FINAL PROJECT REPORT

08-04-09   ---   06-15-11

Partners In Conservation

PIC and Volunteer Support for BLM Roads Monitoring Project

2005-PIC-577

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EXECUTIVE SUMMARY:

The Clark County Desert Conservation Program (DCP) contracted with Partners In Conservation (PIC) to develop and execute a roads monitoring program in partnership with the BLM Southern Nevada District Office. This monitoring program used community groups and volunteers to help accomplish data collection requirements.

The goals of this project were to document road conditions, document baseline use of roads, document specific illegal uses, document responses to reports of illegal use, assist the DCP with roads monitoring, and increase public awareness of road issues.

In accomplishing those goals, the following key points summarize this project:

- A Mormon Mesa Work Plan, a North Gold Butte Work Plan, a South Gold Butte Work Plan, A Coyote Springs Work Plan, a Piute/Eldorado Work Plan, a Data Management Plan, a Volunteer Recruiting and Management Plan, and a Monitoring Protocols and Procedures Plan were all prepared to be the guiding documents for this project.

- After the first quarter of data collection and monitoring, the contract was amended by mutual agreement and the Coyote Springs and Piute/Eldorado Work Areas were removed and subsequent work focused on the three other, higher priority work areas.

- Volunteers from Virgin Valley, Moapa Valley, and the Las Vegas area were trained and then organized into teams to perform quarterly data collection and monitoring of roads in the Mormon Mesa ACEC, the ACEC's of North Gold Butte, and the ACEC's of South Gold Butte in accordance with the Work Plans of each of those areas, the Volunteer Recruiting and Management Plan, the Monitoring Protocols and Procedures Plan, and the Data Management Plan.

- 26 Milestones and 45 Deliverables in the revised contract were submitted, accepted, and therefore completed (or are in the process of being achieved as the Final Project Review Summary Form has yet to be completed and this Final Project Report—being written right now—still needs to be submitted and accepted before completion). In addition, 2 Deliverables 1) Receipt Submittal and 2) Written and Oral Reports were not activated and therefore are not considered incomplete.

- Coyote Springs – 1st quarter of collecting data and monitoring roads – resulted in:
  - 14 way points of GPS data collected[1]
  - 110 incident points and areas of GPS data collected[2]
  - 201 hours of field work (both volunteer and PIC)[3]

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[1] **Way points:** a single point that documents the dominant feature at that location and the main reason why the volunteers stopped to collect data at that location. Way points, then, document how many places a volunteer stopped to collect data.

[2] **Incident points:** all other items observed at that location. For example a volunteer may see a campsite, stop, and document a 'campsite' as the Way point; but that volunteer may also observe (at that same location) a fire-ring, the area is denuded, and there is trash—the 'fire-ring', 'denuded', and 'trash' become Incident points at that location. Incident points document everything the volunteer sees at one location.

[3] **Hours of field work:** from leaving a home/office to returning to a home/office

- ♦ 1,060 miles driven (both volunteer and PIC)[4]
- ♦ 30 pages of Daily Field Notes & Maps

- Piute/Eldorado—1st quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 37 way points of GPS data collected
  - ♦ 240 incident points and areas of GPS data collected
  - ♦ 555 hours of field work (both volunteer and PIC)
  - ♦ 15,275 miles driven (both volunteer and PIC)
  - ♦ 119 pages of Daily Field Notes & Maps

- Mormon Mesa – 1st quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 38 way points of GPS data collected
  - ♦ 190 incident points and areas of GPS data collected
  - ♦ 294 hours of field work (both volunteer and PIC)
  - ♦ 1,465 miles driven (both volunteer and PIC)
  - ♦ 65 pages of Daily Field Notes & Maps

- North Gold Butte—1st quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 43 way points of GPS data collected
  - ♦ 318 incident points and areas of GPS data collected
  - ♦ 448 hours of field work (both volunteer and PIC)
  - ♦ 2,690 miles driven (both volunteer and PIC)
  - ♦ 82 pages of Daily Field Notes & Maps

- South Gold Butte—1st quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 22 way points of GPS data collected
  - ♦ 146 incident points and areas of GPS data collected
  - ♦ 462 hours of field work (both volunteer and PIC)
  - ♦ 3,360 miles driven (both volunteer and PIC)
  - ♦ 70 pages of Daily Field Notes & Maps

