary callout of wildlife managers and involvement of other regional staff. Due to the recent cases of CWD documented in mule deer in New Mexico, the Project has banned transport of any cervids into Arizona from New Mexico (or vice versa). This is to ensure that the Project does not contribute to the spread of CWD throughout the Southwest.

## **Procedures:**

1. The Project has authorization from both the states of Arizona and New Mexico to collect road-killed carcasses, although each state has different conditions of authorization. To obtain clearance to pick up carcasses, the following procedures must be followed:
  - a. Arizona on non-tribal lands:
    - i. Project personnel may obtain clearance to pick up the road kill from the appropriate AGFD Wildlife Manager by calling them on the phone or radio. Leave a message on an answering machine if the Wildlife Manager is

- unavailable. Do not assume the person who reported the carcass to the Project cleared it with a Wildlife Manager.
- ii. Contact information for AGFD Wildlife Managers in the Project area:
    - (1) Chris Bagnoli or Mike Sumner, Game Management Unit 1.
    - (2) Aaron Hartzell or Steve Najar, Game Management Unit 27.
  - iii. If the appropriate AGFD Wildlife Manager cannot be reached, contact the AGFD 24-hour Radio Dispatch at (800) 352-0700.
- b. In Arizona on White Mountain Apache Tribal lands, call WMAT Radio Dispatch at (928) 338-1023 or 338-4385.
  - c. Project personnel should collect brainstem (obex) samples (see Appendix A) from any road-killed ungulate acquired in Arizona within 48 hours of the animals' death. This time frame may be extended in cold climates, but collection of the obex should occur only if the brainstem is firm and intact. Immediately place the sample into formaldehyde solution, package it (see Appendix A), and give it to AGFD Region 1, as soon as possible for CWD testing.
  - d. In New Mexico:
    - i. Project personnel may salvage road-killed javelina, mule deer, white-tailed deer, pronghorn, and elk in New Mexico, provided that accurate information pertaining to the location and date of salvage is attached to each white-tailed deer and javelina salvaged; and that NMDGF is notified [(505) 476-8040 or (505) 476-8035] within one day regarding any salvage of white-tailed deer or javelina, prior to disposing of these specimens.
    - ii. Project personnel are required to immediately report any possession of cervids (mule deer, white-tailed deer and elk) in New Mexico to NMDGF at (505) 476-8080. If the death of any cervid acquired is known to have occurred within 48 hours, Project personnel are required to give the carcass head, or minimally the obex, to a NMDGF Conservation Officer as soon as possible for CWD testing.
    - iii. To contain and prevent spread of CWD in New Mexico, ungulate carcasses must remain in the County of origin, unless NMDGF authorizes differently.
    - iv. NMDGF Conservation Officers in the Project area:
      - (1) Leon Redman, Sergeant (Silver City).
      - (2) Bobby Griego, New Mexico Law Enforcement (Reserve).
      - (3) Michael Larish, New Mexico Law Enforcement (Quemado).
      - (4) Brian Gleadle, NW Area Chief (Albuquerque).
      - (5) Michael Matthews, Acting Sergeant (Socorro area).
      - (6) Ray Aaltonen, Sergeant (Las Cruces).
      - (7) If the appropriate NMDGF Conservation Officer cannot be reached, contact the NMDGF Radio Dispatch at (505) 827-9376.
2. Get specific location information before departing:
    - a. Highway mile marker
    - b. Distance and direction to nearest town
    - c. Which side of the road (North/South, East/West)
    - d. Species and sex

3. Use only marked vehicles to salvage road kills to avoid being suspected of poaching and causing unnecessary call-outs of law enforcement officers.
4. Pack the correct equipment:
  - a. Sharp knife
  - b. Pulaski, ax, or meat saw
  - c. Brainstem sampling equipment
  - d. Heavy duty rubber gloves
  - e. Rope or tow strap
  - f. Electric or crank winch or a come-along
  - g. Flashlight or flood light
5. Always travel with the radio and/or cell phone on to be available to receive information or to communicate with the local wildlife manager or the Regional Offices.
6. When arriving at the site, make sure the truck is pulled off the roadway as much as possible. If it is not safe/feasible to park next to the road kill, proceed to the nearest safe location. If anything appears suspicious, record the license plates, a description of the person(s) and vehicle(s), and then leave the scene and immediately call a local Wildlife Manager (AZ), Conservation Officer (NM), the Regional Office, or Radio Dispatch with the information.
7. If the person who struck the animal wishes to keep it:
  - a. In Arizona, the person must obtain a salvage permit from any AGFD Wildlife Manager, Sheriff Deputy, or Department of Public Service Officer (Highway Patrol).
  - b. In New Mexico, the person must obtain a permit from a NMDGF Conservation Officer before moving the carcass.
  - c. Do not get into a confrontation over possession of a road kill.
8. Carefully inspect the area around the carcass. If there is any evidence of anti-freeze or other hazardous materials, the carcass may not be salvageable.
9. Determine if the ungulate has injuries consistent with road kill. If a bullet wound or other suspicious evidence is found, do not move the animal – immediately call a Wildlife Manager (AZ) or Conservation Officer (NM). The Wildlife Manager or Conservation Officer might ask you to wait at the scene to preserve the evidence until a law enforcement officer arrives.
10. If it is unsafe or inconvenient to quarter the road kill on site, drag it to a better spot or winch it into the back of the pickup and transport it to a safe location.
11. To make the carcass easier to move and transport, remove the entrails and cut it into 5 to 7 parts, depending on its size. Smaller deer can be processed for transport by cutting off all legs, leaving the head on the torso as one piece. With larger elk, all four legs must be removed, the head separated from the chest, and the chest separated from the hips. Young elk calves and deer fawns can sometimes be handled whole.

12. Do not leave the entrails on the roadside in plain view of the public or where they might cause additional road kill of prey or wolves. Remove the entrails to a remote location.
13. Cover the ungulate parts or lay them as flat as possible in the pickup bed so they are not visible to the public.
14. To help prevent spread of CWD, do not transport any road-killed elk or deer across state lines.
15. Transport the road kill to the walk-in freezers at the AGFD Sipe Wildlife Area, USFWS Sevilleta National Wildlife Refuge, TESH Ladder Ranch, or deliver it directly to where it is needed by the IFT. Be sure to record the information about the road kill in the IFT log records next to the freezers. Deposit the road kill into the freezer according to the instructions in the log record.
16. When applicable (e.g. Sipe Wildlife Area Freezer), exchange the drain can hanging from the freezer unit for an empty one, to prevent overflow. Overflow will freeze the first layer of carcasses to the floor. Place the frozen drain can outside the building to thaw and drain.
17. Clean up any blood, hair, etc. around the freezer and on the freezer floor.
18. Make sure the freezer door is shut tight.
19. For road kills salvaged or otherwise noted in Arizona, submit a "Wildlife Vehicle Collision Report (Appendix B) to the AGFD Region 1 (Pinetop) Office.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:** None

## **Appendix A.**

### **Collection of Obex Samples**

There are two options for submission of the obex for diagnosis of CWD in cervids. The first and preferred method is brain stem removal via the foramen magnum, with submission of the obex in formalin. The second is to remove and submit the entire head to AGFD's Research Branch. If this second option is selected, AGFD's Research Branch must be contacted immediately so their personnel can pick-up the specimen directly (Research Branch, [602] 789-3246).

Before attempting to remove an obex from a specimen, all project personnel should be trained by a member of the full-time staff who has received formal training from AGFD's Research Branch. Once this has occurred, this protocol can be used as a guide to reiterate the proper steps for the removal of an obex sample.

Removal of the obex: This procedure is relatively easy in elk, but difficult in deer due to the smaller foramen magnum. The only tools needed are latex gloves, tissue forceps, a long thin sharp scalpel and a container with formalin solution. Gloves should be worn when performing the following procedures. First invert the head/neck so that the ventral side is facing upwards. Then using the posterior end of the mandibles as a starting point, make an inverted 'V-shaped' cut upward until the two incisions connect. Then cut downward through the esophagus and trachea until you can see the two, bolus knobs of the foramen magnum, located where the first cervical vertebrae and the base of the skull connect. This will expose the brainstem, which is off-white in color. You may need to push down on the head and neck to open the incision and fully expose this region. Take the scalpel and insert it through the foramen magnum on the lateral aspect of the brain stem and cut the cerebellar peduncles (where the brainstem forks) bilaterally being careful not to damage the obex region (immediately posterior to the cerebellar peduncles) of the brain. Reinsert the knife between the ventral aspects of the brain stem and floor of the skull as far as possible, at least to the pons region (anterior to where the brainstem forks). Make a turning cut with the knife to sever the brain stem at the level of the pons. With the tissue forceps pull the brain stem out. The obex is now placed in container of 10% buffered formalin solution.

The container is then labeled with the species, sex, and a geographical location of where the sample was collected, using a permanent marker. All samples will be delivered to the AGFD's Region I Office, Pinetop, Arizona.

**Appendix B.**

Arizona Game and Fish Department and Arizona Department of Transportation

**Wildlife Vehicle Collision Report**

(Not a Salvage Permit)

**Collision Information:**

Collision Date \_\_\_\_/\_\_\_\_/\_\_\_\_ Time \_\_\_\_ am/pm \_\_\_\_ Unknown  
 Location: Road Name/Number \_\_\_\_ Nearest 1/10 Mile Post \_\_\_\_  
 Latitude \_\_\_\_/\_\_\_\_/\_\_\_\_ Longitude \_\_\_\_/\_\_\_\_/\_\_\_\_ (degrees, minutes, seconds)  
 or UTM \_\_\_\_ Datum: \_\_\_\_ Nad83, \_\_\_\_ Nad27, \_\_\_\_ Other \_\_\_\_  
 Cross Roads or Landmark \_\_\_\_ County \_\_\_\_  
 Direction of Travel: \_\_\_\_ Eastbound, \_\_\_\_ Westbound, \_\_\_\_ Southbound, \_\_\_\_ Northbound, \_\_\_\_ Unknown

**Reporting Party Information:**

Reporting Date \_\_\_\_ Time \_\_\_\_ am/pm  
 Agency:  AGFD  ADOT  DPS  County  Citizen  Other \_\_\_\_ Officer ID Number: \_\_\_\_  
 Name: \_\_\_\_ Telephone Number: \_\_\_\_

<p><b>Animal Description:</b></p> <input type="checkbox"/> Mule Deer <input type="checkbox"/> Javelina <input type="checkbox"/> Whitetail Deer <input type="checkbox"/> Buffalo <input type="checkbox"/> Elk <input type="checkbox"/> Bear <input type="checkbox"/> Antelope <input type="checkbox"/> Mt. Lion <input type="checkbox"/> Turkey <input type="checkbox"/> Bighorn Sheep <input type="checkbox"/> Other _____	<p><b>Sex:</b></p> <input type="checkbox"/> Male <input type="checkbox"/> Dead <input type="checkbox"/> Salvage Permit # _____ <input type="checkbox"/> Female <input type="checkbox"/> Removed: By Who _____ <input type="checkbox"/> Unknown <input type="checkbox"/> Marked Animal _____
<p><b>Animal Disposition:</b></p> <input type="checkbox"/> Left the Area <input type="checkbox"/> Ear/Collar Tag # _____ <input type="checkbox"/> Dispatched: By Who _____ <input type="checkbox"/> Unknown <input type="checkbox"/> Investigated By _____	<p><b>Age:</b></p> <input type="checkbox"/> Adult <input type="checkbox"/> Juvenile <input type="checkbox"/> Unknown

Multiple Animals:  Report \_\_\_\_ of Total Reports \_\_\_\_ (one per animal)

Comments: \_\_\_\_\_ Form # 9084 9/04

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

**Title:** Incident Reporting by Other Agencies

**Number:** 10.0

**File Name:** MW SOP 10.Incident Reporting.Final.20041217.doc

**Purpose:** This SOP provides step-wise instructions to agencies that are less familiar with the Project to guide them their handling of reports of known or suspected wolf-related incidents of any kind, and to help ensure timely, consistent response by the Project’s Interagency Field Team (IFT) or other (e.g. enforcement) personnel (see Project “Key Contacts” list). It 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.

Note: Report all incidents pertaining to White Mountain Apache Tribal lands (Fort Apache Indian Reservation) directly to the WMAT-Wildlife and Outdoor Recreation Division for handling and record keeping under the Statement of Relationship and Information Protocol developed with USFWS. WMAT will share general information on these incidents with the IFT, AMOC, and AMWG through updates and yearly reports.

**Background:** This information is provided to help agencies and personnel other than the IFT handle reporting incidents that might involve Mexican wolves. The public often reports such incidents to entities unfamiliar with how to ensure that the information reaches the appropriate personnel or agency quickly, for timely response. **The most important concept to keep in mind is that the two highest priorities with any incident report are to ensure that (a) public safety aspects are handled appropriately; and (b) the information is quickly and accurately conveyed to the IFT.**

## **Procedures:**

1. Is this a public safety issue? Has someone been injured or is injury likely?  
If “Yes,” proceed to and follow Steps 1a-1c until the public safety aspect has been handled.  
If “No,” proceed to and follow Steps 2-5.
  - a. Call 911 if necessary (i.e. get immediate medical care for the victim).
  - b. Advise the reporting person to secure the scene to prevent further injuries, if necessary.
  - c. Get specific location and incident information, as well as names and phone numbers of people involved (see Step 1b, above).
  
2. Do not send the reporting party to another number. Obtain and record the information below before passing the information on to the appropriate personnel.
  - a. Ask the reporting party if they have already contacted a member of the IFT to provide

- this information.
- b. If the answer to 2.a. above is “No,” obtain all necessary information, complete an incident report form for cooperating agencies (Appendix A), and thank the reporting party for the information and their interest.
  - c. If the answer to 2.a above is “Yes,” get the name of the IFT member they contacted, confirm what information required on the incident report form for cooperating agencies has already been given to the IFT member, get any missing required information, and thank the reporting party for the information and their interest.
3. Immediately call the following contacts until you reach someone in person, to report the information from the incident report form for cooperating agencies:
- a. 1<sup>st</sup> choice: During business hours, call the IFT Field Office in Alpine: (928) 339-4329. The IFT will then be responsible for:
    - i. Ensuring that the appropriate persons obtain the information from the original reporting party; and
    - ii. Filling out the entire incident report form for IFT personnel (Appendix B).
  - b. 2<sup>nd</sup> choice: If nobody can be reached at the IFT Field Office, call the AGFD Radio Dispatch (available 24 hours/day, 7 days/week): (800) 352-0700. AGFD Dispatch will then be responsible for contacting the appropriate persons per the Incident Response Contact List (Appendix C).
  - c. Note: Cooperating agency personnel sufficiently familiar with the Reintroduction Project may, at their own discretion, choose to contact the person who will respond to the incident directly, instead of providing the information from the incident report form for cooperating agencies to the Alpine Field Office or AGFD Dispatch. However, if such persons choose to complete this optional step, in lieu of the two choices immediately above, they must follow the procedures described in Appendix C.
4. Encourage the contact to leave a message at the Mexican Wolf Hotline: (888) 459-9653.
5. Record-keeping for the incident report form for cooperating agencies (Appendix A):
- a. Make a copy and retain it on file.
  - b. Fax the original to the IFT Field Office at (928) 339-4218, or mail it to the IFT at: Mexican Wolf Project, P.O. Box 856, Alpine, AZ 85920.

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

### **References:**

U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

Appendix A.

MEXICAN WOLF REINTRODUCTION PROJECT  
Incident Reporting Form for Cooperating Agencies

Date of Incident: \_\_\_\_\_

Date of Report: \_\_\_\_\_

Observer(s):

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

Recorder:

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

Incident Type:  Public Safety  Livestock or Pet Depredation  Sighting of a live or dead wolf

Details of Location:

Private Land  Public Land  Other, Specify: \_\_\_\_\_

Location Specifics (Road #'s, Landmarks, mileposts, etc.): \_\_\_\_\_

\_\_\_\_\_

List the phone numbers that were attempted and names of people that were contacted:

Agency:	Name of Person:	Contacted:	Left Message:
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

Narrative Account of the Incident:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

When completed, FAX to (928) 339-4218 or mail to: Mexican Wolf Project, P.O. Box 856, Alpine, AZ 85920

**Appendix B. MEXICAN WOLF REINTRODUCTION PROJECT**

**INCIDENT REPORT (IFT Personnel)**

Date of Observation: \_\_\_\_\_

Date of Report: \_\_\_\_\_

Time of Report: \_\_\_\_\_

**Observer(s):**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Recorder:**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Details of Location:**

Private land  Public land  Other, specify: \_\_\_\_\_

Location Specifics (road #'s, landmarks, mileposts, etc.): \_\_\_\_\_

Estimated GPS of Incident: \_\_\_\_\_

Habitat Description (open, forested, drainage, vegetation, visibility, etc.): \_\_\_\_\_

**Details of Observation/Occurrence:**

Approximate time of sighting: \_\_\_\_\_ Distance between you and wolves: \_\_\_\_\_

Length of observation: \_\_\_\_\_

**Observation Type:**

**Livestock:**

Wolf feeding on dead livestock<sup>1</sup>  Wolf chasing livestock  Wolf observed in or near livestock

Dead or wounded livestock suspected wolf depredation<sup>1</sup>

**Humans:**

Interaction with Humans  Interaction with Domestic Pets<sup>1</sup>

**Wolf Sighting:**

Live wolf<sup>2</sup>  Dead wolf<sup>3</sup>  Injured Wolf<sup>2</sup>  Wild Ungulate Kill<sup>4</sup>  Den<sup>2</sup>  Howling<sup>2</sup>  Tracks<sup>2</sup>

Other, specify \_\_\_\_\_

<sup>1</sup>If an investigation is initiated for dead or injured livestock or dogs, please attach the form associated with the appropriate procedure (SOP 11.0: Depredation on Domestic Livestock and Pets) and ensure that this procedure is followed.

<sup>2</sup> Please attach the form associated with the appropriate procedure (SOP 10.0: Incident Reporting) and ensure that this procedure is followed.

<sup>3</sup> Please attach the form associated with the appropriate procedure (SOP 12.0: Mortality and Injury Response) and ensure that this procedure is followed.

<sup>4</sup> Please attach the form associated with the appropriate procedure (SOP 19.0: Intensive Winter Wolf Monitoring and Ungulate Mortality Collection) and ensure that this procedure is followed.

**(Appendix B. Continued.)**

**Observation By:**

Naked Eye    Binoculars    Rifle scope  
Number of Animals \_\_\_\_\_ (if known: \_\_\_\_ Adults   \_\_\_\_ Young adults   \_\_\_\_ Small Pups)  
Did you observe radio collars?:  No    Yes   If yes, how many wolves with collars? \_\_\_\_  
What color were the collars? \_\_\_\_\_

Physical Description of wolves (color/markings, size, position of tail, etc.):

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Narrative Account of Observation:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Observer's prior experience with wolves and coyotes:**

\_\_\_\_\_  
\_\_\_\_\_

**Additional Space:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Thank you for your time!*

**\*\*\*\*For Office Use Only\*\*\*\***

**Reviewed by:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Nearest known pack location at the time of sighting: Pack- \_\_\_\_\_ Wolf ID- \_\_\_\_\_

Location- \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Pack/Wolf confirmation: Yes / No / ?**

**Pack-** \_\_\_\_\_ **Wolf ID-** \_\_\_\_\_

**Miscellaneous/Reason for Confirmation or Denial:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix C.

### **Procedures for Mexican Wolf Cooperating Agencies for Directing Incident Reports to Appropriate Persons to Respond**

1. Is this a public safety issue? Has someone been injured or is it likely?  
If “No,” proceed to Step 2, if the IFT has not already been contacted about this incident.  
If “Yes,” follow Steps 1a-1c.
  - a. Call 911 if necessary (i.e. get immediate medical care for the victim).
  - b. Advise the reporting person to secure the scene to prevent further injuries, if necessary.
  - c. Get specific location and incident information as well as names and phone numbers of people involved.
  
2. Is this a depredation on livestock or injury/death to a domestic animal by a wolf?  
If “No,” Proceed to Step 3.  
If “Yes,” follow Steps 2a through 2m.
  - a. If the depredated animal is still alive, advise the owner to get it veterinary attention (take pictures prior to treatment, if possible).
  - b. Get specific location information as well as names and phone numbers (see 2h).
  - c. Call the following contacts until you reach someone:
    - i. Wolf Project IFT Field Office in Alpine, AZ at (928) 339-4329
    - ii. J. Brad Miller, IFT member with Wildlife Services
    - iii. Richard Grabbe, IFT member with Wildlife Services
    - iv. State/Tribal Game and Fish Radio Dispatch (instruct Dispatch to radio or call people at home if necessary to ensure contact)
      - (1) In Arizona: (800) 352-0700.
      - (2) In New Mexico: (505) 827-9376.
      - (3) On White Mountain Tribal Lands: (928) 338-1023 or (928) 338-4385.
    - v. USFWS Mexican Wolf Recovery Headquarters: (505) 761-4782 or (505) 346-2525
  - d. If no one is immediately available to respond, advise the reporting party to preserve as much evidence of the alleged wolf attack as possible (carcass, tracks, take pictures, etc). To protect the carcass, securely cover it with a tarp.
  - e. Advise the reporting party that it may take up to 24 hours for someone to respond, and be sure to get all available contact information from the reporting party (see Step 2b, above).
  - f. Ask the reporting party about their availability for the next few days, and get their contact information for that period.
  - g. Complete an incident report form for cooperating agencies (Appendix A) and fax it to the IFT Field Office at (928) 339-4218 or mail it to the IFT at: Mexican Wolf Project, P.O. Box 856 Alpine, AZ 85920.

