

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

**Title:** Ground Telemetry

**Number:** 17.0

**File Name:** MW SOP 17.Ground Telemetry.Final.20050430.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 Blue Range 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.