- Mormon Mesa —2nd quarter of work[5] collecting data and monitoring roads – resulted in:
  - ♦ 54 way points of GPS data collected
  - ♦ 175 incident points and areas of GPS data collected
  - ♦ 104 hours of field work (both volunteer and PIC)
  - ♦ 585 miles driven (both volunteer and PIC)
  - ♦ 82 pages of Daily Field Notes & Maps

- South Gold Butte—2nd quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 54 way points of GPS data collected
  - ♦ 162 incident points and areas of GPS data collected

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[4] **Miles driven:** from leaving a home/office to returning to a home/office

[5] **2nd quarter of work**: about 1/3 of the way into the 2nd quarter, the contract was suspended and an amendment to the contract was drafted and approved; this amendment focused on the higher priority areas close to the Moapa Valley and Virgin Valley communities and provided more time for GPS data to be processed at the end of each 3-month reporting period. When the Amendment was approved and the Contract became active again, so much time had gone by that it was necessary to close the 2nd quarter of data collection with very limited work done in the field and move on.

- ♦ 114 hours of field work (both volunteer and PIC)
- ♦ 1,440 miles driven (both volunteer and PIC)
- ♦ 70 pages of Daily Field Notes & Maps

- Mormon Mesa—3[6] quarter of work[6] collecting data and monitoring roads – resulted in:
  - ♦ 32 way points of GPS data collected
  - ♦ 74 incident points and areas of GPS data collected
  - ♦ Approximately 228 & ¼ miles (or 368.0 kilometers) of linear GPS data collected[7]
  - ♦ 178 hours of field work (both volunteer and PIC)
  - ♦ 1,590 miles driven (both volunteer and PIC)
  - ♦ 60 pages of Daily Field Notes & Maps

- North Gold Butte—3rd quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 85 way points of GPS data collected
  - ♦ 270 incident points and areas of GPS data collected
  - ♦ Approximately 437 & ½ miles (or 705.7 kilometers) of linear GPS data collected
  - ♦ 302 hours of field work (both volunteer and PIC)
  - ♦ 3,565 miles driven (both volunteer and PIC)
  - ♦ 142 pages of Daily Field Notes & Maps

- South Gold Butte—3rd quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 42 way points of GPS data collected
  - ♦ 81 incident points and areas of GPS data collected
  - ♦ Approximately 366 & ¼ miles (or 590.9 kilometers) of linear GPS data collected
  - ♦ 232 hours of field work (both volunteer and PIC)
  - ♦ 3,090 miles driven (both volunteer and PIC)
  - ♦ 75 pages of Daily Field Notes & Maps

- Mormon Mesa—4th quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 28 way points of GPS data collected
  - ♦ 41 incident points and areas of GPS data collected
  - ♦ Approximately 247 & ½ miles (or 399.2 kilometers) of linear GPS data collected
  - ♦ 151 hours of field work (both volunteer and PIC)
  - ♦ 1,120 miles driven (both volunteer and PIC)

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[6] **3rd quarter of work:** with the new amendment, several changes to data collection procedures occurred. With the first quarter of work, we had spent several full days in the field familiarizing ourselves and current volunteers with the Work Areas and Zones, so that accounted for additional hours and miles in the first quarter, than the other three quarters. Also, we tried to have 3 volunteers on each data collection team originally, but that was very difficult, so most data collection after the first quarter reflects the hours of 2 volunteers per trip. During the first 2 quarters, every photo taken was also counted as an incident point; this changed with the Amendment; photos taken during the 3rd and 4th quarters are not counted as an incident point and both the BLM and DCP stated that a photo of every damaged sign, fire ring, etc. was not necessary—therefore incident points during the first two quarters reflect many photo/incident points that do not exist in the tabulations of 3rd and 4th quarter data.

[7] **Linear GPS data:** some volunteers started their route or linear GPS data collection before they reached their assigned zone as they did not want to forget and be some distance into their zone before remembering; we subtracted an approximate amount if they started collecting route/linear GPS data too early, (started data collection from their home or the freeway for example) but we did not delete route/linear data from the beginning of the Gold Butte Back Country Byway or other major entry points to each Work Area.