## Appendix C. Continued.

- h. Provide the Handout “Guides, Outfitters, and Forest Visitors,” or reference the legal methods for harassing wolves that are causing an incident.
  - i. Thank the reporting party for the information.
  - j. Refer details on the Mexican wolf depredation compensation program to Defenders of Wildlife (contact: Craig Miller). However, if asked, Project personnel can provide basic information as follows:
    - i. It is a private fund administered by Defenders of Wildlife.
    - ii. Upon completion of the investigation, Defenders will be issued a report from the investigators indicating their findings.
    - iii. If the depredation is a confirmed wolf depredation, Defenders will pay compensation based on fair market value of the livestock.
    - iv. Provide Defenders of Wildlife handouts on the compensation program.
  - k. Any wolf control actions will be conducted according to SOP 13.0.
  - l. The IFT will complete and maintain copies of an incident report form for IFT personnel for each wolf report.
3. Is this a sighting report of a live or dead wolf?  
If “No,” determine what is at issue and handle it appropriately.  
If “Yes,” follow Steps 3a through 3e.
- a. Be sure to get:
    - i. The name, address, and phone number of the reporting party.
    - ii. Specific location information, including road numbers and a map if possible.
  - b. Is the wolf alive?
    - i. If “Yes,” Follow Step 3c below
    - ii. If “No,” Follow Step 3d below
  - c. Live wolf:
    - i. Explain that visual sighting reports can be very useful to the project, especially if it involves pups or un-collared wolves.
    - ii. Provide the handout, “Guides, Outfitters, and Forest Visitors” (Appendix E).
    - iii. Call the Mexican Wolf Project.
      - (1) Wolf Project Field Office in Alpine AZ: (928) 339-4329.
      - (2) Mexican Wolf Project Hotline: (888) 459-9653.
      - (3) On White Mountain Apache Tribal lands, call WMAT directly at (928) 367-8321x521 or 338-1023 or 338-4385.
    - iv. Fill out an incident report form for cooperating agencies (Appendix A) and a non-project personnel observation report form (Appendix B), and fax them to the IFT Field Office at (928) 339-4218 or mail them to the IFT at: Mexican Wolf Project, P.O. Box 856, Alpine, AZ 85920
    - v. Thank the reporting party for the information.

## Appendix C. Continued.

- d. Dead wolf:
  - i. Dead wolves are considered crime scenes, so advise reporting parties to keep everybody away from the dead wolf to preserve the scene. Ask the reporting person to provide any pertinent information, such as vehicle descriptions and license plate numbers, person descriptions, locations and descriptions of camps in the area, etc.
  - ii. Call the following contacts until you reach someone:
    - (1) Wolf Project Field Office in Alpine AZ: (928) 339-4329
    - (2) USFWS Law Enforcement:
      - (a) Special Agent in Springerville/Alpine AZ: (928) 339-5245 or (480) 225-1615
      - (b) Resident Agent in Charge in Mesa AZ: (480) 967-7900 or (480) 225-2282
      - (c) Special Agent in Albuquerque NM: (505) 346-2715 or (505) 401-0552
      - (d) Resident Agent in Charge in Albuquerque, NM: (505) 346-7828 or (505) 238-2438
    - (3) State/Tribal Game and Fish Radio Dispatch (instruct Dispatch to radio or call personnel at home as necessary to ensure contact):
      - (a) In Arizona on non-Tribal lands: (800) 352-0700
      - (b) In Arizona on White Mountain Apache Tribal lands: (928) 338-1023 or (928) 338-4385
      - (c) In New Mexico: (505) 827-9376
    - (4) USFWS Mexican Wolf Recovery Headquarters at (505) 761-4782 or (505) 346-2525
  - iii. Encourage the contact to leave a message at the Mexican Wolf Project Hotline (888) 459-9653
  - iv. Fill out an incident report form for cooperating agencies and a non-project personnel observation report form, and FAX them to the IFT Field Office at (928) 339-4218 or mail them to the IFT at: Mexican Wolf Project, P.O. Box 856, Alpine, AZ 85920
  - v. Thank the reporting party for the information
- 4. The IFT must complete an incident response form (Appendix B) for dead wolves, or sighting of wolves near live or dead cattle.
- 5. The IFT, in cooperation with the Mexican Wolf Recovery Coordinator, will decide the appropriate response to the situation, in accordance with applicable SOPs.

**Appendix D.**

**MEXICAN WOLF RECOVERY PROGRAM**

**NON-PROJECT PERSONNEL ----- WOLF OBSERVATION REPORT**

Date of Observation: \_\_\_\_\_

Date of Report: \_\_\_\_\_

**Observer(s):**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Recorder:**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Details of Location:**

Private land  Public land  Other, specify: \_\_\_\_\_

Location Specifics (road #'s, landmarks, mileposts, etc.): \_\_\_\_\_

Habitat Description (open, forested, drainage, vegetation, visibility, etc.): \_\_\_\_\_

**Details of Observation/Occurrence:**

Approximate time of sighting: \_\_\_\_\_ Distance between you and wolves: \_\_\_\_\_

Length of observation: \_\_\_\_\_

**Observation Type:**

Live wolf  Dead wolf  Den  Kill  Tracks  
 Howling  Other, specify \_\_\_\_\_

**Observation By:**

Naked Eye  Binoculars  Riflescope

Number of Animals \_\_\_\_\_ (if known: \_\_\_\_\_ Adults \_\_\_\_\_ Young adults \_\_\_\_\_ Small Pups)

Did you observe radio collars?:  No  Yes If yes, how many wolves with collars? \_\_\_\_\_

What color were the collars? \_\_\_\_\_

Physical Description of wolves (color/markings, size, position of tail, etc.):

\_\_\_\_\_  
\_\_\_\_\_

**Narrative Account of Observation:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## Appendix E.

### Guides, Outfitters, and Forest Visitors:

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Mexican gray wolves have been reintroduced into the Apache National Forest in Arizona and into the Gila National Forest in New Mexico.

Mexican gray wolves are protected under the Endangered Species Act. Care should be exercised when hunting or trapping in wolf recovery areas to avoid killing or injuring a Mexican gray wolf. Hunters should be sure of their target.

For more information on the Mexican gray wolf recovery program, contact the USFWS at 505/761-4782 or 346-2525.

For law enforcement issues, contact your local game warden. To report sightings or incidents, call the 24-hour Mexican Wolf Hotline at 1-888-459-9653.

#### Recommendations

- Respect posted wildlife closures.
- Treat wolves and other wild animals with respect.

- Never feed a wild animal. Keep food and garbage in airtight containers.
- Dispose of gray water at least 100 yards from camp.
- Keep dogs under control at all times and leashed when possible.
- Should you hear or see wolves near your camp:

Contain dogs in tent or vehicle, *if possible*.

Frighten or harass wolves away, *if necessary*.

#### You may legally\*:

- harass a wolf without injuring it, but you must report it within seven days;
- kill or injure a wolf that is killing, wounding, or biting your cattle, sheep, horses, mules, or burros on your private or tribal land, but you must report it within 24 hours;
- kill or injure or harass a wolf in defense of human life, but you must report it within 24 hours.

#### You may not legally\*:

- kill or injure a wolf just because it is near you or your property;
- kill or injure a wolf that attacks your pet;
- kill or injure a wolf feeding on dead livestock;
- enter official closures around occupied release pens, active dens, and rendezvous sites;
- shoot a wolf because you thought it was a coyote or something else (you are responsible for identifying your target before shooting);

*or*

- attempt to do any of the above actions or solicit someone else to do them.

\*Violations of these rules may subject you to prosecution. Criminal penalties may be up to one year in jail and a fine of up to \$100,000

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

**Title:** Depredation on Domestic Livestock and Pets

**Number:** 11.0

**File Name:** MW SOP 11.Depredation Response.Final.20041217.doc

**Purpose:** This SOP describes IFT response modes to implement when domestic livestock or pets are discovered dead or injured (due to wolf predation) by the IFT, or reported to the IFT by anyone else. It 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:** Depredations of domestic animals (e.g. livestock and pets) are an important management concern, as discussed in the Mexican Wolf Final Environmental Impact Statement (USFWS 1996), Mexican Wolf Final Rule (Federal Register: January 12, 1998, Volume 63, Number 7, Pages 1752-1772; or 50 CFR17.84(k)), and the 1998 Interagency Management Plan (USFWS 1998). Although confirmed wolf depredations are typically few in number relative to other causes of livestock death, for an individual producer chronic depredation can have significant economic impact, so each wolf depredation is inordinately controversial (Bangs et al. 1998). Therefore, IFT response to depredation reports must be timely, thorough, and consistent, in order to alleviate losses, allay landowner concerns, and minimize future depredations.

## **Procedures:**

Note: Depredation reports that come to another agency or to someone who is not on the IFT, may initially be handled per SOP 10.0. SOP 11.0 provides specific guidance for IFT handling of such reports. If a key IFT member or other contact identified in a Step below cannot be reached, the IFT member attempting contact will find an appropriate surrogate or will act as the surrogate.

**Telephone numbers pertaining to this SOP are on the Project’s list of “Key Contacts.”**

1. Contact information and follow-up.
  - a. Immediately communicate any report of possible wolf depredation on domestic livestock or pets to the IFT at (928) 339-4329.
  - b. The first IFT member contacted will ensure that all other IFT members are aware of the reported incident, as necessary to handle it.
2. The IFT will handle reported incidents as follows:
  - a. For wolf depredations in Arizona on non-tribal lands, the IFT will coordinate with the AGFD IFT Leader to ensure immediate telephone contact with the person who allegedly suffered the wolf depredation. The IFT will also ensure that the affected party is aware of all processes and timeframes involved in a depredation investigation. If the AGFD IFT

- Leader is not immediately available, the IFT will coordinate with another AGFD IFT member to initiate follow-up.
- b. For wolf depredations in Arizona on WMAT lands, the IFT will coordinate with the WMAT IFT Leader and proceed as directed.
  - c. For wolf depredations in Arizona on SCAT lands, the IFT will coordinate with the SCAT and proceed as directed. Note: until and unless the SCAT provides permission for AGFD IFT members to access SCAT lands for wolf management purposes, IFT ground support for SCAT will be limited to USFWS and WS members.
  - d. For wolf depredations in New Mexico, the IFT will coordinate with the NMDGF IFT Leader to ensure immediate telephone contact with the person who allegedly suffered the wolf depredation. They will also ensure that the affected party is aware of all processes and timeframes involved in a depredation investigation. If the NMDGF IFT Leader is not immediately available, the IFT will coordinate with the appropriate NMDGF District Officer to initiate follow-up.
3. AMOC intent is for the IFT to respond to all wolf depredation reports by accessing the incident site within 24 hours, and for WS IFT members to be the primary investigators for such incidents. Thus, other IFT members contacted initially will make every effort to reach a WS IFT member to initiate follow-up. However, other IFT members will initiate follow-up as necessary if a WS employee is not immediately available, and may assist WS at the scene or as requested or is otherwise appropriate. These investigations are opportunities for all IFT members to learn investigative techniques and how to interact with the affected parties. **Note: IFT members may not access private land without the landowner's prior approval.**
  4. Arrival at the scene. The first priority for anyone arriving at the scene, or otherwise assisting WS with the investigation, is to protect the scene to minimize damaging evidence as follows:
    - a. WS IFT member immediately available – WS will initiate contact with the affected party to ensure permission for access, visit the scene within 24 hours, secure the scene per Step 5 (below), and proceed with Step 6 (below).
    - b. WS IFT member not immediately available – If WS cannot arrive at the scene within 24 hours of receiving the report, WS will coordinate with the IFT to ensure that:
      - i. Another IFT member will initiate contact with the affected party, visit the scene within 24 hours, and secure the scene per Step 5, below; and
      - ii. Only one IFT member investigates the incident.
  5. At the scene, the first-arriving IFT member will:
    - a. Photograph the carcass (position, wounds, etc.) and the surrounding area.
    - b. Ensure that the carcass is covered by a tarp, with secured edges.
    - c. Preserve observed scat, tracks, or other evidence by covering it to protect against deterioration (e.g. from rain or trampling).
    - d. Monitor for any possible radio-collared wolves in the area.
    - e. Look for sign of wolves and other predators in the area.
    - f. Note presence of other livestock or pets in the area.
    - g. Fill out a depredation report form (Appendix A).
    - h. Scout the surrounding area for possible areas to trap.
    - i. Await arrival of the agreed-upon IFT “incident investigator.”

6. At the scene, the IFT investigator will follow established guidelines to determine the cause of death (Roy and Dorrance 1976, Fritts 1982), based on the available evidence.
  - a. Causes of death are: predation (wolf, coyote, lion, bear, or other), non-predatory, or unknown). Determination of depredation will consider the following criteria (see Roy and Dorrance 1976 for complete guidelines):
    - i. Subcutaneous hemorrhaging associated with wounds on the carcass.
    - ii. Size of the canine spread on the hide.
    - iii. Attack points on the carcass (i.e. wolves and coyotes typically attack the hamstring and armpit area, whereas lions generally attack the back of the neck).
    - iv. Size and extent of bones chewed by the predator.
    - v. Tracks/scat/hair in the area.
    - vi. Disturbed vegetation and terrain in the area, with areas of blood on the ground.
    - vii. Any additional evidence around the site (e.g. poison plants, skinned carcass).
    - viii. Presence or history of wolves or other predators in the immediate area.
  - b. Cause of death will be classified as follows, based on evidence at the site: confirmed, probable, possible, or not a wolf kill. Determination and classification of cause of death does not need to be made at the initial scene of investigation, but should be completed as soon as possible after the on-site investigation has been completed.
7. Management response.
  - a. If wolves are, or might be, responsible for an isolated depredation incident (e.g. confirmed, probable, or possible wolf kill designation), the following actions may be taken:
    - i. Trapping can be immediately undertaken at the site, in accordance with SOP 14.0.
    - ii. If weather conditions preclude trapping, but pack structure indicates uncollared animals are (or might be) involved, darting may be used per SOP 22.0.
    - iii. If neither trapping nor darting is appropriate (per their respective SOPs):
      - (1) The wolves should be hazed at the carcass; and
      - (2) The carcass should be removed, or rendered unpalatable (e.g. treated with lime) and (if possible) securely covered.
  - b. In accordance with SOP 13.0, wolves that exhibit a consistent pattern of livestock depredation or nuisance behavior may be hazed, translocated, placed in captivity, or removed via lethal control.
8. Reports.
  - a. The IFT Investigator must complete a depredation form (Appendix A) immediately for each depredation investigation, and submit it to the IFT Field Office within two weeks of the investigation.
  - b. A copy of the completed depredation form must be retained in the IFT office.
  - c. Wildlife Services will provide the person who suffered the depredation with:
    - i. Two copies of the completed depredation form (Appendix A), and
    - ii. Information on the Defenders of Wildlife depredation compensation program.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 24, 2004.

**References:**

- Bangs, E.E., S.H. Fritts, J.A. Fontaine, D.W. Smith, K.M. Murphy, C.M. Mack, and C.C. Niemeyer. 1998. Status of gray wolf restoration in Montana, Idaho, and Wyoming. *Wildlife Society Bulletin* 26:785-798.
- Fritts, S.H. 1982. Wolf depredation on livestock in Minnesota. U.S. Fish and Wildlife Service Resource Publication 145.
- Roy, L.D., and M.J. Dorrance. 1976. Methods of investigating predation of domestic livestock: a manual for investigating officers. Alberta Agriculture, Edmonton, Alberta, Canada.
- U.S. Fish and Wildlife Service. 1996. Reintroduction of the Mexican wolf within its historic range in the southwestern United States: final environmental impact statement. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

**Appendix A.**

**DEPREDATION FORM**

Resource Owner: \_\_\_\_\_  
Mailing Address: \_\_\_\_\_  
Phone: \_\_\_\_\_ County: \_\_\_\_\_ Ranch Name: \_\_\_\_\_

**SITE DESCRIPTION:**

Nearest Town: \_\_\_\_\_ Allotment Name (if applicable) \_\_\_\_\_  
Approximate Location: \_\_\_\_\_  
Coordinates: UTMN: \_\_\_\_\_ UTME: \_\_\_\_\_  
Elevation \_\_\_\_\_ Slope \_\_\_\_\_ % Aspect \_\_\_\_\_  
Vegetative Cover: \_\_\_\_\_  
Topography (riparian, S. slope, bench, etc.) \_\_\_\_\_  
General description of area: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date Complaint Received: \_\_\_\_\_ Date Investigated: \_\_\_\_\_

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Land Ownership:  Private  FS  BLM  State  Tribal  Other \_\_\_\_\_  
Type of Animal:  Sheep  Lamb  Bull  Cow  Calf  Horse  Colt  Dog  Other \_\_\_\_\_  
Number of Selected Animal: \_\_\_\_\_  
Damage Type:  Killed  Injured  Harassment  Stillborn  Other \_\_\_\_\_  
Breed \_\_\_\_\_  
Ear Tag # \_\_\_\_\_  
Sex \_\_\_\_\_  
Est. time Since Death or Injury: \_\_\_\_\_  
Estimated Age of Resource \_\_\_\_\_

Are there other livestock in the area?  Y  N Describe (how many, behavior, composition, distance from mortality) \_\_\_\_\_  
\_\_\_\_\_

**EVIDENCE:**

Detection method:  Report from owner  Birds  Other: \_\_\_\_\_  
Carnivore Tracks Present:  Mexican wolf  coyote  mountain lion  black bear  other: \_\_\_\_\_  
Scat Present:  Mexican wolf  coyote  mountain lion  black bear  other: \_\_\_\_\_

Carnivores observed in area? Describe: \_\_\_\_\_  
Carcass hidden or in the open? \_\_\_\_\_

Carcass covered ?  Y  N  
Carcass moved?  Y  N  
Drag marks present?  Y  N  
Collared wolves in area?  Y  N If yes, then number \_\_\_\_\_  
Blood on vegetation?  Y  N Describe: \_\_\_\_\_  
Apparent point of first feeding: \_\_\_\_\_

Percentage of Carcass Remaining

- 0-25%---No soft tissue, hide present, disarticulated.
- 26-50%--All organs consumed, all or most of quarters consumed, partial disarticulation.

- 51-75%--All organs and portions of the hind quarters consumed, front quarters and neck intact, articulated.
- 76-100%--some organs consumed, most soft tissue intact, skeleton articulated.

Describe any additional evidence that is discovered in the area:

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Describe hemorrhages and corresponding marks seen while skinning the hide or other abnormalities (Location and type, e.g. claw marks on right hind leg, or canine marks on neck)

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Canine spread (if applicable): \_\_\_\_\_ mm

Cause of Damage:

- Confirmed                      Carnivore (list species) \_\_\_\_\_
- Probable
- Possible
- Accident \_\_\_\_\_
- Unknown
- Other: \_\_\_\_\_

**ADDITIONAL INFORMATION:**

Were photos taken of the site?  Y  N    Attached?  Y  N  
 Was a veterinarian involved in cause of death determination?  Y  N  
 If yes, is a veterinarian report attached  Y  N

**SUMMARY OF INCIDENT** (including preface and actions taken):

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Lead Investigator: \_\_\_\_\_

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

**Title:** Mortality and Injury Response

**Number:** 12.0

**File Name:** MW SOP 12.Mortality and Injury Response.Final.20041217.doc

**Purpose:** This SOP defines the procedures by which IFT members respond to Mexican wolf mortalities or injuries, and notify the appropriate Law Enforcement (LE) officer. It 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:** USFWS has jurisdiction to investigate the taking of Mexican wolves pursuant to the Endangered Species Act, *Title 16, United States Code, Sections(s) 1531-1544 and Title 50, Code of Federal Regulations, Part 17*. If a Mexican wolf is found injured or dead, USFWS Special Agents will assume primary responsibility for investigating the cause of injury or death. The location where the dead or injured wolf is found, and the surrounding area, are considered a crime scene and will be thoroughly examined for evidence of criminal violation. All wolf injuries or deaths will be considered human-caused until the investigation determines otherwise.

IFT members are often the first to identify a wolf mortality or injury, while monitoring and managing free-ranging wolves. They may encounter a possible mortality based on a telemetry signal, or an actual dead wolf. Thus, it is crucial that all IFT members know what is expected of them under such circumstances, to ensure proper handling of the potential crime scene, and a thorough and timely investigation.

## **Procedures:**

1. Report of a dead Mexican wolf
  - a. Get name, address, and phone number of the reporting party.
  - b. Get as much specific location information as possible, including road numbers, UTM's, and a map or explicit directions.
  - c. Fill out an Incident Report Form (Appendix A) and the Non-Project Personnel Observation Report Form (Appendix B).
  - d. Dead wolves are considered crime scenes until proven otherwise, so advise the reporting party to keep everybody away to preserve the evidence. Ask the reporting party to note any pertinent information in the area, such as vehicle license plate information, descriptions of people, locations and descriptions of camps in the area, etc.
  - e. Thank the reporting party for the information.
  - f. Notify your Supervisor.
  - g. Call the following LE contacts until you reach someone; then follow their instructions

for responding to the incident.

i. USFWS Law Enforcement:

(1) For dead wolves in Arizona call:

(a) Special Agent in Alpine, Arizona (James Ashburner)

(b) Resident Agent in Charge in Mesa, Arizona (Doug McKenna)

(c) If USFWS agents are not available:

(i) If the report is for non-tribal lands, call the appropriate AGFD Wildlife Manager on their AGFD radio. If unsuccessful, call AGFD Radio Dispatch and instruct Dispatch to radio or call at home the appropriate AGFD Wildlife Manager for the area where the dead wolf was reported.

(ii) If the report is for White Mountain Apache Tribal Lands, call WMAT Radio Dispatch.

(iii) If the report is for San Carlos Apache Tribal Lands, call SCAT Radio Dispatch.

(2) For dead wolves in New Mexico call:

(a) Special Agent in Albuquerque, New Mexico (Brian Lakes).

(b) Resident Agent in Charge in Albuquerque, New Mexico (Tom Karabanoff).

(c) If USFWS Special Agents are not available, call:

(i) Nick Smith, NMDGF Conservation Officer.

(ii) NMDGF Radio Dispatch.

h. Call and report to the Mexican Wolf Recovery Coordinator (John Morgart) and Assistant Coordinator (Colleen Buchanan).

2. Detecting a mortality signal of a dead Mexican wolf. If you are radio-tracking and hear a mortality signal (approximately 90-120 beats per minute, be sure to record the exact number of beats per minute).

a. Be calm and discreet. Do not say, "dead wolf" or "wolf mortality," over the radio; avoid excessive radio communication.

i. When communicating on radio, use "10-86" for a wolf mortality.

b. Try to get as accurate a location as possible using telemetry, but do not attempt to get a visual contact.

c. Immediately contact the appropriate law enforcement official and follow their instructions. The officer may want you to confirm that it is mortality and not a malfunctioning collar or sleeping wolf, or stay out of the area until the officer arrives.

i. If the officer directs you to approach the scene:

(1) Park your vehicle away from the immediate area, to preserve any vehicle/people tracks that might be critical to an investigation.

(2) Use a travel route that is least likely to disturb evidence, e.g. footprints, vehicle tracks, blood trail, presence of hair dislodged by a bullet wound, etc.

(3) If weather conditions might deteriorate evidence, take photographs of vehicle tracks, footprints, or any other evidence gathered to facilitate further investigation.

(4) Do not approach the site any closer than necessary to confirm a mortality.

d. Contact the IFT, tell them what the situation is, and use them to make the necessary

- contacts if you cannot reach an LE official.
  - e. If you cannot establish radio communication, move to a better location or a telephone and make the necessary calls.
  - f. Record all human activity in the area, including license plates, vehicles, camps, etc. Do not confront any members of the public.
- 3. If you observe a dead wolf.
  - a. Do not approach the wolf. All dead wolves are considered a crime scene.
  - b. Notify your Supervisor and the IFT Leader for the area.
  - c. Immediately contact an LE official listed above (see Step 1), and follow their instructions. When communicating on radio, use “10-86” for a wolf mortality.
  - d. Contact another member of the IFT, and tell them what the situation is. Use them to make the necessary contacts if you cannot reach an LE official.
  - e. Remain within sight of the carcass (get GPS coordinates), but as far away as possible (the farther away the better) to avoid evidence contamination.
  - f. Await arrival of LE personnel. You may have to leave the carcass to rendezvous with responding LE personnel, per their instruction.
    - i. Unless instructed by LE personnel, do not tarp the carcass.
    - ii. Note any license plates and people in the area, but **Do Not** question anyone.
    - iii. Do not disturb any vehicle tire marks or footprints in the area.
    - iv. Route traffic around the area to protect evidence, or take pictures without disturbing them, especially if more vehicle traffic is expected in the area.
  - g. When LE personnel arrive, it is their crime scene. Assist them as necessary and follow their instruction. Take direction from them. You may be asked to leave after answering a few questions. USFWS Special Agents will, upon arrival, assume responsibility for security of the site and may relieve other responding LE officers.
- 4. If you observe an injured Mexican wolf:
  - a. Record specifically what injury you observe.
  - b. Is the animal still moving?
    - i. If no, go to Step c (below).
    - ii. If yes:
      - (1) Contact the IFT.
      - (2) Note the specific injury, e.g. blood, broken leg (which leg?), behavior, anything that may indicate the severity of the injury, etc.
      - (3) The Field Projects Coordinator, in consultation with the appropriate IFT Leader and other IFT members, will determine what action, if any, is needed to handle the injured wolf.
  - c. If the animal is not moving:
    - i. Contact the IFT.
    - ii. Follow directions in Step 3, as if it were a dead wolf.
    - iii. If immediate veterinary care is needed, as determined by the appropriate IFT Leader and/or the Field Projects Coordinator, get approval from the responding LE personnel.
- 5. If you find a dropped radio-collar:

- a. Leave it on site and do not touch it.
  - b. Notify the IFT immediately, to seek guidance from an IFT Leader and/or the Field Projects Coordinator.
6. If you find a cut-off or unscrewed radio collar:
- a. Leave it on site and do not touch it.
  - b. Treat it as a crime scene.
  - c. Follow the directions in Step 3, as if it were a dead wolf.
7. If you find a malfunctioning collar, as determined by seeing a live wolf wearing that collar/frequency:
- a. Leave the site immediately.
  - b. Notify the IFT immediately and seek guidance from an IFT Leader, the Field Projects Coordinator, or a senior IFT member.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:** None

**Appendix A.**

**MEXICAN WOLF REINTRODUCTION PROJECT  
Incident Reporting Form for Cooperating Agencies**

---

**Date of Incident:** \_\_\_\_\_

**Date of Report:** \_\_\_\_\_

**Observer(s):**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Recorder:**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Incident Type:**  Public Safety  Livestock or Pet Depredation  Sighting of a live or dead wolf

**Details of Location:**

Private Land  Public Land  Other, Specify: \_\_\_\_\_

Location Specifics (Road #'s, Landmarks, mileposts, etc.): \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**List the phone numbers that were attempted and names of people that were contacted:**

Agency:	Name of Person:	Contacted:	Left Message:
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
_____	_____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Narrative Account of the Incident:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

When completed, FAX to (928) 339-4218 or mail to: Mexican Wolf Project, P.O. Box 856, Alpine, AZ 85920

**Attachment B.**

**MEXICAN WOLF RECOVERY PROGRAM  
NON-PROJECT PERSONNEL ----- WOLF OBSERVATION REPORT**

Date of Observation: \_\_\_\_\_

Date of Report: \_\_\_\_\_

**Observer(s):**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Recorder:**

Name: \_\_\_\_\_

Mail Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Zip \_\_\_\_\_

Phone: \_\_\_\_\_

**Details of Location:**

Private land  Public land  Other, specify: \_\_\_\_\_

Location Specifics (road #'s, landmarks, mileposts, etc.): \_\_\_\_\_

Habitat Description (open, forested, drainage, vegetation, visibility, etc.): \_\_\_\_\_

**Details of Observation/Occurrence:**

Approximate time of sighting: \_\_\_\_\_ Distance between you and wolves: \_\_\_\_\_

Length of observation: \_\_\_\_\_

**Observation Type:**

Live wolf  Dead wolf  Den  Kill  Tracks  
 Howling  Other, specify \_\_\_\_\_

**Observation By:**

Naked Eye  Binoculars  Rifle scope  
Number of Animals \_\_\_\_\_ (if known: \_\_\_\_\_ Adults \_\_\_\_\_ Young adults \_\_\_\_\_ Small Pups)  
Did you observe radio collars?:  No  Yes If yes, how many wolves with collars? \_\_\_\_\_  
What color were the collars? \_\_\_\_\_

Physical Description of wolves (color/markings, size, position of tail, etc.):  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Narrative Account of Observation:**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



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

**Title:** Control of Mexican Wolves

**Number:** 13.0

**File Name:** MW SOP 13.Control of Mexican Wolves.In Prep.doc

In prep. by AMOC

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

**Title:** Trap Preparation and Use

**Number:** 14.0

**File:** MW SOP 14.Trap Preparation and Use.Final.20041217.doc

**Purpose:** This SOP provides guidelines for preparing and maintaining foot-hold traps for use in the field. It 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:** Trapping is a necessary management action that enhances the Project’s monitoring capabilities, and removes problem animals or wolves that have localized outside the BRWRA. To increase trapping success and minimize occurrence of non-target captures, foot-hold traps must be maintained in proper working order. In addition, proper maintenance and care of traps will inevitably increase the life span and utility of the traps.

## **Procedures:**

Capture of wolves shall be accomplished in a manner that minimizes risk of injury to the wolf and maximizes likelihood of successful capture in an expeditious manner.

### Trap Selection:

1. The Project uses either McBride #7 or #4 “EZ” Grip traps; both kinds have padded jaws.

### Trap Maintenance and Use:

1. All traps must be labeled (e.g. Property of U.S. Government, Property of USDA, Property of Arizona, as appropriate), with an attached tag or stamp on the trap.
2. All traps and trapping devices will be set to minimize the chances of capturing nontarget species. Nontarget animals captured will be released alive, or disposed of in accordance with any applicable federal, state, or tribal permits.
3. Capture devices used in restraining sets will incorporate any appropriate pan-tension devices, to prevent or reduce capture of nontarget animals, unless such use would preclude capture of the intended target animal(s).
4. Captured animals intended for release, relocation, or captivity will be handled and transported appropriately to achieve Project objectives.
5. Post appropriate warning signs on main entrances or commonly used access points to areas where foot-hold traps are in use. Routinely check signs to ensure they are present, obvious, and readable. Signs must be removed when equipment is no longer in use.
6. Foot-hold traps may not be set closer than 30 feet to any exposed animal carcass, or part thereof, having meat or viscera attached that might attract nontarget animals. If an animal

carcass could be dragged or moved by scavengers to within 30 feet of set foot-hold traps, the carcass should be secured to restrict movement.

7. Set traps such that captured animals will not be conspicuous to the public.
8. Use trap monitor devices in conjunction with traps as appropriate.
9. Physically check traps and trap-monitors at least one each 24 hours.
10. If weather might harm target animals in traps, cease trapping or check the traps and/or trap monitors every 2-3 hours (or more frequently as needed), until conditions improve or until they deteriorate to the point that traps and trap monitors must be removed.
11. Employees whose duties involve wolf capture must be appropriately trained on relevant issues and techniques by their respective agencies.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:** None

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

**Title:** Helicopter Capture and Aerial Gunning

**Number:** 15.0

**File Name:** MW SOP 15.Helicopter Capture and Aerial Gunning.Final.20041217.doc

**Purpose:** This SOP describes the procedures by which IFT personnel conduct helicopter operations for capture or lethal control of Mexican wolves, and provides guidelines for contract crews to conduct capture operations. It 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:** Mexican wolves are occasionally captured with the aid of a helicopter using net-guns and darting. At times, this may be the most efficient and cost effective method to capture wolves in a short amount of time. Helicopters may also be used for lethal control of wolves. It is imperative to ensure the safety of the personnel involved in the capture and the animals being captured during one of these operations.

Any IFT members involved in helicopter operations must follow their agency regulations with respect to aviation safety requirements, personal protective equipment, training, certification, and approval, including approval of aircraft and pilots.

Note: This SOP will be revised in January 2005 to incorporate language addressing the need to coordinate with and gain approval from the appropriate agency (e.g. BLM or USFS) for helicopter flights in designated Wilderness Areas.

**Procedures:**

1. Coordination.
  - a. A written plan of action for the proposed capture will be established prior to any helicopter operation (see example in Appendix A), detailing:
    - i. The proposed handling procedure for the wolves to be captured.
    - ii. The procedures that will be performed on the wolf (radio collar, draw blood, weight, measurements, etc.).
    - iii. All personnel involved (helicopter and spotter plane pilots, net-gunner, darter, ground crew, etc.) and their respective responsibilities for the capture. All personnel handling wolves must be experienced with all handling procedures and familiar with necessary emergency procedures (according to SOP 3.0)
    - iv. An Incident Commander (IC) for each helicopter operation. The IC is designated by the IFT or the agency responsible for the capture, and is responsible for the entire operation (see below).

- v. Emergency contact information.
  - b. The appropriate state wildlife agencies and local law enforcement shall be contacted prior to use of a helicopter within a specific area, to ensure that no conflicting or potentially hazardous activities are being conducted within that area.
  - c. All landowners in the area of the operation shall be contacted prior to the capture to obtain permission to access or land a helicopter on their property if necessary.
  - d. Communication must be established prior to the capture.
    - i. Air to air (helicopter to spotter plane). Verify frequency and do a radio check.
    - ii. Air to ground (helicopter and spotter plane to ground crew). Verify frequency and do a radio check.
    - iii. Make certain the pilot can communicate with the ground crew.
  - e. The Incident Commander (IC) will review the capture strategy with all personnel involved in the operation to ensure that everyone is clear on what needs to be accomplished with the capture and what the expectations are. The IC makes the final call on “Go” or “No Go.”
  - f. The IC is the only point of contact to coordinate with the pilot, the gunner, and the ground crew, in order to limit confusion and maintain organization during the operation.
2. Capture.
- a. A net-gun (Barrett 1982) may be used to capture wolves from a helicopter, using methods similar to those of Gese (1987) in suitable habitat.
  - b. IFT members may serve as net-gunners only if they are trained and have approval from their respective agency.
  - c. If the helicopter pilot will allow an IFT member to work with the crew, the IFT will have someone in the helicopter to work as an animal handler. This person must be familiar with all procedures necessary to handle the wolf and must be proficient with different handling techniques.
  - d. A veterinary pack will be carried in the helicopter with all the necessary processing equipment for handling the wolf and emergency veterinary procedures.
  - e. A wolf may not be actively chased for more than 10 minutes, without allowing it to rest or recover, unless it is a lethal take operation.
  - f. Radio communication must be confirmed prior to the chase.
  - g. If IFT personnel are not allowed on the helicopter, a spotter plane will be used for the IC to make the “Go” or “No Go” call.
  - h. If the spotter makes the call to back off the chase, the helicopter will pull back and stop pursuit until the wolf has been given adequate time to recover before continuing.
  - i. After the wolf is captured, it should be stabilized and processed on site.
  - j. If IFT personnel are not allowed on the helicopter during the capture:
    - i. An IFT ground crew will be staged in an area within 10 minutes of where the capture occurs to process the wolf. This area must have a suitable landing site for the helicopter.
    - ii. The helicopter crew must physically restrain and stabilize the wolf before transporting it to the ground crew. The wolf should not be immobilized at this point, unless the helicopter crew cannot physically restrain the wolf.
    - iii. The wolf’s body temperature must be taken! Cooling agents (ice water, ice packs, rubbing alcohol) will be on board the helicopter.

- iv. The muzzle should be removed and the wolf should be allowed to breath freely.
  - v. If the animal is hot, cool it down with water or ice packs. Rubbing alcohol may also be poured on the ears, paw pads, and leg pits.
  - k. A veri-kennel should be in the helicopter for transporting the wolf from the capture site to the ground crew. If a veri-kennel will not fit in the helicopter, a box muzzle will be used to protect helicopter personnel and allow the wolf to breath freely.
  - l. Upon transport to the ground crew, IFT personnel will continue to stabilize the animal and will not process the animal until it is stabilized.
3. Processing of the wolf will follow SOP 21.0.
4. Darting from a helicopter (see Ballard 1981).
- a. No one will dart a wolf from a helicopter without proper training.
  - b. All IFT members must be approved in advance by their respective agencies in order to dart wolves from a helicopter.
  - c. Darting will follow the same procedures as outlined in the helicopter net gun process (with the exception of Step j.ii), and the processing event will follow the criteria established in SOP 21.0.
5. Aerial gunning and lethal control.
- a. Only personnel trained and certified by their respective agency shall perform aerial gunning and lethal control.
  - b. All appropriate coordination must take place as outlined above for each aerial gunning and lethal control operation.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:**

- Ballard, B.W., A.W. Franzman, and C.L. Gardner. 1982. Comparison and assessment of drugs used to immobilize Alaskan gray wolves and wolverines from a helicopter. *Journal of Wildlife Diseases* 18:339-342.
- Barrett, M.W., J.W. Nolan, and L.D. Roy. 1982. Evaluation of a hand-held net-gun to capture large mammals. *Wildlife Society Bulletin* 10:108-114.
- Gese, E.M., O.J. Rongstad, and W.R. Mytton. 1987. Manual and net-gun capture of coyotes from helicopters. *Wildlife Society Bulletin* 15:444-445.

## Appendix A.

## Example of Aerial Capture or Gunning Plan

### Helicopter Capture Operation 11/9/01 – 11/11/01:

**Objective:** Capture wolf 578, 580, and other wolves that need collars replaced or wolves that are un-collared and we need to collar for monitoring purposes.

**Procedure:** We are contracting with “Helicopters by OZ, Inc.,” owned and operated by John Olsen. Using net gunning, they will capture wolves and transport them to an area where Project personnel will be staged for processing the animals. 578 will be captured, processed (new collar), and translocated to release area east of Fish Bench, five miles NW of Hannagan Meadow (33 41’ 33.24” N / 109 23’ 29.64” approx.). 580 will be captured, processed (new collar), translocated to the same general release area as 578. Other wolves will be captured, transported to project staff to process on the ground, and then released on site.

**Personnel:** Brian Kelly (193a) – USFWS Mexican Wolf Recovery Coordinator  
Dan Stark (194) – Acting Field Coordinator  
Nick Smith (198) – NM Wolf Biologist  
Paul Overy (191) – AGFD Wolf Technician  
Melissa Woolf (199) – TESH  
Basil Coffmann (702) – AGFD pilot  
Anna Cellar (195f) – USFWS tech.  
John Olsen (280SP) – Helicopter pilot  
OZ personnel – net gunner and animal handler  
Additional Wolf Recovery Program Volunteers as needed

**Timeline:** 11/09/01  
AM – Spotter plane (Basil C. and Anna C.) will leave Springerville at 0600, locate wolf 578, and contact Dan S. (IC) with coordinates. Spotter plane will monitor wolf 578 until helicopter arrives. Dan S. and Melissa W. will stage near wolf to process it after capture. Helicopter crew capture and transport wolf to ground crew. Fuel truck available if needed or will travel to staging area near Point of Pines on San Carlos Reservation (SC) and meet with Nick S. Spotter plane stage at Point of Pines if landing strip available (Safford or Globe if not) until helicopter ready to capture 580. Helicopter move to Point of Pines after capture of 578 complete. Dan and Melissa process, transport, and release 578.

PM – Helicopter capture of wolf 580 on SC. Spotter plane locate wolf, contact ground crew, and stand-by if needed. Helicopter capture wolf and transport to ground crew. Nick S. (IC) and Paul O. process wolf and translocate. When capture complete, spotter plane and helicopter crew to Springerville for 11/10/01 capture.

- If time does not permit capture of wolf 580, start with him Saturday morning.

11/10/01

Ground crew stage near Reservation L. to process wolf if captured. Fuel truck also. Spotter plane take off at 0700 to locate Bonito Creek pack and contact ground crew with location. Helicopter attempt to capture wolf 587 (orange collar with green tape, red ear tags, probably smaller of the two Bonito wolves – 50 lbs when released at about a year old). She is priority because collar not functioning. We will also attempt to capture 674 (orange collar, blue ear tags); have had problems with his collar as well.

- We may also use the helicopter to get visuals on packs and attempt to capture un-collared wolves if possible (i.e. 169 Francisco, Cienega)
- We will keep helicopter available through Sunday 11/11/01.
- If wolf 647 is in an area where we can use the helicopter we will consider capture of this wolf also and translocate him.

Miscellaneous:

Locations: Point of Pines – 33 22'2.03"N/109 45' 3.17"W  
Reservation L. – 33 50'45.86"N/109 30' 12.52"  
General release site – 33 41' 33.24"N/109 23' 29.64"

Directions: Release area – Hwy 191 S from Alpine, W on FS 576 just N of Hannagan Lodge, N on FS 24 about ¾ mile, turn E on FS RD that follows the NE side of Fish Creek to Fish Bench.

Helicopter: Model - Hues 500  
Color – Red with flames  
Tail number – 280SP

Phone: AGFD Dispatch – (602) 789-3201  
WMAT Dispatch – (928) 338-1023  
SCAT Dispatch – (928) 475-2326/2329  
Springerville Airport – (928) 333-5746  
Safford Airport – (928) 428-7670  
Mike Rotonda (USFS RAC) – XXX  
John Olsen – cell: XXX

<u>Radio Frequencies:</u>	<u>TX</u>	<u>PL Tone</u>	<u>RX</u>
MEXICAN WOLF	XXX	XXX	XXX
AZG&F STATE F1	XXX	XXX	XXX
AZG&F STATE F2	XXX	XXX	XXX
CAR TO CAR	XXX	XXX	XXX
PLANE TO PLANE	XXX	XXX	XXX

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

**Title:** Howling Surveys

**Number:** 16.0

**File Name:** MW SOP 16.Howling Surveys.Final.20041217.doc

**Purpose:** This SOP provides context for conducting howling surveys, and describes specific techniques and record-keeping procedures. It 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:** Howling to wolves to elicit a response can be a productive method for inferring if pups are present and the number of uncollared adults. Therefore, it is important to understand the role of howling and how to apply this technique with minimal impact to wolves.

The three primary purposes of howling within this Project include: (1) inferring pup presence, and an estimated minimum number of wolves within a pack, (2) searching for unmarked packs in areas where consistent reports of wolves have occurred, and (3) locating rendezvous areas appropriate for trapping uncollared wolves.

Harrington and Mech (1982) described the following recommendations for successful howling surveys, based on 456 howling sessions: (1) the best times are dusk and night, (2) July, August, and September are the best months, (3) avoid howling during periods of precipitation and when winds are greater than 12 km/hour (8 miles/hour), (4) a sequence of five single howls (a trial series) should be used, alternating “flat” and “breaking howls, and (5) trial series should be repeated three times at two minute intervals, with the first trial at lower volume.

Howling should not be used to survey large areas (e.g. entire states) for density estimates, but is useful for locating packs in localized areas (Fuller and Sampson 1988).

## **Procedures:**

1. Prior to conducting surveys:
  - a. Listen to recordings of wolves and coyotes before conducting field surveys. The surveyor should become familiar with the difference in sounds between wolf pups and coyotes. Further information on various vocalizations of wolves can be obtained from Harrington and Mech (1977), which is available at the Alpine field office.
  - b. Consider the time of day and weather conditions when the howling is taking place.
    - i. Howling can be conducted at any time, but is usually most effective when it is calmest and the wolves are active (dusk and night).

- ii. Do not howl if wind speed exceeds 8 mph or if it is raining, as any response may not be heard.
2. Howling site selection.
- a. General Guidelines:
    - i. Do not howl in areas that are close (<1.5 miles) to campers or hunters.
    - ii. Howling near kill sites is an effective method to elicit a response from wolves.
    - iii. If Project personnel will be camping near wolves, listen for spontaneous howling by the wolves without simulated howling.
    - iv. When using the black plastic “bionic ears,” do not use headphones when pointing the ear in the direction of howling. With headphones on, it is much more difficult to determine the direction of the howls. Have the tape recorder ready with both the record and pause buttons depressed. When howls are heard, press the pause button to get instantaneous recording. Before the survey begins, make a recording with a voice stamp of the date, location, and howlers and replay it to test the system.
  - b. Radio-collared wolves.
    - i. Surveyors should use telemetry information to establish relative positions of wolves prior to howling and periodically ( $\leq 15$  minutes apart) radio locate them after howling.
    - ii. Try to get within a mile of the wolves but no closer than  $\frac{1}{4}$  mile.
  - c. Unmarked wolves.
    - i. Concentrate howling in areas where wolves have been reported or where project personnel have observed wolf sign.
    - ii. Howl every mile along a road where wolves may occur.
3. Howling process.
- a. If possible, wait 5- 10 minutes after getting out of the vehicle to start howling. Start howling to the wolves solo at less than maximum volume.
  - b. Begin howling at a low volume in a series of “flat” and “breaking howls” up to 5 times, with 1-2 seconds between each howl (Harrington and Mech 1982). In general, howling in several different directions during the series of 5 howls is the most effective method.
  - c. Wait 2-3 minutes and then howl again at higher volume in a series of “flat” and “breaking howls” up to 5 times, with 1-2 seconds between each howl. Repeat this process for a minimum of 3 times with 2-3 minutes between each series of howls.
  - d. Wait 2-3 minutes, record the information associated with that howling site on the Howling Survey Form (Appendix A) and move to another location.
  - e. Howl every mile along a road where wolves may occur. In general, wolf responses can be heard up to .64 miles away (Fuller and Sampson 1988). If wolves respond:
    - i. Stop howling.
    - ii. If available, switch on bionic ear recorder (see Step 2, above).
    - iii. Take a bearing on the howl.
    - iv. Record your notes on the Howling Survey Form (Appendix A).
    - v. Radio-locate any wolves in the area to try and establish the pack involved with the howling. Record the wolves in the area on the Howling Survey Form.
  - f. If an animal other than a wolf responds:

- i. Stop howling.
- ii. If available, record the howl or vocalization if you cannot identify it (see Step 2, above).
- iii. Take a bearing on the direction of the sound.
- iv. Record important notes on the Howling Survey Form.
- g. Remain very quiet and motionless for at least 15 minutes after the last howl, and record all your results.

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

### **References:**

- Fuller, T.K., and B.A. Sampson. 1988. Evaluation of a simulated howling survey for wolves. *Journal of Wildlife Management* 52:60-63.
- Harrington, F.H., and L.D. Mech. 1978. Wolf vocalization. Pages 109-132 *in* R.L. Hall and H.S. Sharp, eds. *Wolf and man: evolution in parallel*. Academic Press, Inc, New York, New York.
- Harrington, F.H., and L.D. Mech. 1982. An analysis of howling response parameters useful for wolf pack censusing. *Journal of Wildlife Management* 52:60-63.
- U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.



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

**Title:** Ground Telemetry

**Number:** 17.0

**File Name:** MW SOP 17.Ground Telemetry.Final.20041217.doc

**Purpose:** This SOP provides context for conducting ground telemetry, as well as describing specific telemetry techniques and associated record-keeping procedures. It 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:** Ground telemetry is vital for successful wolf management and monitoring. The Mexican Wolf Reintroduction Project uses ground telemetry to assist with trapping, howling, pup counts, den and rendezvous locations, mortality investigations, hazing, and depredation investigations. Thus, it is vital that the Interagency Field Team (IFT) be proficient at using the equipment, documenting accurate locations, and investigating the area in and around the locations.

The IFT sets annual priorities for monitoring through ground telemetry in its Annual Work Plan, which AMOC approves. The working standard is to ensure that at least one wolf in each pack or group is radio-collared.

## **Procedures:**

1. Preparation for ground telemetry projects.
  - a. Be familiar with processes involved with ground telemetry. Volunteers will be given instruction and practice on test collars before they go into the field.
  - b. Necessary equipment includes:
    - i. A GPS unit.
    - ii. A compass.
    - iii. Binoculars for visual observations.
    - iv. Appropriate 1:24,000 quadrangle maps for the area in which the wolves could be located.
    - v. An H antennae and a functioning whip antennae on the truck that you are using.
    - vi. A receiver.
    - vii. Either a hand-held radio or a car radio to relay important information (e.g. mortalities, kill sites, depredations, etc.) back to the office.
    - viii. Appropriate clothing, food, and water to be in the field for the entire day.
    - ix. Mexican Wolf Location Sheets (Appendix B).

2. Documenting locations.
  - a. General guidelines.
    - i. Initial searches for a first bearing work best from high points on the landscape.
    - ii. Continually scan with the whip antennae for wolves while driving in the area.
    - iii. Look for wolf scat and tracks while driving and doing telemetry. These signs may indicate travel routes and areas to trap.
    - iv. When using telemetry to howl for wolves, follow SOP 16.0.
    - v. When using telemetry to hike in on wolves:
      - (1) Make sure the purpose of the disturbance is clearly defined by the appropriate IFT Leader or Field Projects Coordinator. In general, acceptable reasons may include, but are not limited to:
        - (a) Pup counts.
        - (b) Locating kill sites and collecting information.
        - (c) Depredation related issues (e.g. locating cattle kills or suspected kills).
        - (d) Hazing.
        - (e) Ground Darting (see SOP 22.0).
      - (2) First, acquire a location on the animal using triangulation (see Step 2b, below).
      - (3) Without disturbing the wolves, sit and watch the general area where they are suspected to occur.
      - (4) Stay downwind of the wolves to avoid detection.
      - (5) Walk slowly, continually monitoring the signal of the wolf or wolves, and look through binoculars for them bedded.
      - (6) Pay particular attention to meadow edges; wolves often use these habitats.
      - (7) Look for fresh scat and tracks in the area that may indicate the presence of pups or uncollared animals.
      - (8) If barking is heard, or the animal moves out of the area when attempting to either locate a natural ungulate kill or get a pup count, immediately leave the area and report back to your supervisor.
  - b. Identifying a location.
    - i. Before attempting to document a wolf location, become familiar with available information on the principles of ground telemetry (see White and Garrott 1990; Appendix A).
    - ii. If you hear a signal on the whip antenna, take a bearing.
      - (1) Generally, H antennae have an arc where the signal strength is the loudest. This is the direction of the wolf.
      - (2) Take a compass bearing in the middle of the arc where the signal is strongest.
      - (3) Turning down the gain on the receiver should produce the narrowest arc and provide the most precise bearing.
      - (4) Be aware of large hills or cliffs where signals have a tendency to bounce, producing an erroneous bearing.
    - iii. Take a GPS reading at the location the bearing was taken.
    - iv. Mark the GPS location on the map.
    - v. Line up the North/South lines on the map and compass. Do not rotate the compass.
    - vi. Using the compass edge, draw a line through the GPS point toward the wolf.
    - vii. Document each bearing on the Mexican Wolf Location Sheet (Appendix B).

- viii. Repeat this process at least three times per wolf. More bearings may be required if the lines do not intersect to form a relatively small triangle (less than 1 km<sup>2</sup>).
  - ix. When a triangle is created on the map using the process described above, mark a point in the center of the triangle and determine the UTM datum (i.e. Zone 12, NAD 27) and coordinates based on that location.
  - x. Ensure that the entire Mexican Wolf Location Sheet is filled out for each wolf that is located (Appendix B).
- c. Entering the location information into the database.
- i. Before entering data into the file, be sure you are familiar with the process and have entered data several times under supervision of someone who understands the database.
  - ii. Open the Mex Wolf database file under the start button on the main computer in the office.
  - iii. Under the open existing database button, click on C:\Alldata\zip disk from old pc\ ..... \db1.
  - iv. Click on the data entry button.
  - v. Click on the location sheet button.
  - vi. Enter the appropriate data from your data sheet (ask questions of experienced staff if you do not understand this process).
  - vii. Provide a general description of where each wolf was located in the daily journal (do not use mileages from specific points).
  - viii. If other IFT members are still out in the field:
    - (1) Modify or create a Microsoft Word© file and input your additions to the file.
    - (2) Save the file, but leave it open for others to modify before it is e-mailed.
  - ix. If you are the last person that has returned from the field:
    - (1) Modify or create a Microsoft Word© file and input your additions to the file.
    - (2) Save the daily journal under the appropriate date for that file. Then e-mail it, with the words “journal list” in the “To” address. Specific directions for distribution are on the wall above the computer in the Alpine Field Station.
  - x. Put your data sheet in the location file of the appropriate wolf number (e.g. a location for AM 578 is placed in the location file for that wolf) in the filing cabinet at the Alpine Field Station.

### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

### **References:**

- U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
- White, G.C., and R.A. Garrott. 1990. Analysis of wildlife radio-tracking data. Academic Press. San Diego, CA.

## **Appendix A.**

See attached copy of White and Garrott (1990), Analysis of Radio-Tracking Data.



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

**Title:** Aerial Telemetry

**Number:** 18.0

**File Name:** MW SOP 18.Aerial Telemetry.Final.20041217.doc

**Purpose:** This SOP provides context for conducting aerial telemetry, as well as describing specific techniques and record-keeping procedures. It 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:** Aerial telemetry using fixed wing aircraft is vital for successful wolf management and monitoring. The Project uses aerial telemetry to complement ground telemetry efforts (see SOP 17.0), tracking dispersing wolves, monitoring new pack formation, den and rendezvous site locations, aversive conditioning, mortality investigations, and depredation investigations. Thus, it is vital that the IFT be proficient using the equipment, collecting accurate locations, and processing data correctly. Telonics Quarterly (1997) describes aerial telemetry equipment and techniques (see Appendix C).

The IFT sets annual priorities for monitoring through aerial telemetry in its Annual Work Plan, which AMOC approves. The working standard is to ensure that at least one wolf in each pack or group is radio-collared.

Note: This SOP will be revised in January 2005 to incorporate language addressing the need to coordinate with and gain approval from the appropriate agency (e.g. BLM or USFS) for flights in designated Wilderness Areas.

## **Procedures:**

1. Prior to performing aerial telemetry.
  - a. Ensure that you have received the appropriate Aviation Safety training if required by your agency prior to flying. For their personnel, USFWS requires training provided by the Office of Aviation Safety.
  - b. Anyone who will be trained in aerial telemetry should go on several flights with experienced personnel in order to:
    - i. Evaluate your propensity for motion sickness from low altitude flying, turbulence or tight circling for extended periods.
    - ii. Gain familiarity with the landscape from the air.
    - iii. Learn the procedures outlined in this SOP.
  - c. Make sure you have the following items:

- i. Receiver.
- ii. Ear piece.
- iii. Metal H-antenna (and spare).
- iv. Spare coaxial cables.
- v. Flight sheet (Appendix A), including the last location of each wolf.
- vi. Maps of the area, if you are unfamiliar with the geography.
- d. Coordinate with the pilot to establish a flight plan and objectives.
- e. Be familiar with emergency equipment on the airplane and safety restrictions (e.g. helmet and flight suit for low level flying and location of the Emergency Locator Transmitter (ELT)).

## 2. Determining Locations.

### a. General guidelines.

- i. The pilot always makes the final decision as to when to fly and for how long and how low. The observer can make suggestions, but must leave the final judgment up to the pilot.
- ii. Scan for missing wolves any time you are not actively locating another wolf.
- iii. Determine which wolf or pack will be next in the flight path, and scan using the wing antennae.
- iv. When a wolf is heard, have the pilot scan the area using S-turns to generally determine a wolf's location. If the signal is on mortality mode, see SOP 12.0.
- v. Fly in the direction of a wolf until you hear the signal from the belly antenna.
- vi. By turning the belly antenna, you can determine the exact direction the wolf is from the airplane. Fly a pattern until the signal only comes from the right side of the plane as you fly in tight circles.
- vii. Watch the landmarks on the ground to determine the exact location of the wolf.
- viii. Mark the GPS when flying over that point to record the wolf's location.
- ix. Check other wolves in the same pack, or that might be in the same area, to determine if they are together.
- x. Visually survey the area for both collared and uncollared wolves, pups, signs of a carcass, or human presence in the area, by flying circles over the area for several passes. If a kill is observed from the air, note any relevant information and consult SOP 11.0 prior to an intensive investigation.
- xi. Continue the process with other wolves until the flight plan is completed.
- xii. While in the aircraft, either between each location or on the ground at the end of the flight, record the following on the Flight Sheet (see Appendix A):
  - (1) The time of the location.
  - (2) The location of the wolf in Latitude and Longitude.
  - (3) Any important or unusual observations.
- xiii. If you cannot locate a wolf:
  - (1) Be sure you are using the correct frequency and the wing antennae. Periodically adjust the frequency, in case the collar has malfunctioned.
  - (2) Go to the wolf's last known location and begin flying circles using that point as the center. Fly 3, 5, 7, or 10-mile loops, depending on time available, fuel, and time since the wolf was last located (i.e. the greater the time since it was last located, the larger the loop should be).

- (3) Altitude affects the range at which you can hear the signal, so the higher you can fly, the better your chance of hearing the wolf. Observe restrictions on altitude imposed by the pilot or agency. AGFD pilots may not operate above 13,500 feet for more than 30 minutes without supplemental oxygen.
  - (4) If, after following the above steps, the wolf is not located:
    - (a) The search can be abandoned for this flight. Be sure to notify the IFT about which wolf was not found and the search you performed.
    - (b) On the next flight, scan for this wolf whenever you are not actively locating another wolf.
    - (c) If the wolf is not located for two consecutive flights, a search flight may be scheduled specifically to locate the missing wolf.
  
3. Data transformation and mapping
  - a. As soon as possible after the flight (not more than 3 days), Using Terrain Navigator, the person who flew should:
    - i. Set preferences to: Coordinates D M.M, Datum WGS 84.
    - ii. Go to Markers/Define/edit and click “new.”
    - iii. Enter each location using the following format:
      - (1) Name the marker dd/mm Pack Studbook number (individual ID number), (e.g. 6/30 FR509)
      - (2) If the location is for more than one animal in a pack, omit the studbook number, naming the location for the pack, for example 6/30 Francisco.
      - (3) Enter the lat/longs and click OK.
      - (4) Enter all locations for all wolves beginning at Step 3.a.ii.
    - iv. Change preferences to: Coordinates UTM, Datum Zone 12 NAD 27.
    - v. Click on Markers/Go to and select a marker.
    - vi. Right click on the marker to obtain the UTM's of the location and write them on the Flight Sheet.
    - vii. Using the ruler tool, determine the distance and direction from a prominent landmark (or two) and note this on the Flight Sheet.
    - viii. Continue from Step 3.a.v. until all locations are completed.
  
4. Copy information from the Flight Sheet to a Location Sheet (see Appendixes A and B) for each wolf.
  
5. Entering the location into the Database.
  - a. Open the Mex Wolf database file under the Start button on the main computer in the IFT office.
  - b. Under the open existing database button, click on C:\Alldata\zip disk from old pc\ ..... \db1
  - c. Click on the data entry button.
  - d. Click on the location sheet button.
  - e. Enter the appropriate data in the form from your data sheet. Ask questions if you do not understand this process.
  - f. Record in the daily journal a general description of where each wolf or pack is located, including which state.

- g. Save the Journal under the appropriate date for that file.
  - h. Send an e-mail to the “Journal List” with brief descriptions of each wolf location. Specific directions on who to send the journal to and who else to notify with locations are provided on the wall above the computer.
6. Put your data sheet in the location file of the appropriate wolf number.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:**

Telonics, Inc. 1997. Telonics Quarterly v.10 n.1.

**Appendix A.** Note: This image should be flipped with the bottom facing right.

Note: The data sheet image referenced in this Appendix is not compatible with Adobe PDFMaker, thus it has been deleted from this review draft. A copy of the data sheet is available from the IFT on request.

**Appendix B.**

**Wolf ID** \_\_\_\_\_ **Pack** \_\_\_\_\_

**Date** \_\_\_\_\_ **Time** \_\_\_\_\_ **Aerial or Ground**

UTM-East: 12 S \_\_\_\_\_ UTM-North: \_\_\_\_\_

**Comment on location** \_\_\_\_\_

**Personnel** \_\_\_\_\_

Miscellaneous \_\_\_\_\_

Total # seen \_\_\_\_\_ (# pups \_\_\_\_\_ # adults \_\_\_\_\_) Rest Move Feed N/A

Howling/barking-duration \_\_\_\_\_ # of wolves \_\_\_\_\_ # pups? \_\_\_\_\_

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Time            Azimuth            Location of Azimuth            Signal Quality

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**No Triangulation**    **Poor (>1 km<sup>2</sup>)**            **Good (<1 km<sup>2</sup>)**            **Visual**

## **Appendix C.**

The following articles provide good background and reference information for anyone using aerial telemetry or tasked with setting up an aerial telemetry system on an airplane. The articles are taken from *Telonics Quarterly* 1997.

### *Fixed-wing aircraft tracking.*

For someone new to the field of wildlife telemetry, tracking animals from fixed-wing aircraft may seem a rather unusual approach. For anyone who has actually spent time tracking animals, it is a well known technique to climb up a hill or mountain to extend the range of your telemetry system. The use of aircraft simply extends the principle and provides some added mobility as an extra.

If you're ground tracking a medium sized animal wearing a collar with a state-of-the-art telemetry receiver (such as the TR-2 or TR-4) the range performance on level ground can be anywhere from 2 to 5 miles. By getting up on a hill and overlooking the animal, ranges can be extended to 5 to 10 miles. However, if it is possible to take your telemetry receiver up in an aircraft, the range is extended even further—typically from 10 to 30 miles.

For many studies, regular aircraft tracking provides the data to remain in constant contact with animals that move over extensive areas. It extends the line-of-sight range and reduces signal attenuation due to vegetation. These two factors, combined with aircraft speed and mobility, provide significant advantages. The technology supports both small studies operating on a shoe-string budget and large statewide efforts to monitor large animal populations.

Conducting research from aircraft is recognized in our field as a dangerous operation. Over the years far too many friends and colleagues have been injured or lost in aircraft accidents. Therefore anything that increases efficiency, and reduces the time spent conducting low level flights, should have a positive influence on our actuarial statistics. This newsletter has been dedicated to providing some options, procedures and hopefully helpful hints, that will make tracking animals from fixed-wing aircraft a little more efficient, and safer process. *Editor*

## **Antenna Mounting Brackets**

### *Step-by-step, here's how to do it.*

Tracking wildlife from fixed-wing aircraft has become almost routine and numerous approaches have been tried to solve the problem of connecting tracking antennas to aircraft. There are several treatises in the literature and in technical notes published by various state and federal agencies concerning the "best" technique for attaching antennas to various aircraft. In most instances the resourcefulness of the researcher pays off—and whatever technique is employed usually ends up successful if not always efficient. If you have a favorite technique and it works, continue to use it. We are not going to try and convince you to change and use the approach presented in this issue. Wisdom says never argue with success.

If you're having trouble getting the gear you require manufactured, however, or if the technique you are using seems to be less than consistent, we are going to suggest an alternative approach. The setup and techniques we describe may help make aircraft tracking a bit more consistent, a little less time consuming and perhaps a little safer. In this article we will address the choice of antenna brackets, installation of the brackets on the aircraft, and attachment of the antennas to the brackets.

Our discussion is directed to the use of the Telonics RA-2A antenna and the TAB series of antenna brackets because many researchers have successfully implemented this approach with essentially "off the shelf" equipment. The TAB brackets were designed specifically to secure the RA-2A antenna to the struts of the high wing aircraft without requiring permanent modification of the aircraft. In fact the whole system can be mounted to or removed from an aircraft in a matter of minutes. This works well when rental or contract aircraft are utilized.

Antenna bracket choices range from the TAB-1 (typically fits Cessna 150 and 172 aircraft) to the TAB-6 (fits the Christen/Aviat-Husky). The critical parameter in choosing an antenna bracket is the size of the strut—and measuring the strut is important.

Often a particular model of aircraft will have a larger engine, requiring larger struts. So picking a set of brackets "off the shelf" simply by model number of the plane does not always work. Therefore, in addition to the aircraft model number, actual dimensions of the strut are required. The first strut dimension needed is (A), the distance from leading edge to trailing edge. The second is (B), the thickness of the strut at its thickest point. The third is (C), the circumference. Please refer to Table 1 for more specific information on typical strut dimensions and models of aircraft.

After you have selected the correct brackets, it is time to install the equipment on the airplane. The first step is to gather and identify all of the equipment to be installed (i.e. left and right TAB brackets, RA-2A antennas, coaxial cables, TAC-2 or TAC-7 antenna switch box and, finally, either the TR-2 or TR-4 telemetry receiver).

If the aircraft is a rental and the coax cable installation is temporary, the cable installation should be delayed until after the brackets and antennas have been installed. If the aircraft is dedicated to the project, the best place to dress the coax cables is through the wing into the cabin. In this manner, you assure the longest operational life of the cables since they won't be exposed to wind, sun, and precipitation. An installation such as this can be made by installing a bulkhead connector (CON-BNC/BNC-THN) in an inspection plate in the wing, routing the coax up into the wing on both sides of the aircraft and then into the cabin. When this type of work is done, be sure that a certified A&P mechanic either works with you, or inspects your work, and then signs it off in the log book. *If your aircraft is pressurized, you should take special care to use pressure rated bulkhead connectors when going from the wing into the cabin.*

Each antenna bracket is individually marked "right" or "left" with respect to a person sitting in the cabin of the aircraft. Install the brackets on their respective wing struts centered between the fuselage and the attachment point of the strut to the bottom of the wing (see Photos 1 and 2). The "V" sections of the brackets must be on the outboard side of the strut, making certain the strut

and strut clamp profiles match. *This is critical since this interface provides stability for the bracket and antenna assembly.*

Adjust the “V” of the bracket so that the strut clamps mount squarely on the strut. The brackets should be mounted identically on each side of the aircraft. At this time the rear strut clamp screws can be tightened (if so equipped) and then the front strut clamp screws can be tightened. Do not over-tighten the screws. The brackets should now be securely mounted to the strut.

Mount both antennas with the BNC connectors facing up and outboard from the aircraft (see Photo 2). Tighten the antenna lock nut until it is snug and then use nylon cable ties to secure the antenna to the bracket panel (see Photo 3). Tighten each element securely with a small wrench, being careful not to over-tighten the elements since a broken element causes great aggravation! Tape each element joint tightly with electrical tape so the elements don't rattle loose and get lost during the flight (see Photo 4).

For those doing a temporary installation, you can now attach the coaxial cables to the antennas and route the cables over to the strut and down the trailing edge of the strut, securing the cable every 6 inches with nylon cable ties (see Photo 5). Use duct tape to secure the cable to the outside of the fuselage before entering the cabin through a door, window or air vent. Make certain that the cable will not be crushed when the door or window is closed. *It's advisable to purchase or make a spacer that will prevent the cable from being crushed.* The cable integrity is crucial and if the cables are damaged or smashed, the success of the mission may be jeopardized.

Once the cables are inside the cabin, route them to the area where they will be connected to the TAC-2 or TAC-7 switch box. Be careful that the routing of the cables does not interfere with other control cables or wiring (see Photo 6).

Now that the installation is finally done, it is a good idea to inspect the brackets, cables, and antennas for proper installation. Conduct a short test flight to check for flutter or vibration. A flight test can be done by placing a spare transmitter close to the airport in a known location— so that you can fly a test pattern around the beacon and test the function of the switch box and antennas before flying 100 miles to your research area. Flight characteristics of the aircraft should be normal, with a slight amount of parasitic drag.

**\*\*REMINDER\*\*** Regulations governing the attachment of equipment to aircraft vary depending on ownership, use and location. Users should check with appropriate authorities regarding current regulations. The International Association of Natural Resource Pilots is a source that can make suggestions based on practical experience. You may also wish to refer to the Federal Aviation Regulations concerning type certification requirements. *Gary Jones*

Note: The illustrative images referenced above are not compatible with Adobe PDFMaker, thus they have been deleted from this review draft. A copy of the images is available from the IFT on request.

## **Aircraft Tracking**

*Recommended aircraft general search pattern.*

In recent years we have noted an increasing application of fixed-wing aircraft in radio location studies. The flight pattern described below represents a standard procedure developed and recommended for radio location of terrestrial animals. This pattern is by no means the only successful one currently in use. Many variations exist that incorporate specific geographical features or animal behaviors, or that take advantage of previously acquired information about the species in question. However, for those individuals who have been experiencing less than successful aircraft relocation efforts, or those just beginning to utilize aircraft in radio telemetry work, an examination of this basic pattern may be worthwhile in time, effort, and dollars expended.

General search efforts for terrestrial species are usually conducted with the Telonics TR-2/TS-1 scanning receiver, TAC-2 RLB antenna control unit, and a pair of RA-2A “side-looking” antennas (see Figure 1). The expected range for signal acquisition depends on several factors—one primary factor being altitude above ground level (AGL). The theoretical relationship between range and AGL is defined in Figure 2.

Such range performance can be achieved using a high power option and a dipole antenna on large animal transmitters. For standard transmitting subsystems with monopole antennas, the range is approximately one half of that predicted in Figure 2, and range may be less when using low power or small animal transmitters. The following steps offer a general description of the search pattern as illustrated in Figure 3:

- A. When a signal is detected, the scanner is stopped on the frequency of the incoming signal. The TAC-2 is then used to determine whether the signal is on the right or the left of the aircraft by monitoring first the left antenna, and then the right, to determine which is receiving the strongest signal.
- B. Assuming the signal is strongest on the right side, the pilot begins a slow 360° turn. This results in tilting the left wing down by 30°, thus placing the maximum gain of the right antenna on the horizon. The signal is monitored from the right antenna only during this period and a note of the bearing direction is made when the signal strength is at its maximum. The plane is brought out of the 360° turn on the noted bearing.
- C. The transmitter should now be located directly ahead of the plane, but at some unknown distance. The switch box is utilized to keep the plane on course. If either antenna is picking up a signal, the course is slightly adjusted to keep the transmitter in the null.
- D. Flying the null of the antenna pattern can be disconcerting at first. In order to increase the confidence of the user, a second bearing can be taken by banking the aircraft to the left in a slow turn. Once again the pilot dips the left wing down 30°. This tips the right wing up 30°, placing the gain of the right antenna on the antenna.
- E. A second bearing is taken and quickly compared to the first. The intersection of the two represents the theoretical location of the animal.
- F. The pilot then resumes course toward the transmitter. As the aircraft approaches the

transmitter, the null disappears and the signal must be kept equalized between the two antennas. The actual point of signal acquisition when the transmitter is directly in front of the aircraft is dependent on several factors, including AGL. Figure 4 depicts the change in signal strength as function of AGL as the aircraft approaches, passes directly over, and goes by the transmitter. An altitude of 1000 to 1500 feet AGL is recommended for precise locations.

*NOTE: As the aircraft passes over the transmitter, the gain of the antenna (as a dipole) is placed directly on the transmitter. As the signal saturates the receiver, the audio output of the receiver may change from a “beep” to a plodding or “thud” sound.*

G. After passing directly over the transmitter, the aircraft is banked to the right to begin a 360° turn. The PILOT’s wing tip is now up 30°. Since the antenna is initially attached to the strut at a downward angle of 30° from the horizontal, the combined effect is a right antenna that is now 60° down from the horizontal. The maximum gain of the right antenna is pointed directly at the center of the area being circled. The animal should be in the center of the circle and the receiver should be supersaturated with signal.

H. Upon completion of the monitoring process, the frequency of the transmitter can be deleted from the program of the scanner/receiver and the search for other transmitters resumed. Although the technique described above may appear to be time consuming and complicated at first, its effectiveness has been proven time and again throughout the world. The search pattern is most effective when there is constant cooperation and communication between pilot and biologist. After a short time, the procedure becomes almost automatic. In several studies this procedure, coupled with frequency stable receiver and transmitter subsystems, has reduced flight time by up to seventy percent. The result is substantial reductions in budgetary expenditures associated with tracking wildlife from fixed-wing aircraft.

*Dave Beaty and Stan Tomkiewicz*

Note: The illustrative images referenced above are not compatible with Adobe PDFMaker, thus they have been deleted from this review draft. A copy of the images is available from the IFT on request.

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

**Title:** Intensive Winter Wolf Monitoring and Ungulate Mortality Collection

**Number:** 19.0

**File Name:** MW SOP 19.Winter Mortality Study.Final.20041217.doc

**Purpose:** This SOP provides guidance on intensive winter wolf monitoring and to describe data collection methods for ungulate kill sites during systematic searches in winter, or alternatively, ungulates that are opportunistically found through normal monitoring of wolves. It 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:** “Winter study” of ungulate mortalities was conceived by biologists investigating wolf predation on Isle Royale, Lake Superior, in 1958. That study consisted of an annual intensive investigation period during which wolves were closely monitored to determine wolf/moose interactions. This concept remains the standard for wolf predation studies, and is a key component of wolf/ungulate studies in Yellowstone National Park (YNP). In YNP, biologists use intensive aerial and ground telemetry to document wolf predation patterns, movements, behavior, interactions with other species, and characteristics of their prey. The objectives are to document the frequency at which wolves kill, the kinds of prey killed, and factors that influenced prey selection and kill rate. The primary factors the Mexican Wolf Reintroduction Project will investigate are kill rate, age of and type of ungulate killed, and the condition of the ungulates selected by wolves.

A kill series is defined by monitoring on successive days. A break in daily monitoring ends one series; the next monitoring day begins a new series if a kill is located. Several kill series for a single pack of wolves are needed to determine kill rates, thus, each successive kill documented becomes more important than the previous one. Therefore, if a monitoring flight cannot be flown on a particular day, ground-monitoring priority should be placed on packs that have an active kill series. For example, assume that the Bluestem pack has been flown daily, and a kill was found on 3/12 and 3/16, but the weather is too bad to fly on 3/19. It would be vital to get a ground location for the pack that day to ensure that the kill series continues.

Intensive winter monitoring should occur on as many days (up to 60) as possible, in early winter (preferably December-January) and again in late winter (preferably March to April 15).

## Procedures:

1. Aerial Telemetry
  - a. During an Intensive winter study period:
    - i. Flights should be conducted on a daily basis (weather permitting) in accordance with SOP 18.0: Aerial Telemetry. If aerial telemetry cannot be accomplished on a given day, then efforts should be made to ground track each of the packs involved in monitoring (see SOP 17.0: Ground Telemetry).
    - ii. Circle packs many times (5-10) to determine if a kill is present and to observe the wolves from the air.
    - iii. If a kill is observed from the air, or the ground prior to intensive investigation, record the following information (see Appendix A):
      - (1) Wolves or wolf present.
      - (2) UTM datum (i.e. Zone 12, NAD 27) and coordinates.
      - (3) Other predators present.
      - (4) Type of ungulate killed (Estimate Age, Sex, and Species, if possible).
      - (5) Any evidence of a chase scene observed from the air (e.g. blood trails, etc.).
      - (6) Percent snow cover on the ground in the area of the kill.
      - (7) Cover type on the ground.
      - (8) Proportion of the carcass remaining.
    - iv. A follow up ground investigation should be performed based on the location provided by the aerial investigator (see below).
  - b. During a normal aerial flight that occurs as part of routine monitoring (see SOP 18.0).
    - i. Record the same information as presented above.
    - ii. A follow-up ground investigation may be performed, depending on IFT priorities.
2. Ungulate Kills.
  - a. All kills will be assigned a kill number associated with the kill file located at the Alpine field office. This is the number that links particular kills to their samples and relevant information. It is important to ensure that numbers are not repeated.
    - i. Initially a temporary kill number can be assigned to a kill by simply using the observer initials and then a number. For example if John Doe found three kills in the field he may assign a temporary kill number of JD1, JD2, and JD3 until he could return to the office to determine the next kill number.
    - ii. Each ungulate kill has a related random direction to make comparison measures between the kill site and the random site (see Appendix A). The random direction associated with each kill number is located in the kill file on the wall of the field office.
    - iii. Enter relevant data on the kill form next to the kill number and then enter the data into the kill database.
      - (1) Necropsies of the kill should be performed *after* the wolves have left the area of the kill. Although some evidence might be lost by waiting until the wolves are through using the carcass, this step is vital since one of the primary goals is to determine kill rates. Thus, if we disturbed the wolves prior to completion of the natural consumption process, they might kill another prey item sooner,

resulting in unnaturally high kill rates due to our disturbance. Thus, it is vital to avoid any disturbance to the wolves. Investigations can be performed while the wolves are in the area, but at least 0.5 miles away from the carcass.

3. Examination of the kill site.
  - a. Necropsies are designed to determine the cause of death and distinguish between various causes of death. In the case of this Project, there are several possible causes of ungulate mortality, including: wolves, mountain lions, coyotes, malnutrition, disease, bobcats, black bears, accidents, dogs, unknown, and humans.
  - b. If a Mexican wolf prey carcass sheet has been initiated during an aerial telemetry flight, continue using the corresponding form that should be available from the flight crew. Alternatively, initiate a new carcass sheet (Appendix A).
  - c. Upon arrival at the kill site, follow established guidelines to determine the cause of death (Roy and Dorrance 1976, Fritts 1982). Appendix B should be completed to assist the investigators in determining the cause of death.
  - d. Personnel should determine cause of death (predation [wolf, coyote, lion, bear, other], non-predatory, or unknown) based on the preponderance of evidence, and classify the kill as either a confirmed, probable, or possible wolf kill, or not a wolf kill.
  - e. Determination of predation should consider the following criteria (see Roy and Dorrance 1976 for complete guidelines).
    - i. Subcutaneous hemorrhaging associated with wounds on the carcass.
    - ii. The size of the canine spread on the hide.
    - iii. Attack points on the animal (e.g. wolves and coyotes typically attack the hamstring and armpit area of animals, whereas lions generally attack the back of the neck).
    - iv. The size and extent of bones chewed by the predator.
    - v. Tracks/scat/hair in the area.
    - vi. Disturbed vegetation, snow, and terrain in the area, with areas of blood on the ground.
    - vii. Any additional evidence around the site.
4. Collection of data.
  - a. Initially, take a GPS reading at the site and record the elevation and UTM datum (i.e. Zone 12, NAD 27) and coordinates of the location.
  - b. Use the random compass bearing associated with each carcass to do a comparison site 200 meters in the random bearing direction for that specific kill.
  - c. Take the same environmental measurements that were recorded at the kill site (See Appendix A).
  - d. Collect the femur and bottom jaw of the animal for further analysis.
    - i. Upon returning to the office:
      - (1) Write the kill number on the femur and jaw. Keep both samples until analysis is complete for both bone marrow fat and age of the ungulate (see below).
      - (2) Saw a 2-3 inch section out of the femur with a bone saw.
      - (3) Remove the marrow from the interior of the section of femur bone.
      - (4) Place the marrow in a whirl pack and mark the outside of the bag with the kill number. Place the whirl pack in the freezer.

- (5) When there are a few samples of bone marrow, weigh each individual sample on the scale in the office. Then place the samples in the oven drier for 2 days (drier is set at approximately 100 degrees Fahrenheit). Weigh each sample. Percent fat of the sample then is calculated by the formula: Dry Weight / Wet Weight x 100. Write this number on the corresponding form for that kill.
  - (6) Estimate the age of the ungulate based upon the jaw using the chart in the office or the reference guide (AGFD 1997).
  - (7) Remove an incisor tooth from the jaw and place it in a whirl pack to be sent out to the lab for ageing (do not do this process for young ungulates that are easily aged using the chart in the office [e.g. calves and yearlings]). Make sure the bag is marked with the kill number.
  - (8) When a sample of approximately ten teeth have been collected, have AGFD send the samples to Matson Lab in Montana for ageing. When the results return, write the age of the animal on the corresponding form for that kill.
  - e. Examine the vertebrae, pelvis, sacroiliac joint, head of femur, acetabulum, and other leg joints, especially near the hooves, for any evidence of injury or arthritis (indicated by wear, swelling or absence of or deterioration of cartilage in the joints).
  - f. Look at the jaw for any evidence of jaw necrosis (indicated by infection in the jaw by a missing or impacted tooth).
  - g. Investigate any internal organs and the hide for any disease or parasitism that may be present.
  - h. Take photos throughout the examination of any abnormalities that you find.
5. Entering Data
- a. Prior to entering data into the file, become familiar with the process by entering data several times under supervision of someone knowledgeable about the database.
  - b. Open the Mex Wolf database file under the Start button on the main computer in the office.
  - c. Under the open existing database button, click on C:\Alldata\zip disk from old pc\ ..... \db1
  - d. Then click on the data entry button.
  - e. Click on the carcass data sheet button.
  - f. Enter the appropriate data from your data sheet (Ask questions if you do not understand anything in this process).
  - g. Place the sheet in the folder in the filing cabinet marked "Carcass Data/Completed."

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 24, 2004.

**References:**

- Arizona Game and Fish Department. 1997. Age criteria for Arizona game species. Arizona Game and Fish Department. Phoenix, Arizona. 40 pp.
- Fritts, S.H. 1982. Wolf depredation on livestock in Minnesota. U.S. Fish and Wildlife Service Resource Publication 145.
- Roy, L.D., and M.J. Dorrance. 1976. Methods of investigating predation of domestic livestock: a manual for investigating officers. Alberta Agriculture, Edmonton, Alberta, Canada.
- U.S. Fish and Wildlife Service. 1998. 1998 Mexican Wolf Interagency Management Plan. U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

**Appendix A.**

**Mexican Wolf Prey Carcass Investigation Form**

Examined by: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Carcass #:** \_\_\_\_ - \_\_\_\_ - \_\_\_\_ - \_\_\_\_

**Sex:** M F Unk.

**Date Carcass Found:** \_\_\_\_ / \_\_\_\_ / \_\_\_\_

**Length of Time Dead :** \_\_\_\_\_

**Species:** \_\_\_\_\_  
(4)unknown

**Estimated Age:** (1)calf/fawn (2)yearling (3)adult

**Actual Age:** \_\_\_\_\_ years

**Kill/ Point of Chase Site Description**

General

Location: \_\_\_\_\_

Kill: UTM: \_\_\_\_\_ E \_\_\_\_\_ N Elev. \_\_\_\_\_ Slope \_\_\_\_\_

Aspect \_\_\_\_\_

- or -

Cache: UTM: \_\_\_\_\_ E \_\_\_\_\_ N Elev. \_\_\_\_\_ Slope \_\_\_\_\_

Aspect \_\_\_\_\_

Distance from kill (m): \_\_\_\_\_

Physiography: 1) ridgetop 2) upper 1/3 3) midslope 4) lower 1/3 5) bottom/riparian 6) bench

Rock: 1) outcrops 2) talus 3) cliff 4) boulder field 5) none

Vegetation: \_\_\_\_\_

Describe area of

Kill/Cache: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Snow Depth (cm)** - \_\_\_\_\_

**Canopy Closure** – Open (0 – 33%) Moderate (34 – 66%) Dense (67 – 100%)

**200 m. comparison site** - Slope: \_\_\_\_\_ Aspect \_\_\_\_\_

Physiography: ( 1 2 3 4 5 6)

Rock: ( 1 2 3 4 5)

**Snow Depth (cm)** - \_\_\_\_\_

**Canopy Closure** – Open (0 – 33%) Moderate (34 – 66%) Dense (67 – 100%)

**Snow conditions at kill and comparison (crusted, patchy, etc.):**

\_\_\_\_\_

\_\_\_\_\_

**Site Evidence and Assessment of Carnivore Involvement**

Carcass detected?: 1) bird activity 2) tracks / sign 3) telemetry 4)

Other: \_\_\_\_\_

Carnivore tracks present: 1) wolf 2) cougar 3) coyote 4) bobcat 5) bear 6) none 7)

other: \_\_\_\_\_

Carnivore present?: \_\_\_\_\_

Beds: Y N Scats: Y N Tree Scratching: Y N Scrapes: Y N #: \_\_\_\_\_ Urine marking: Y N

Carcass located: 1) among or under tree / shrub or 2) in open

Carcass covered: Y N Cover Material: \_\_\_\_\_ Carcass moved: Y N

#: \_\_\_\_\_

Drags marks: Y N Distance dragged (m): \_\_\_\_\_ No. of burial sites: \_\_\_\_\_

Signs of Struggle or chase: \_\_\_\_\_

Scavengers present?: Y N 1) coyote 2) raven 3) golden eagle 4) bald eagle 5) magpie 6)

bobcat 7) wolf 8) cougar 9) bear 10) other: \_\_\_\_\_

**Cause of death** (see carcass evaluation form):

1) Possible a) carnivore (list species): \_\_\_\_\_

2) Probable b) malnutrition/winter kill c) unknown d) other (specify): \_\_\_\_\_

3) Positive Wolf or cougar ID's if known: \_\_\_\_\_

Wolf Pack: \_\_\_\_\_

Type: 1) ground telemetry 2) aerial telemetry

No. and color observed: \_\_\_\_\_

**Carcass Description, Utilization, and Condition**

Signs of carnivore damage: Tooth marks present? Y N

Location: \_\_\_\_\_

Apparent point of first feeding: \_\_\_\_\_

Subcutaneous/internal hemorrhaging: \_\_\_\_\_

Probable kill method: 1) choked 2) bite to skull 3) broken neck 4) unknown

5) other: \_\_\_\_\_

**Utilization**

No. days btwn. carcass abandonment and carcass examination: \_\_\_\_\_ (known) (estimated)

Utilization: 1 = 76 – 100% no soft tissue; hide usually present; generally disarticulated

2 = 51 – 75% all organs consumed, all or most of quarters consumed; some head/neck present;

3 = 26 – 50% partial/slight disarticulation organs usually consumed, major portions of hind quarters consumed; front quarters,

4 = 0 – 25% head/neck largely intact; usually articulated some organs consumed; most soft tissue intact; skeleton articulated

**Condition**

Bone Marrow: 1) Solid 2) Gelatinous Color: \_\_\_\_\_ Percent Marrow

Fat: \_\_\_\_\_

Body Fat: Subcutaneous: Y N Unk. Omentum: Y N Unk. Kidney: Y N Unk. Heart: Y N Unk.

Arthritis: vertebrae: Y N; If yes circle type: cervical/thoracic/lumbar, and # of each: \_\_\_\_\_

pelvis: Y N; which acetabulum: right/left/both Severity: slight/moderate/severe

Femur ball examined?: Y N arth.?: Y N (R or L)

other arthritic joints: Y N specify: \_\_\_\_\_ severity:

slight/moderate/severe

Jaw Necrosis: Y N uppers: slight/moderate/severe lowers: slight/moderate/severe

Disease and Parasitism: (when possible inspect for ticks, lung worm, liver fluke, tapeworm, muscle cysts)

Specify parasite: \_\_\_\_\_ Infection: slight/moderate/severe

Abnormal organs/tissue

present: \_\_\_\_\_

**Samples Collected**

Carnivore: Scats Hair Photos of kill site?: \_\_\_\_\_

Prey (bones): Femur Jaw Metatarsus other: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Appendix B: Mexican Wolf Determination of Cause of Ungulate Death Form

	Possible	Probable	Positive
Wolf	<input type="checkbox"/> Old wolf tracks <input type="checkbox"/> Competing predator: could go either way <input type="checkbox"/> Hide with hair attached or hide attached to bone	<input type="checkbox"/> Wolf tracks (may or may not be present due to weather, scavengers obscuring tracks, etc.) <input type="checkbox"/> Torn or shredded hide or mostly consumed <input type="checkbox"/> Carcass scattered <input type="checkbox"/> Bones crushed or gnawed (esp. femur, femur ball) <input type="checkbox"/> Feeding pattern indicates entry through the hind quarters/soft tissue. <input type="checkbox"/> Collared wolves in area Frequencies:	<input type="checkbox"/> Definite chase scene <input type="checkbox"/> Hemorrhaging on back of thighs, lower legs, neck (generally all present). <input type="checkbox"/> If no chase scene, all “probable” indications.
Cougar	<input type="checkbox"/> Old cougar tracks <input type="checkbox"/> Old scats, bedsites <input type="checkbox"/> Hide with plucked or sheared hair	<input type="checkbox"/> Cougar tracks (may or may not be present due to weather, scavengers obscuring tracks, etc.) <input type="checkbox"/> Remains concealed near or under low hanging vegetation <input type="checkbox"/> Carcass buried/cached – duff, hair, snow, etc. <input type="checkbox"/> Cougar scats, scrapes <input type="checkbox"/> Feeding pattern indicates entry through the ribs. <input type="checkbox"/> Tree scratching at site <input type="checkbox"/> Collared cougar in area Frequencies:	<input type="checkbox"/> Chase, struggle, kill site evident <input type="checkbox"/> Canine punctures to back of neck, throat, or head; neck broken <input type="checkbox"/> Claw marks and rakes along back of shoulders <input type="checkbox"/> Drag marks to cache

(Possible: evidence at site limited or too old to ascertain cause of death; some evidence suggesting possible predator)

(Probable: multiple indications of predator; may be indications of other predator, but evidence is overwhelmingly in favor of one over the other)

(Positive: chase scene with tracks of predator; all other evidence at the scene indicative of the predator)

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

**Title:** Requirements for Pharmaceutical Storage, Access, and Record Keeping

**Number:** 20.0

**File Name:** MW SOP 20.Requirements for Pharmaceuticals.Final.20041217.doc

**Purpose:** This SOP establishes the requirements for storage, access, and use of pharmaceuticals provided or permitted by USFWS. Use of any pharmaceuticals provided by, or used pursuant to permits issued or held by, other cooperating agencies are subject to the provisions and constraints established by the appropriate cooperating agency. This SOP 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:** Because of the legal requirements required under state and federal law for tracking pharmaceutical use, there are no exceptions to this SOP. Any deviation will require prior revision of this SOP, in accordance with SOP 2.0.

**Background:** Pharmaceuticals are often used for health maintenance, care, and handling (e.g. vaccines, antibiotics, anesthetics) of Mexican wolves. Some of these pharmaceuticals are federally classified as controlled substances, the use of which is regulated by the Drug Enforcement Administration (DEA) and state agencies to prevent diversion for illicit purposes. Proper storage of pharmaceuticals and documentation of use ensures that state and federal regulations are being met. This SOP does not supersede any state or federal policies or laws, but provides guidelines and defines appropriate actions that will allow the USFWS Mexican Wolf Recovery Program to comply with provisions of the Animal Medicinal Drug Use Clarification Act, and provide appropriate pharmaceuticals to the Reintroduction Project.

Pharmaceuticals controlled by the DEA may only be purchased and dispensed by persons currently licensed by the DEA. Dr. David Hunter, veterinarian for the Turner Endangered Species Fund (TESF; one of several formal cooperators with the USFWS Mexican Wolf Recovery Program.), is licensed by the DEA and has agreed to provide various pharmaceuticals to the Mexican Wolf Recovery Program, provided he has the necessary oversight to meet his ethical and legal responsibilities. Dr. Hunter has approved this SOP (see Approvals, below), and strict compliance by all IFT members or other individuals assisting the IFT is mandatory.

## **Procedures:**

1. Use of pharmaceuticals provided by USFWS for the Mexican Wolf Recovery Program (including the Reintroduction Project) is subject to the direction of licensed veterinarian Dr. David Hunter, through his formal relationship with USFWS. While IFT personnel may be licensed for use of pharmaceuticals through their employer, and/or for uses in other

situations, all use of pharmaceuticals provided by USFWS through Dr. Hunter is considered a federal action under the direction of Dr. David Hunter.

2. The standards listed below (Procedure 3 et seq.) are minimum criteria for all IFT members. Project personnel may also have more stringent agency-specific requirements regarding use of pharmaceuticals that require additional measures to be taken. This SOP in no way exempts or supersedes any agency-specific standards for use, handling, and storage of pharmaceuticals by that agency's employees.
3. Controlled substance storage.
  - a. Security
    - i. All controlled substances will be stored in securely locked cabinets, safes, or refrigerators. Biologists using controlled substances in the field are not required to meet this storage requirement, but are required to ensure that all drugs are protected and secured by the best means available to prevent damage, accidental human exposure, or theft.
    - ii. All controlled substances will be maintained in possession of authorized biologists after removal from storage.
    - iii. Controlled substances will not be left in unattended vehicles.
  - b. Types of storage.
    - i. Inventory storage: Will consist of all pharmaceuticals that are being stored until transferred to the ready supply.
    - ii. Ready supply: Will consist of pharmaceuticals currently available for use or those supplies that can reasonably be expected to be needed in the immediate future.
  - c. Location of Inventory and Ready supply of pharmaceuticals.
    - i. Regional Office: Albuquerque, NM.
    - ii. Field Office: Alpine, AZ
4. Personnel.
  - a. Training:
    - i. All personnel using pharmaceuticals will be required to complete initial and yearly training regarding proper pharmaceutical handling, storage, and record keeping requirements. This training must be approved by the signing veterinarian (Dr. Hunter).
    - ii. All personnel will complete training as specified in SOP 3.0: Immobilizing and Processing a Mexican Wolf, regarding the proper administration of pharmaceuticals.
    - iii. Under no circumstances will untrained or volunteer personnel be allowed to handle, administer, or possess controlled substances.
  - b. Authorized personnel by location: Only authorized personnel will have access to pharmaceuticals (Appendix A).
    - i. Regional Office:
      - (1) Inventory supply.
        - (a) Mexican Wolf Recovery Coordinator.
        - (b) Assistant Mexican Wolf Recovery Coordinator.

- (c) David Hunter, D.V.M. or other licensed D.V.M. approved by Dr. Hunter.
    - (2) Ready supply.
      - (a) Mexican Wolf Recovery Coordinator.
      - (b) Assistant Mexican Wolf Recovery Coordinator.
      - (c) David Hunter, D.V.M. or other licensed D.V.M. approved by Dr. Hunter.
      - (d) Permanent field staff meeting the requirements of this SOP and approved by the Mexican Wolf Recovery Coordinator.
  - ii. Field Office:
    - (1) Inventory supply.
      - (a) Mexican Wolf Recovery Coordinator.
      - (b) Mexican Wolf Field Projects Coordinator.
      - (c) Assistant Mexican Wolf Recovery Coordinator.
      - (d) Assistant Mexican Wolf Field Projects Coordinator.
      - (e) David Hunter, D.V.M. or other licensed D.V.M. approved by Dr. Hunter.
    - (2) Ready supply.
      - (a) Mexican Wolf Recovery Coordinator.
      - (b) Mexican Wolf Field Projects Coordinator.
      - (c) Assistant Mexican Wolf Field Projects Coordinator.
      - (d) David Hunter, D.V.M. or other licensed D.V.M. approved by Dr. Hunter.
      - (e) Permanent field staff meeting the requirements of this SOP and approved by the Mexican Wolf Recovery Coordinator.
5. Records.
- a. Requirements.
    - i. Records must be readily retrievable.
    - ii. Records must be accurate and reflect current inventory.
    - iii. All records shall be made available for inspection by duly authorized officials of the Drug Enforcement Administration (DEA).
  - b. Types of records.
    - i. Inventory (Appendix B).
      - (1) Inventory must be:
        - (a) Conducted every 2 years, by personnel authorized to access the inventoried supply of controlled substances, and must include:
          - (i) Name, address, and DEA registration number.
          - (ii) Date and time of inventory.
        - (b) Signed by person(s) taking inventory.
        - (c) Be maintained at the location appearing on the registration certificate for at least 2 years.
      - (2) Separate records for Schedule II drugs. It is not anticipated that the Mexican Wolf Recovery Program will use any Schedule II drugs, therefore no inventory form is included in this SOP. Use of these drugs will require a revision of this SOP.
  - c. Pharmaceutical Tracking Form (Appendix C).
    - i. This form is to be started upon receipt of pharmaceuticals by personnel authorized to access the inventoried supply of pharmaceuticals, and completed as pharmaceuticals are used. This form will include the following information:

- (1) Pharmaceutical name, manufacturer, lot number, concentration and expiration date.
  - (2) Date received, amount received, initials of authorized person completing form and the location of storage.
  - (3) Date used, amount used, amount remaining, purpose and initials of person using or transferring pharmaceutical.
  - (4) Each vial of controlled substance will receive a unique nine-digit identification number upon receipt that will consist of the date received, first initial of the drug and vial number. For example, two vials of Telazol received on 7/15/02 would be labeled 071502T01 and 071502T02 respectively.
  - (5) The person transferring the controlled substance to ready supply will record the transfer on the Pharmaceutical Tracking Form and issue a Drug Tracking Record for Field Use (see Procedure 5e, below).
  - (6) Completed Drug Tracking Records for Field Use and empty vials of controlled substances are to be returned to the person authorized to access the inventoried supply of controlled substances who will then complete the Pharmaceutical Tracking Form.
  - (7) All completed forms are to be stored with the inventory supply of pharmaceuticals.
- d. Drug tracking record for field use (Appendix D).
- i. This form is to be completed by the authorized personnel using the controlled substance in the field. This form will include the following information:
    - (1) Controlled substance name, concentration, and expiration date.
    - (2) The date the form was issued and date the vial was opened.
    - (3) Vial number.
    - (4) Date, amount used, amount remaining, wolf ID number, purpose and location of use.
    - (5) Initials of person using the controlled substance.
    - (6) A Drug Tracking Record for Field Use form will be maintained for each vial of controlled drug and issued when a controlled drug is dispensed to ready supply.
    - (7) The Drug Tracking Record for Field Use form will be maintained with the dispensed vial of controlled drug until the vial is empty, outdated, or contaminated at which time the Drug Tracking Record for Field Use form and vial will be returned to personnel authorized to access the inventoried supply of pharmaceuticals.
    - (8) Each authorized person receiving controlled substances for field use is responsible for ensuring that the quantity of drug in their possession matches the quantity indicated on the Drug Tracking Record for Field Use form. Personnel should account for drug quantities when signing out a drug and upon return of the drug to the secured ready supply.

6. Theft.

- a. In case of theft or loss of controlled substances, immediately notify the Mexican Wolf Recovery Coordinator and David Hunter, D.V.M. The loss or theft of controlled substances requires a formal report to the nearest DEA field office and the local police

department must be notified.

- i. DEA field office for New Mexico: Albuquerque District Office (505) 262-6283.
- ii. DEA field office for Arizona: Phoenix Division (602) 640-5700.

7. Disposal. Special disposal requirements apply to controlled substances. Do not dispose of any controlled substance. All expired or contaminated controlled substance drugs and unused darts still containing drugs must be turned in to the Mexican Wolf Recovery Coordinator or David Hunter D.V.M. for proper disposal procedures according to procedures outlined in Title 21 of the Code of Federal Regulations.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

/s/ Dr. John Morgart  
Dr. John Morgart  
Mexican Wolf Recovery Coordinator

November 23, 2004  
Date

/s/ Dr. David Hunter  
David Hunter, D.V.M.,  
Turner Endangered Species Fund

November 23, 2004  
Date

**References:** None

**Appendix A.**

**Signature Page for Inventory Supply Access**

By signing below, the undersigned acknowledge the receipt of a key(s) to the Inventory Supply safe referenced in SOP 20.0 at the location(s) specified, and agree that the key(s) will only be in their own possession or loaned only to those individuals on this list, if necessary. Upon termination of employment with the Mexican Wolf Project, the undersigned agrees to return the key(s) to the Mexican Wolf Recovery Coordinator.

_____	_____	<u>  X  </u>	<u>  X  </u>
Mexican Wolf Recovery Coordinator	Date	RO key	Alpine key

_____	_____	<u>  X  </u>	<u>  X  </u>
Asst. Mexican Wolf Recovery Coordinator	Date	RO key	Alpine key

_____	_____	_____	<u>  X  </u>
Mexican Wolf Field Coordinator	Date	RO key	Alpine key

_____	_____	_____	<u>  X  </u>
Asst. Mexican Wolf Field Coordinator	Date	RO key	Alpine key

_____	_____	<u>  X  </u>	<u>  X  </u>
David Hunter, D.V.M., TESH	Date	RO key	Alpine key

**Appendix B.**

**CONTROLLED SUBSTANCE INVENTORY**

**SCHEDULE III - V**

<b>DRUG</b>	<b>CONCENTRATION</b>	<b>AMOUNT</b>

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**DEA registration number:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Time of Inventory:** \_\_\_\_\_

**Person(s) Taking Inventory:**

**Signature(s):** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





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

**Title:** Handling, Immobilizing, and Processing Live Mexican Wolves

**Number:** 21.0

**File Name:** MW SOP 21.Handling and Immobilization.Final.20041217.doc

**Purpose:** This SOP describes the standard procedure by which approved personnel are allowed to handle, immobilize, and process a Mexican wolf using USFWS pharmaceuticals and operating under USFWS permit. Adherence to this procedure will: (1) help ensure safety of both the wolf and handling personnel; (2) provide for safe recovery of the wolf; (3) ensure that released wolves can be monitored and/or identified after release into the wild or within the captive population; (4) provide a standard procedure for immobilizing, processing, and collecting data on Mexican wolves; and (5) ensure data entry into the Mexican wolf program database, thereby facilitating access for Mexican wolf recovery. This SOP 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:** Mexican wolves are routinely captured and handled for a variety of reasons. Handling is essential to success of the Mexican wolf reintroduction project. Mexican wolves are trapped, darted, or netted in the wild to resolve depredation problems, other management issues, affix radio-collars, or to collect data to ensure accurate monitoring of the free-ranging wolf population. Wolves are also captured in captive facilities (in pens) to prepare them for release, perform health checks, collect data, or move them to a different location. Ensuring the safety of wolves during immobilization and associated processing, and ensuring the safety of individuals involved in capture and handling, are essential elements of Mexican wolf recovery.

## **Procedures:**

**Note:** Your personal safety is the most important consideration, followed by the wolf’s safety. Do not compromise the safety or health of a wolf to collect data. Before capturing or handling a wolf: 1) Make sure you have all necessary equipment, 2) All necessary equipment is in good working order, and 3) You are knowledgeable about use of the equipment, and handling and capture procedures. If at any time you are concerned about the wolf’s health, or unsure of what to do in a particular situation, kennel the wolf and get help from a senior crew member or veterinarian.

This SOP also applies to coyotes, wolf-dogs (i.e. not of Mexican wolf origin), and potential Mexican wolf hybrids (i.e. hybrid of Mexican wolf and another canid) that are taken while attempting to capture Mexican wolves. However, vaccines may not be administered to, and radio-collars may not be affixed to, wolf-dogs or potential Mexican wolf hybrids.

Captured wolf-dogs should be taken to a local animal shelter. Potential Mexican wolf hybrids must be held in captivity at the Sevilleta or Ladder Ranch captive wolf facilities for genetic testing.

If non-target wildlife are captured, assess their condition and released them on site. It may be necessary to use immobilizing drugs on some non-target animals (i.e. bear or mountain lion).

When a wolf is captured or handled, the following steps should be followed in the order given:

**Note:** No one shall use USFWS-issued immobilizing drugs or handle Mexican wolves under the USFWS permit for drug use until they have attended an approved USFWS wolf immobilizing course and have signed the USFWS Mexican Wolf Recovery Protocol for Drug Tracking and Handling, indicating they understand the Procedure. IFT members must also adhere to their own agency's policies on use of immobilizing drugs.

1. During processing, record any drug or medicine administrations, data collected, and other pertinent information on a processing sheet (Appendix A). However, do not risk the health or safety of a wolf by taking time to write something down.
2. Subdue the wolf as quickly as possible to decrease the likelihood of escape, injury, hypothermia, or other stress related conditions.
  - a. A Y-pole or pin stick can be used to restrain the wolf by placing the "Y" of the pole to the neck of the wolf and pinning it to the ground without the potential problems associated with a catchpole. A Y-pole is very effective to restrain a wolf that is in a trap, cornered in a pen, or after the wolf has been netted.
    - i. Caution should be used because the animal may slip out if not held correctly.
  - b. Snare or catchpoles are effective in subduing a wolf that has restricted movement and they also provide a fair amount of safety to the handler. They can be dangerous to the wolf when used improperly for the following reasons:
    - i. If the cable on a catchpole is worn or not maintained it may not release properly after being tightened around the neck of the animal. Be sure to test the catch pole each time before using. Keep a good pair of wire cutters on hand in case it doesn't release properly.
    - ii. Once tightened around the neck of an animal there is the potential to restrict its breathing. If there is any reason to suspect this, including a panicked, open-mouth response, pawing at its mouth, gasping and lack of breathing, pale or bluish gums and tongue, or unconsciousness, immediately relax the cable.
    - iii. Damage to the neck muscles and/or vertebrae may occur if the animal is thrashing or if the pole is used to drag the animal or subdue it when it has a wide or extensive range of movement. If this is the case, use another method described below to subdue it.
  - c. Large salmon nets are effective in subduing a wolf that has a wide range of movement, or when there exists a higher possibility of escape before it can be subdued and immobilized. Nets should be used in combination. A Y-pole should be used when using nets. A netted wolf often maintains control and movement of its head and mouth, so

- care should be taken when removing it from the net when only physical restraint is being used to immobilize the animal.
- d. Only in cases where the wolf cannot be subdued physically should darting be considered. Refer to SOP 22.0.
3. Once a wolf is restrained, assess the condition of the animal (i.e., temperature). After the stress of the initial capture event you may want to place the animal in a kennel to allow it cool and settle down before anesthetizing the wolf. This allows the wolf to calm down and allows the handler to properly prepare for the processing event.
  4. Chemical immobilization is the preferred method when doing a complete processing of a wolf. However, a judgment call may be made whether to use physical or chemical immobilization under certain circumstances.
    - a. Chemical immobilization should not be used, or used with extreme care, in the following situations:
      - i. Avoid using any drugs to immobilize pregnant or lactating females.
      - ii. Avoid using chemical immobilization on wolves that are completely or partially paralyzed, or that you suspect for any reason to be sick. Sedation will make it more difficult for a veterinarian to diagnose any problems.
      - iii. Avoid using any drugs on wolves that you suspect to be hypothermic (body temp. <96°F), especially if in shock (see Step 5). Administering chemical immobilization drugs can lead to hypothermia, so would compound the problem (see Step 5 on dealing with hypothermia).
  5. Physical restraint can effectively be used by applying a muzzle and restraining all four legs with hobbles or rope. Do not leave a wolf in a trap, or with a catch pole attached, and never leave a wolf unattended. An apparently subdued wolf could suddenly break free and run off, with a muzzle or catch-pole, and sustain injury.
    - a. Make sure the wolf can breathe easily. Continue to monitor the animal's respiration during entire handling event. If respiration or cardiac rate slow dramatically or stop refer to Step 5c.
    - b. Check for shock. Though rare, shock is potentially life threatening to a wolf.
    - c. Signs of shock:
      - i. Rapid Heart Rate
      - ii. Hyperventilation, Respiratory rate is typically rapid (panting)
      - iii. Low Blood Pressure, Capillary refill time more than 2 seconds. Check this by pressing on gums or tongue and noting the time it takes to refill with blood, turning pinkish.
      - iv. Mucous membranes are typically pale, cold, and dry.
      - v. Cool extremities.
    - d. Treatment for shock:
      - i. Administer 500-1000 ml lactated ringers intravenously (IV), and run fluids full open. If you cannot hit a vein, administer subcutaneous (SQ), under the skin. Avoid over hydration (could lead to fluid in lungs) - check gums or tongue for capillary refill time and moisture and listen to lungs if possible (fluid in lungs may produce crackles).

- ii. Administer Dexamethasone sodium phosphate IV (can be administered through IV line already established) 5mg/kg. Apply slowly (approximately 30 seconds [Kreeger 1996]).
    - iii. Ensure a clear airway.
    - iv. Any wolf recovering from shock should be contained, minimally, overnight. Consult a veterinarian.
  - e. Obtain a body temperature. If it is within normal range (100°F-103°F) recheck in five minutes to determine if it has decreased or increased to hyper- or hypothermia. Watch for a trend in body temperature and continue monitoring throughout the handling process.
    - i. If hyperthermic (>103°F) or you notice a rapid increase in body temperature leading to hyperthermia, cool the wolf in one or more of the following ways: (Kreeger 1996).
      - (1) Cease all further administration of immobilizing drugs
      - (2) Cool the animal using the following methods:
        - (a) Pouring water or an alcohol-water mixture over the animal is a quick way to reduce body temperature. Avoid submersing an animal in water, because it makes it difficult to restrain the animal.
        - (b) Apply water to ventral surface, particularly under legs and in the groin.
        - (c) Apply alcohol to footpads and inside surface of ear.
        - (d) Place the animal in the shade
        - (e) Use of icepacks should also be used to reduce body temperature
        - (f) Administer lactated ringers solution intravenously. This will rapidly cool temperature and is helpful in shock prevention and/or management.
      - (3) Administer appropriate antagonist IV.
    - ii. If a wolf becomes hypothermic (< 99°F) or you notice a rapid decrease in body temperature leading to hypothermia, warm the wolf using one or more of the following methods; use heat packs under the legs against the body and/or wrap with a blanket or something similar. You can also hold the wolf inside a truck with the heater running if handling permits. Finishing the handling event as soon as possible and releasing the wolf will allow it to produce more heat and recover. Be sure to check for shock. It is better to stabilize the wolf's body temperature first and prevent further cooling (provide blanket, but not heat packs).
      - (1) Apply heat packs under the legs against the body to heat the core body area where it will affect the animal's temperature most.
      - (2) Wrap the wolf in a blanket, a sleeping bag, or something similar to conserve body heat.
6. Chemical immobilization is a very effective means of restraining a wolf for extended periods of time and allows for a greater degree of safety for the handler, and a lower level of stress for the wolf during processing. **DO NOT LEAVE A SEDATED WOLF UNATTENDED AT ANY TIME!** It is also very important when using chemical immobilization that you understand what the particular drugs are used for, how they work, and the proper dosages (see Appendix B). Have the necessary drugs on hand for reversing the effects of chemical immobilization and handling emergencies. Ensure that the drugs are

not expired. *See procedure on using drugs or vaccinations on pregnant or lactating females and pups* (Appendix C). *Assume that all wild adult (and yearling) females captured after February 1 and before June 1 to be pregnant or lactating.*

Note: Obtaining a body weight before sedating will facilitate administering more accurate dosages. It is not necessary and should not be done at the risk of injury to the handler or the wolf, or in cases where it would take an extended length of time to obtain. Estimate the body weight to determine dose if a precise weight cannot be obtained.

- a. Administer initial dose intramuscular (IM) to immobilize the wolf.
  - i. The preferred chemical immobilization method for a Mexican wolf is a mixture of Medetomidine (Med) and Butorphanol (But). For field captures where the wolf is processed and released on site, both of these drugs should be reversed using Atipamezole (Ati) and Naloxone (Nal), respectively. When wolves will be transported after capture, it may be desirable to reverse only the Medetomidine using Atipamezole. Leaving Butorphanol “on board” serves to mildly sedate the animal and provide some analgesic effect, to calm the animal during transport. After administering Med/But draw up the reversal (Ati/Nal), in a labeled syringe while waiting for the wolf to become sedated. That will ensure it is accessible quickly during an emergency. If after 15 minutes the wolf does not become sedated, inject 50 percent of the original Med/But dose. Doses of these drugs (volume) injected intramuscularly are displayed in Appendix B.
  - ii. Unless necessary, avoid using Ketamine/Xylazine if you do not have enough Yohimbine on hand for reversal. If using Ketamine/Xylazine draw up the reversal, (Yohimbine), into a labeled syringe while waiting for the wolf to become immobilized. That way it will be accessible quickly during an emergency.
  - iii. If Ketamine/Xylazine is used and wolf is not immobilized within ten minutes, or it recovers from sedation before you are finished processing it, administer additional Ketamine only. Administer 50 mg IV or 100 mg IM. Record the time and repeat after 10 minutes if necessary. It is preferable to repeat administering Ketamine only once. Do not administer additional Xylazine or Ketamine/Xylazine in combination.
  - iv. If Telazol is used and wolf is not immobilized within 15 minutes, administer additional Telazol IM at 50 percent of the original dose, or Ketamine IM at 25 percent of original dose.
- b. Continuously monitor the airway during handling event and ensure that the airway is kept clear.

Note: When assessing vital signs, including respiratory and heart rates, body temperature, and capillary refill time monitor trends over time, not just the initial assessment. Vital signs should be monitored every 5-10 minutes during the processing event.

- c. Determine if the wolf is in respiratory arrest or distress. The normal rate is 10-30 breaths/minute. If distressed perform the following until breathing is restored and/or back to a normal rate:

- i. Administer appropriate antagonist.
    - ii. Administer Dopram IV.
    - iii. Lay wolf on side and compress the chest. If the handler is proficient in using an intubation tube and ambu bag this technique can be used to provide artificial respirations.
  - d. Determine if the wolf is in cardiac depression, or has a decreased heart rate. Normal is 60-120 beats/min. If so, perform the following until heart rate is stable:
    - i. Administer appropriate antagonist.
    - ii. Administer Atropine IV or IM.
  - e. Check for shock. (see Step 4.c. above)
  - f. Check body temperature and treat hyper- or hypothermia (see Steps 4.b.i and ii).
  - g. Apply Paralube or similar eye lubricant to both eyes. A muzzle with a head cover should be left on the wolf for the entire processing to cover the eye to keep debris out of open eyes; it will also keep the animal calmer as it recovers from sedation.
  - h. When you are finished processing and handling the wolf, if using Med/But administer Ati/Nal IM at least 15 minutes after last administration of Med/But, even if you are not releasing it. If the animal will be transported, you may reverse only the Medetomidine (See step 5.a.i). If you are releasing the wolf, whether in a pen or the wild, wait until you are confident it is alert and coordinated.
7. Check the wolf thoroughly for any leg fractures or dislocations, or any other medical condition requiring veterinary care. If veterinary attention is required, kennel the wolf immediately and transport it for treatment. Note the general condition, including coat, body fat, tooth wear, etc.
  8. Obtain a body weight.
  9. Identify the wolf's studbook number, if it is not yet known, by checking for a transponder chip or radio collar. Identifying the individual wolf will help determine if vaccinations should be administered, or if the collar needs to be replaced.
  10. Look inside the mouth for any lodged sticks or other debris. If there is anything lodged or stuck, it will need to be removed on-site or by a veterinarian. Look all the way to the epiglottis to ensure a clear airway.
  11. Draw blood into two purple tops and two red tops.
    - a. Label the tubes with the sex of the animal, wolf number (if known), and date.
    - b. Store the tubes in a cooler. See SOP 23.0 on handling blood samples.
  12. Administer vaccinations IM:
    - a. Administer rabies vaccination if more than 90 days have elapsed since last administration. Why are we doing this when rabies vaccines are either for 1 or 3 years?
    - b. If less than four 5-way vaccinations have been administered to date, repeat only if more than 13 days have elapsed since the last administration. Otherwise administer only if more than 90 days have elapsed.

13. Administer Ivermectin SQ only if greater than 30 days have elapsed since the last administration.
14. If you have not attempted to read a transponder chip yet, do so at this time. If one cannot be read, then inject a transponder chip between the shoulder blades. Read the transponder ship prior to injecting and record the number. Once the chip is inserted and positioned correctly, then test it with the reader. Be sure to double-check the number on the processing sheet.
15. Place a radio collar on the wolf at this time if applicable.
  - a. Test the collar to be sure it is working. This will also ensure that the magnet is removed.
  - b. Be sure to record the frequency and serial number of the collar on the capture and handling form (Appendix A).
  - c. If the wolf weighs more than 45 pounds place a model 500 collar on it. If it is weighs between 25 and 45 pounds place a model 400 collar on it.
    - i. When collaring pups, fit the collar at the recommended size for an adult (17 inches for females and 18 inches for males). Line the collar with foam and use a moderate amount of electrical tape. Error on the side of caution when fitting pups with collars. We would rather lose the collar than injure an animal.
    - ii. Make sure the collar is secure enough that it cannot be pulled over the wolf's head, but loose enough not to restrict breathing. With younger animals a judgment call will need to be made to allow for growth and a winter coat.
    - iii. Tighten the collar nuts securely without over tightening and breaking the bolts.
    - iv. Cut off the extra belt but do not cut through the antenna.

Note: When capturing radio-collared wolves in the wild, record the fit and condition of the old collar while processing the wolf before fitting it with a new collar.

16. Obtain body measurements and record them on the processing sheet (Appendix A).
17. Check the entire body for ectoparasites. Spend one minute on the body and one minute on the head. Collect specimens and record the type and number found on the processing sheet.
18. Collect a fecal sample in a plastic bag for checking endoparasites. Label the bag with wolf number (if known) and date.
19. Take pictures as indicated on processing sheet (Appendix A).
20. Before releasing a wolf, check the processing sheet for anything that may have been missed.
21. Administer the appropriate antagonist and observe the animal from a safe distance until the drug has worn off and the wolf moves away from the area.
  - a. When releasing a wolf back into a pen, hold the animal in a kennel or quarantine area away from other wolves until it has fully recovered.
22. Fill out the processing sheet (Appendix A) as soon as possible. Preferably, the handler should fill in the form during the processing of the wolf.

- a. Within 24 hours (ideally the same day), make a copy of the processing sheet and place in the folder in the file cabinet in the Alpine Field Office. Send the original to the Assistant Mexican Wolf Recovery Coordinator in Albuquerque for data entry.

**Approval:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:**

Kreeger, T.J. 1996. Handbook of Wildlife Chemical Immobilization. International Wildlife Veterinary Services.

Appendix A

**MEXICAN WOLF CAPTURE AND HANDLING DATA FORM FORM B**

DATE (M/D/Y) \_\_\_/\_\_\_/\_\_\_ TIME (Military) \_\_\_\_\_ RECENT RECAPTURE Y  N   
 SPECIES \_\_\_\_\_ STUDBOOK # \_\_\_\_\_ SEX M  F  ADULT  SUB  PUP   
 LOCATION (GPS) \_\_\_\_\_ (Desc.) \_\_\_\_\_

PURPOSE \_\_\_\_\_  
 METHOD \_\_\_\_\_ Foothold trap: Front  Rear  Left  Right  (note foot damage below) PERSONNEL \_\_\_\_\_

TIME	TEMP	PULSE	RESP	DRUG	DOSE	COMMENTS (signs, procedure, vial #'s)

SAMPLES: Fecal  Ectoparasites  Vaginal swab  Urine  Skin scraping  Ear swab  Hair   
 Other \_\_\_\_\_ Blood Red tops (# of tubes) \_\_\_\_\_ Purple tops \_\_\_\_\_

TREATMENTS: Fluids Y  N  \_\_\_\_\_ ml IV  SQ   
 Vaccines DHPPC (1ml, IM) Y  N  Rabies (1ml, IM) Y  N  Ivermectin (0.1ml/10lbs, SQ) Y  N

vaccine serial # exp. Date	vaccine serial # exp. Date	vaccine serial # exp. date
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MARKINGS: PIT tag inserted Y  N  Verified Signal Y  N  Location \_\_\_\_\_ PIT # \_\_\_\_\_  
 Radio Collared Y  N  Verified Signal Y  N  Frequency \_\_\_\_\_ Serial # \_\_\_\_\_  
 Model \_\_\_\_\_ Mortality delay \_\_\_\_\_ hrs. Circumference \_\_\_\_\_ in. Color \_\_\_\_\_  
 Collar fit, neck condition: \_\_\_\_\_

EXAMINED MOUTH: Y  N  Photo Y  N  Dentition (staining/wear) \_\_\_\_\_  
 Canine measurements UL \_\_\_\_\_ mm UR \_\_\_\_\_ mm LL \_\_\_\_\_ mm LR \_\_\_\_\_ mm  
 Upper spread \_\_\_\_\_ mm Lower spread \_\_\_\_\_ mm

BODY MEASUREMENTS: Est./Act. Weight \_\_\_\_\_ lbs Body Condition (poor to excellent) 1 2 3 4 5  
 Body length \_\_\_\_\_ cm Tail length \_\_\_\_\_ cm Shoulder height \_\_\_\_\_ cm Ear length \_\_\_\_\_ cm  
 Testicles (adults) Length \_\_\_\_\_ mm Width \_\_\_\_\_ mm Vulva (adults) L \_\_\_\_\_ mm W \_\_\_\_\_ mm turgid  Inguinal  
 teats L \_\_\_\_\_ mm W \_\_\_\_\_ mm color \_\_\_\_\_ flaccid

FOOT MEASUREMENTS: Front pad length L  R  \_\_\_\_\_ cm Front pad width L  R  \_\_\_\_\_ cm  
 Rear pad length L  R  \_\_\_\_\_ cm Rear pad width L  R  \_\_\_\_\_ cm Total rear foot length L  R  \_\_\_\_\_ cm

PHOTOS: Y  N  head frontal / full body lateral

DISPENSATION OF ANIMAL: released on site  relocated  other \_\_\_\_\_  
 Relocation date \_\_\_/\_\_\_/\_\_\_ time \_\_\_\_\_ location (GPS, desc.) \_\_\_\_\_

COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Appendix B.**

Drug Dose using Medetomidine/Butorphanol combination (for animals under 40 lbs, consult with a veterinarian):

<b>Wolf Weight (lbs)</b>	<b>Anesthesia (ml or cc; and given IM)</b>		<b>Reversal (ml or cc; and given IM)</b>	
	Medetomidine	Butorphanol	Atipamezole	Naloxone
<b>40</b>	0.7	0.7	0.7	0.7
<b>45</b>	0.8	0.8	0.8	0.8
<b>50</b>	0.9	0.9	0.9	0.9
<b>55</b>	1.0	1.0	1.0	1.0
<b>60</b>	1.1	1.1	1.1	1.1
<b>65</b>	1.2	1.2	1.2	1.2
<b>70</b>	1.3	1.3	1.3	1.3
<b>75</b>	1.4	1.4	1.4	1.4
<b>80</b>	1.5	1.5	1.5	1.5

Alternative Drugs for Mexican wolves:

**Ketamine/Xylazine 5:1 Mix:** 100 mg/ml Ket.+ 20 mg/ml Xyl.

Administer 10 mg:2 mg/kg body weight

Antagonist: Yohimbine Administer .15mg/kg body weight

Drug Dose using Ketamine/Xylazine combination:

<b>Wolf Weight (lbs)</b>	<b>Anesthesia</b>	<b>Antagonist</b>
	Ket/Xyl (ml or cc and given IM )	Yohimbine (ml or cc and given IM)
<b>40</b>	1.8	1.4
<b>45</b>	2	1.5
<b>50</b>	2.3	1.7
<b>55</b>	2.5	1.9
<b>60</b>	2.7	2.0
<b>65</b>	3.0	2.2
<b>70</b>	3.2	2.4
<b>75</b>	3.4	2.6
<b>80</b>	3.6	2.7

**Yohimbine:** (.15 mg/kg) IV if needed to reverse quickly in an emergency

If additional Ketamine is needed administer 100-150 mg after initial dose (1-1½ ml)

Administer Yohimbine 40 minutes after last administration of Ketamine

**Telazol:** 10 mg/kg body weight - dosage depends on concentration

Suggested for darting: 100 mg/ml = 3 ml in a 3 cc dart

**Drugs used for emergency treatment (ml or cc and given IV):**

<b>Body Weight (lbs)</b>	<b>Dexamethasone (shock) 5mg/kg</b>	<b>**Atropine (bradycardia)</b>	<b>Dopram (resp. arrest) 2mg/kg</b>	<b>*Epinephrine (cardiac arrest)</b>	<b>Diazepam (seizures) 10mg/animal</b>
40	30	2	1.8	1-2	2
45	34	2.25	2.0	1-2	2
50	38	2.5	2.3	1-2	2
55	42	2.75	2.5	1-2	2
60	45	3	2.7	1-2	2
65	49	3.25	3.0	1-2	2
70	53	3.5	3.2	1-2	2
75	57	3.75	3.4	1-2	2
80	61	4	3.6	1-2	2

\* can be given intracardially (IC), dose is using 1:10,000 concentration

\*\* do not use with MED/BUT, it may kill the wolf

**Table of Reference:**

<b>Drug</b>	<b>Conc. (mg/ml)</b>	<b>Dosage (mg/kg)</b>	<b>Method Admin.</b>	<b>Use/Application</b>
Medetomidine	1	.04	IM	Immobilization
Butorphanol	10	.4	IM	Immobilization
Atipamezole	5	.2	IM	Antagonist
Naloxone	1	.04	IM	Antagonist
Ketamine	100	10	IM	Immobilization
Xylazine	20	2	IM	Immobilization
Yohimbine	2	.15	IM	Antagonist
Telazol	100	10	IM	Immobilization
Atropine	.54	.06	IV	Reduced Heart Rate/Salivation
Dexamethasone	3	5	IV	Shock
Diazepam	5	10mg/wolf	IV	Seizures/Salivation
Dopram	20	1-2	IV	Respiratory Arrest
Epinephrine	1	.2	IV/IC	Cardiac Arrest

**Appendix C.**

<i>Drug Procedure for Females and Pups</i>			
	Pregnant Females	Lactating Females	Pups
<b>Ivermectin</b>	NO	NO	≥ 6 weeks
<b>Corticosteroids (Dexamethasone)</b>	NO	OK	na
<b>Medetomidine/ Butorphanol</b>	NO**	OK	> 12 weeks
<b>Telazol &amp; Ket/Xyl</b>	NO**	NO**	> 12 weeks
<b>Antibiotics</b>	OK*	OK*	na
<b>5 way</b>	NO	NO	≥ 6 weeks
<b>Rabies</b>	OK	OK	≥ 16 weeks

\* Don't use tetracyclines

\*\* Best if it can be avoided; only use when wolf can be given time to metabolize drugs before returning to pups

Justification:

Young pups don't have the ability to handle ivermectin well, so avoid administering to pregnant/lactating females and pups less than 6 weeks old.

Corticosteroids (dexamethasone) administering to pregnant females may cause an abortion.

Any immobilizing drugs administered, particularly to pregnant females, could kill the pups by depressing physiological systems so avoid if possible; with lactating females, if you have to administer drugs, try to give the wolf time to metabolize the drugs before returning her to the pups. Medetomidine and Butorphanol have been used on pregnant females. Free flowing oxygen should be used when a pregnant female is immobilized.

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

**Title:** Chemical Darting

**Number:** 22.0

**File Name:** MW SOP 22.Darting.Final.20041217.doc

**Purpose:** This SOP provides a means by which IFT members become certified to dart animals. It also provides a procedural outline to enhance the probability of safe and effective darting, and provides guidance for determining specific situations when chemical immobilization by darting is the most suitable or preferred alternative. It 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:** Chemical immobilization by use of a remote drug delivery system (dart) can be the most effective and/or only means of capturing or restraining a Mexican wolf. However, extreme caution and forethought must be used to ensure the safety of the animal and personnel involved in or near the activity. In addition to the knowledge and training required to safely use chemical agents and firearms, the operator must be aware of the added potential risks of:

1. Physical damage associated with the location of dart impact on the animal;
2. Physical impact damage due to velocity of the dart; and
3. Loss of control of the dart between firing and impact from deflection by wind or vegetation, target animal motion, and firearm inconsistencies, etc.

**Procedures:**

1. Certification: Each cooperating agency will certify its own employees to use darts for control or routine capture of Mexican wolves. However, any personnel using USFWS-supplied chemicals or acting pursuant to the USFWS permit for such activities must be approved/certified by the Mexican Wolf Recovery Program veterinarian for use of the chemicals (see SOP 20.0).
2. The decision to dart a Mexican wolf should be approached by assessing the activity from broad-to-narrow categorical perspectives, which weigh potential risks against potential benefits. The assessment may vary with the particular situation or individual operator, but, due to the inherent risks of darting, the determination to dart a wolf should result from a progression of positive responses to the following questions:
  - a. Does the animal need to be immobilized? For what purpose? Do the benefits outweigh the risks? Is chemical immobilization necessary? What alternative(s) might be more effective (e.g. physical restraint, traps, or abort the activity)?

- b. Is a dart the best delivery method? What alternative(s) might be more effective (e.g. hand inject or jab-stick if a captive or trapped wolf)?
  - c. Is the current situation and time the best to chemically immobilize the wolf by darting? Does it need to be immobilized now? At this location? Consider the timing alternatives that will result in less risk and the same or additional benefits (e.g. better weather, daylight, more conducive property ownership or terrain). If you dart an un-collared Mexican wolf, will you be able to track it until it is immobilized? Darted wolves often find standing water and may go down with their muzzles submerged. The wolf may need to be immobilized or captured again soon for another reason. Perhaps it would be better to wait. Might the darting influence breeding/den season, etc.? Are other people present? What is their experience level and temperament?
  - d. Are you fully prepared with the equipment, time and experience to conduct the activity safely and completely? IFT members shall not operate a darting apparatus that they are not familiar with. Careful preparation and practice is essential when considering using darting equipment. Review the previous questions and general reasoning; including any other information or circumstances that could possibly affect the situation. Remember, you are considering using drugs. You are completely responsible for the safety of yourself, the wolf, and any other person or animal that might be involved.
3. Steps toward a safe and effective darting event.
- a. Preparation:
    - i. Projector accuracy:
      - (1) It is your responsibility to be thoroughly familiar with the darting device you intend to use. Practice with the dart equipment throughout the year. Test fire the dart equipment before using it on a wolf. Be accurate at the ranges and with the target size of the animal you intend to dart, or consider an alternate method. You must be able to balance accuracy at a particular range with minimal velocity. The trajectory of a safely fired dart should be a gentle arc, with impact occurring after the apex, when the force of the impact is decreasing.
      - (2) Read all manuals before using darting devices. There are a variety of dart types and sizes, projection systems (rifles, pistols, blowguns, etc.) and propellants (powder charges, compressed CO<sub>2</sub> cartridges, compressed air, etc.). Two individual darting devices of the same model can vary in performance. Propellants can vary with age, temperature, and humidity. Try to maintain consistency with the darting device by using one size of dart. If you use powder charges, then use the same box and power level of charges that you practice with (if possible, weigh charges with a gram scale to ensure consistent powder load), and clean the barrel at regular intervals. For pneumatic projectors without a pressure gauge, insert a new cartridge and dry fire three or four times until a full and consistent power level is attained.
    - ii. Dart and drug selection:
      - (1) Minimizing the impact trauma to the darted animal is a high priority. One might think that a smaller, lighter projectile will inflict less damage than a heavier one, but this is not necessarily true. A lighter dart fired at a higher velocity can cause more trauma than a heavier dart. A lighter dart may allow for accuracy at a longer range and/or use of a less powerful charge (with the

exception of windy or rainy conditions or through vegetation -- refer to "decision to dart" Step 1).

- (2) A barbed or collared dart is strongly recommended to prevent popping out at impact and to ensure drug injection. Accordingly, select a drug that allows you to fully dose the animal with the smallest volume of drug. Keep in mind that a free-ranging animal might require significantly higher dosages of drug than the same animal in a different situation. Recommended Drug: re-constituted Telazol at about 5mg/lb of body weight (see SOP 21.0, Appendix B) for drug doses). Mexican wolves are thin-skinned and carry little or no sub-dermal fat. Recommended dart: a three-milliliter dart with a 12 millimeter / 0.5 inch needle with a short barb.
  - (3) Transmitter darts are available for use on free-ranging animals not fitted with telemetry collars or implants.
  - (4) Avoid darting altogether if only a standard dart is available for a non-transmitter free-ranging animal.
  - (5) It is feasible to dart an un-collared wolf if there is snow on the ground or a helicopter is available and you are sure you can track the animal after it is darted.
- iii. Final equipment preparation:
- (1) Projector – Treat all dart guns as you would any other firearm; that is, treat them as if they were always loaded. As with any firearm, do not load a powder-charge into the projector until at or near the site. Gas cartridge projectors are often stored with a compression charge to maintain seals (check manufacturer's recommendations); but the pressure should be tested prior to darting.
  - (2) Dart – Protective gear (safety goggles and latex gloves) should be worn when loading drug into the dart. Follow manufacturer's directions when loading darts. Avoid loading the drug into a dart or the dart into the darting device until at or near the site. Extensive jostling and temperature changes can cause the drug to leak from the dart. Do not leave loaded darts on the dash-board of a vehicle. Also, it is extremely hazardous to move around extensively with a loaded dart in your pocket or in the chamber. If it is necessary to pre-load drug into a dart, or move around after drug is loaded; the dart should be transported in a protective container (plastic or aluminum cigar tubes work well for this). Mark the location of the barb on the outer surface of the dart with a sharpie marker to aid in later dart removal.
  - (3) Other – All necessary animal restraint and handling equipment, as well as appropriate human and veterinary first-aid supplies, must be on hand and readily available prior to darting activity.
- b. Targeting: The safest area for a dart to strike on the body of a wolf is the central area of fleshy large muscles of the hindquarters. The front shoulders can be used, but the margin for error is greatly decreased. A dart striking the animal in any other area is risking severe injury or death (e.g. chipped bone, nerve damage, punctured organs, etc.). Care and effort should be taken to ensure that the strike angle of the dart be as close as possible to a line perpendicular to the long axis surface of the animal's body. A dart fired at a sharp angle to the long axis may glance off without penetration, and risks

greater inaccuracy and potential injury. Shots at or approaching a line parallel to the long axis of the animal's body should be avoided. Shots at a moving animal should also be avoided. If a moving animal shot is an absolute necessity, the hindquarters should be targeted. Of course, darting from a helicopter will most likely involve shooting at a moving target. This way an error will more likely miss the animal altogether, as opposed to striking the abdomen or head due to over-leading or the animal suddenly stopping or slowing its motion.

- c. Injection determination: Try to keep the dart in view at all times. If it strikes the animal's body and remains in the skin, it is likely that the drug was fully or partially injected. If it strikes the animal and bounces or glances off, it may have partially or fully injected, or not injected at all. If you see the dart bounce off and the animal has moved away, retrieve the dart and inspect it to see if the drug has been expelled from the dart. If the dart is empty, unless you actually saw the drug expelled in the air or on some other object after bouncing off the animal, respond as though the drug injected in the animal. If the animal is still visible, remain still and try to observe it for signs of the drug's effect. Use landmarks, mental imagery, and/or any other means to find and retrieve the dart later.
- d. Positive injection response: Most animals shot at, and especially those hit with a dart, will run off. Try to observe the animal without disturbing it. The physical and physiological response activity of a free-ranging wolf following darting can result in a great reduction of the drug's effectiveness. Additional disturbance may further decrease the chances for full immobilization. Allow the animal to feel as though it has escaped the immediate danger of your presence. Usually it will slow its activity/metabolism and allow the drug to take effect. If it is not observable, continue at all times to monitor its movements and activity through telemetry. Stay close enough to respond when it does go down. Use binoculars to observe the animal from a greater distance. Unless you can be certain through telemetry that the animal is still active, obtain a visual within ten minutes of the darting, and within five minutes of telemetric inactivity. Be aware of its direction of travel with regard to aspects of the area (roads, streams, human activity, etc.), which may pose increased hazards to the animal's health. You may need to increase frequency of observations based on potential hazards to the wolf. If the wolf does not slow its travel or activity for 30 minutes, conclude that it has not received any or enough drug for immobilization.
- e. Animal retrieval: The animal may be only partially immobilized; be prepared to physically restrain it (you may need a net, but preferably a Y-pole) and/or administer additional drug. Be prepared to immediately assess the animal's vital signs and to respond to hypo- or hyperthermia, shock and injuries (keep on hand: thermometer, ice packs, heat packs, minimal first-aid supplies, etc.). Refer to SOP 21.0.
- f. Processing: Follow the procedure for immobilization and processing a live Mexican wolf (SOP 21.0). If the dart is still in the animal, remove it carefully by gently pulling it away from the animal's body. If it is securely held to the skin or other tissue by the barb, try rolling it slightly and unhooking the barb while holding the skin slightly away from the body. Use the mark you made on the dart to locate the barb. Do not push the dart in past the normal surface level of the animal's body while attempting to unhook the barb, and do not forcefully jerk the dart out. A small incision (1/8 inch) with a scalpel may be needed to free the barb from the skin. Treat the injection site as you

would a puncture wound. Collared needles can be pulled directly out of the skin. Carefully inspect the injection area for severity of injury. If there is excessive bleeding, or if the dart has struck in any area without fleshy muscle (rib cage, spine, or head), the chances are high that there is significant injury and veterinary attention may be required. Note: Darting is a very stressful and potentially injurious method of capture.

- g. Clean-up: Capture darts, whether containing drug or empty, are hazardous materials. Concerted efforts should be made to retrieve all darts and darting materials, with transport and storage in conformance with established procedures. Fired darts that are not re-useable go in Sharps containers. Unused darts can be cleaned for future use:
  - i. With gloves and goggles on, position the dart needle up.
  - ii. Using a syringe with a needle long enough to touch the bottom of the interior of the dart, insert the syringe needle down into the dart needle until it gently touches bottom.
  - iii. Draw the drug into the syringe; tilt the dart to make sure all of the drug is removed.
  - iv. Inject the drug back into an appropriate labeled container.
  - v. Flush the dart several times with sterile water and let it drain dry.

#### 4. Information Recording.

- a. Successful darting – all information should be recorded on a standard processing data sheet and the original data sheet stored according to procedure described in SOP 21.0. Location of dart impact on the wolf must be recorded on the data sheet.
- b. Unsuccessful darting attempt – significant information that can be of use in future attempts or for other purposes (e.g. wolf behavior, landowner, etc.) should be recorded in a daily log or in other appropriate files.

#### **Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 23, 2004.

**References:** None

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

**Title:** Blood Collection, Handling, and Storage

**Number:** 23.0

**File Name:** MW SOP 23.Blood Collection.Final.20041217.doc

**Purpose:** This SOP provides guidelines for safe collection, handling, and storage of blood samples from live Mexican gray wolves. It 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:** Blood collection is important to the Mexican wolf recovery program in order to address and monitor trends in wolf population health, disease, and genetics. These guidelines apply to Mexican gray wolves and all other canids (i.e. dogs, coyotes) from which blood is collected for genetic purposes such as monitoring for introgression of coyote or dog genes and to determine Mexican wolf parentage. Project staff must make every effort to ensure that samples are of good quality and adequate for all necessary testing while minimizing the handling stress to the animal and maintaining safety to the personnel involved. The described techniques apply only to obtaining blood in field situations.

**Procedures:**

1. Blood Collection
  - a. Equipment and Supplies
    - i. Animal that blood is to be drawn from. Blood must be taken from all wolves captured in the wild. This is especially important for uncollared, wild-born wolves in order to determine parentage and monitoring of genetics. Blood collection from other wolves (known wolves or collared wolves in which blood is already banked) is less important but should be taken to monitor for individual health, exposure to disease, etc. Blood should also be taken from any other non-target canid such as dogs or coyotes that are captured in order to monitor for potential introgression into the Mexican wolf population.
    - ii. Sterile syringes or vacutainers and needles (20 gauge or smaller gauge = larger diameter).
    - iii. Tourniquet with quick release.
    - iv. Blood tubes.
      - (1) Two red tops – 7ml.
      - (2) Two purple tops – 7ml.
    - v. Permanent pen (Sharpie) to label blood tubes.
    - vi. Sharps safety disposal (for used syringes and needles).

- vii. Cooler with ice pack wrapped in towel.
- b. Selecting a vein or artery.
  - i. This is up to the individual's preference.
  - ii. Common collection sites are the cephalic, saphenous, or the jugular veins.
- c. Drawing blood
  - i. Personnel should have experience and a certain amount of proficiency when attempting blood collection. Project personnel are provided ample opportunities to practice blood drawing at numerous captures held at the Sevilleta and Ladder Ranch wolf facilities and are encouraged to attend to perfect their blood drawing skills.
  - ii. The animal must be adequately immobilized or restrained for blood collection to reduce blood collection time, stress on the animal, and risk of injury to personnel.
  - iii. Draw blood. See Appendix A (Blood Collection from Wild Canids) for additional guidance on blood collecting.
  - iv. Minimum amount needed.
  - v. Two 7 ml red tops per wolf; no red tops are needed for dogs or coyotes.
  - vi. Two 7 ml purple tops per wolf ; one purple top for dogs or coyotes.
  - vii. Label blood tubes with species, studbook ID number (only if wolf), and date.
  - viii. Place samples in cooler; avoid placing blood tubes in direct contact with ice packs.

## 2. Blood Handling

### a. Processing Blood:

- i. Red tops (collected on wolves only; not needed for coyotes or dogs) – for blood chemistry.
  - (1) Spin down red tops in centrifuge for 10 minutes. Centrifuges are located at the Alpine Field Office and the Sevilleta veterinary trailer.
  - (2) Draw out the serum without agitating the red blood cells using a pipette.
  - (3) Put the serum into a cryovial and label with species, wolf's studbook number, date, and "serum." Example: Mexican wolf, SB #511, 10/31/04, Serum.
  - (4) Freeze cryovials until they are ready to ship.
  - (5) The remaining red blood cells can be drawn out of the tubes and frozen in cryovials to bank. Label as described above substituting "red blood cells" for "serum."
    - (a) This sample can be banked for later genetics work.
- ii. Purple tops (used for genetics, CBC, and banking).
  - (1) Set aside one purple top for Veterinary Diagnostic Services (VDS, only necessary for wolves) and one for the National Fish and Wildlife Forensic Laboratory (NFWFL, necessary for all species including wolves, dogs, and coyotes).
    - (a) Place these in separate bags, label, and refrigerate.
  - (2) Transfer all remaining blood in purple tops to cryovials and freeze for banking at UNM.
    - (a) Label cryovials with species, studbook number, date, and "purple top."

- iii. Ensure all blood tubes and vials are labeled with species, sex, studbook number, date, and contents for cryovials (“serum,” “red blood cells,” or “purple top”).
- iv. Blood is shipped to two different locations.
  - (1) One purple top for each animal (all canids) to Steve Fain.
    - (a) send the labeled purple tops triple bagged to:
      - Steve Fain
      - National Fish and Wildlife Forensic Laboratory
      - 1490 E. Main Street
      - Ashland, OR 97520
    - (b) Include a written request for the following tests:
      - (i) Parentage (only if sample is from a wolf); provide studbook numbers for any wolves that might be the parents of the wolf from which the sample was obtained.
      - (ii) Confirmation that it is or is not a Mexican wolf.
      - (iii) Species identification.
  - (2) The remaining wolf samples will be sent to the University of New Mexico (UNM).
    - (a) One purple top and one cryovial of serum to Veterinary Diagnostic Services (VDS).
      - (i) Place one purple top and one cryovial of serum (at least 1 ml) in a bag.
      - (ii) Label the bag for each individual animal.
      - (iii) Mark bag “VDS” so that when it arrives at UNM Cheryl will know where it needs to go.
      - (iv) When shipping blood for more than one wolf, separate samples for each animal into separate bags and place in one bag labeled VDS.
    - (b) The remaining samples go to Cheryl Parmenter to bank.
      - (i) The remaining “serum” and all other cryovials (“purple tops” and “red blood cells” go to Cheryl).
      - (ii) Put samples from individual wolves in separate bags and place all these bags in one labeled “Cheryl.”
    - (c) Put both bags labeled “VDS” and “Cheryl” into one bag. The samples are now triple bagged; this is standard for items considered a “bio hazard.”
    - (d) Any fecal samples that are collected go to VDS for a parasitology.
    - (e) Ship all samples to the following address:
      - Cheryl Parmenter
      - University of New Mexico
      - Department of Biology
      - 167 Castetter Hall
      - Albuquerque, NM 87131
    - (f) Place contents into cooler or insulated shipper with ice packs (blue ice) and packaging material to protect the samples from breaking.
    - (g) Include copies of the capture sheets for each wolf in a separate bag so that they have records of these wolves for their files.
    - (h) Tape cooler shut with strapping tape to secure lid.
    - (i) All blood will be shipped Federal Express Overnight.

- (j) If shipping cannot take place immediately samples should be preserved appropriately.
- (k) Purple tops for genetics must arrive at the lab within one week of being collected from the animal.
- (l) Ensure that blood will arrive the following day at the lab on a workday. Do not ship on Fridays, weekends, or holidays. Always call the labs to notify them blood is on the way to ensure someone is there to receive it.
- (3) Purple tops for CBC need to get to VDS in three days or less.
- (4) If not able to ship in this time frame, freeze blood extracted from purple tops in cryovials to be shipped at earliest opportunity for genetics to Steve Fain at Ashland lab.
- (5) When the serum is extracted from the red top tubes it can be frozen and banked or shipped at any time.

3. Storage.

- a. The only method for preserving blood at the Alpine Field Office is to freeze it.
  - i. Follow procedures described above.
  - ii. This should be used only for temporary purposes until other equipment or facilities are available at the Field Office.
  - iii. Blood from purple tops can be transferred into cryovials and frozen for genetics.
  - iv. Serum can be frozen in cryovials for future blood chemistry analysis.

**Approvals:**

The Mexican Wolf Blue Range Reintroduction Project Adaptive Management Oversight Committee approved this SOP on November 18, 2004.

**References:** None

## Attachment A.

### BLOOD COLLECTION FROM WILD CANIDS

Prepared by Marianna Roetto, DVM

#### Introduction

Blood collection from wild canids is a basic yet essential skill utilized frequently in wild canid research. The goals of successful blood collection are to:

1. Obtain an adequate sample for laboratory testing,
2. Collect a high quality sample,
3. Minimize handling stress to the animal, and
4. Minimize safety risks for the researcher

#### Equipment

Blood collection can be performed utilizing sterile syringes/needles or a vacutainer collection system

##### Syringe/needle collection

Advantages: Precise control of pressure applied during collection - prevents small veins from collapsing.

Disadvantages: Must transfer blood into collection tubes following sampling. Multiple samples, high volumes, require repeat venipuncture.

##### Vacutainer system

Advantages: Samples collected directly into sterile vials. Availability of various premeasured additives (anticoagulants) for specific laboratory tests. Ability to obtain multiple samples from single venipuncture.

Disadvantages: Vacuum pressure may collapse small veins.

##### Tourniquets

I prefer a quick release tourniquet strap.

##### Needles

Larger bore needles are preferred for blood collection as they reduce hemolysis (breakage of red blood cells) during collection. Hemolysis can alter many laboratory test results. At least a 20 gauge needle, or smaller gauge, should be used for blood collection (smaller gauge means larger diameter needle). Blood samples can be readily obtained from average size adult coyotes with a 20 gauge needle. Smaller animals may require the use of larger gauge needles. Generally, I prefer a 1 inch long needle for routine blood collection.

## **Collection methods:**

The animal must be adequately immobilized for blood collection to reduce blood collection time, stress on the animal, and risk of injury to the researcher.

Blood can be collected from a variety of locations. The choice of collection site depends on the volume needed, the accessibility of the site, and the preferences of the collector. Common collection sites include the cephalic vein, lateral saphenous vein, jugular vein, and femoral artery. Cardiac collection is possible but the risk to the animal is high; therefore, I only recommend this site if the animal is to be euthanized following collection. For coyotes, I prefer the cephalic vein with the jugular vein as a second choice.

## **Handy Hints for Successful Blood Collection**

Apply tourniquet just above elbow for cephalic vein collection. Tourniquets should be just tight enough to distend the cephalic vein not tight enough to cause arterial occlusion or damage to the nerves. Other collection sites can best be occluded with digital pressure.

Vein identification can be increased by spraying the area with isopropyl alcohol which will raise the vein and flatten the hair in the vicinity.

Stabilize the vein with one hand to prevent rolling during venipuncture.

Always puncture the vein with the bevel of the needle up, with a firm motion. Slow entry into a vein will increase the likelihood of the vein rolling and an unsuccessful collection.

If blood flow stops during collection, try to rotate the needle slightly or advance and/or withdraw the needle slightly, parallel with the vein. Passive motion (gentle squeezing of the foot) may increase blood flow. If blood flow stops repeatedly, the vein is probably collapsing and you may have to use a syringe and needle.

If a hematoma (swelling) appears around the venipuncture site, it is best to withdraw the needle and select another venipuncture site. Although blood can frequently be collected with a hematoma present, the blood is usually of poor quality (hemolyzed) and may influence laboratory results.

If blood is transferred from a syringe to a sample vial, remove the needle from the syringe and the stopper from the vial, gently transfer blood down the side of the vial to minimize hemolysis, replace the stopper firmly.

After withdrawing the needle, apply firm pressure to the site until bleeding stops.