- ♦ 49 pages of Daily Field Notes & Maps

- North Gold Butte—4th quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 54 way points of GPS data collected
  - ♦ 144 incident points and areas of GPS data collected
  - ♦ Approximately 480 & ½ miles (or 775.1 kilometers) of linear GPS data collected
  - ♦ 347.5 hours of field work (both volunteer and PIC)
  - ♦ 4,340 miles driven (both volunteer and PIC)
  - ♦ 120 pages of Daily Field Notes & Maps

- South Gold Butte—4th quarter of work collecting data and monitoring roads – resulted in:
  - ♦ 45 way points of GPS data collected
  - ♦ 92 incident points and areas of GPS data collected
  - ♦ Approximately 506 miles (or 816.2 kilometers) of linear GPS data collected
  - ♦ 369 hours of field work (both volunteer and PIC)
  - ♦ 5,045 miles driven (both volunteer and PIC)
  - ♦ 103 pages of Daily Field Notes & Maps

- Held three Quarterly Project Status Meetings with DCP and BLM personnel to discuss current issues, impacts, or concerns and to discuss upcoming issues, concerns, or conflicts in the next quarter of data collection and monitoring.

- Held five Outreach Events and provided information about participating in this project, summarizing project data, and supporting the DCP's "Respect, Protect, and Enjoy the Desert" message.

INTRODUCTION:

DESCRIPTION OF THE PROJECT:

This project developed and executed a roads monitoring program in partnership with the BLM; this project utilized community groups and volunteers to help accomplish data collection requirements.

Project actions included assessing roads, collecting GPS data, monitoring road conditions, monitoring road use, documenting all monitoring activities, transmitting GPS data and all relevant monitoring documents to the DCP and to the BLM, training and using volunteers to help accomplish the monitoring and data collection tasks, and involving and informing the public through participation and public relations events.

Developing a designated system of roads in the ACECs was the first step in reducing the threat of illegal roads and tracks which contribute to habitat fragmentation and degradation. Monitoring road use and illegal road incursions will provide the BLM management with data they need in order to develop management actions and policies to address such threats. Additionally, monitoring road use and incursions will provide the Clark County MSHCP and the BLM with data to make adaptive management decisions regarding the effectiveness of a designated system of roads. This project monitored and collected information on illegal road incursions, public road use, road conditions, sign conditions, and illegal activities such as desert dumping—all of which provided effective feedback for assessing problem areas, repairing or replacing of signs, understanding the public's use of roads and associated areas, and establishing priorities for restoration projects, site cleanups, and maintenance of roads.

Furthermore, data collected through this project provided information for implementation actions such as law enforcement and restoration, making them more effective and responsive to illegal activities; data collection on road use and illegal incursions allowed resource protection personnel to respond more effectively, thus increasing land use compliance and reducing resource damage.

BACKGROUND AND NEED FOR THE PROJECT:

The purpose of this project was to develop and execute a roads monitoring program in partnership with the BLM and to use community groups and volunteers to accomplish data collection requirements. The Clark County MSHCP, (section 2.8.3.9.c) defines Clark County's responsibilities to cooperate with the BLM on the management of rural roads. These actions include: continue the joint process to establish accurate maps, acquire updated GIS coverage, provide representation and outreach to rural groups that may be impacted by road management decisions, and rehabilitate surface disturbance. This project supports those described actions.

This project also supports MSHCP Conservation Management Action BLM 34, "Monitor road and trail proliferation in desert tortoise ACECs, Las Vegas bearpoppy management areas and WSAs" as well as helps fulfill the United States Fish and Wildlife Service's Permit TEO34927-0, condition J, which states that Clark County shall participate in the development and/or revision of conservation management plans that identify the management and monitoring actions needed for certain areas.

The need for a monitoring project for roads and road use is detailed in multiple documents. The rapid growth of the Las Vegas area and the increased population of surrounding areas make it quite probable

that road proliferation may intensify; already it has been documented that vehicular trails and dirt roads have proliferated and are still proliferating.[8]

Additionally, regular monitoring of roads can quickly identify difficult road conditions that cause otherwise law abiding citizens to 'go around' impassable sections of road; in doing so, they create spurs or mini-loops which negatively impacts habitat. Difficult road conditions are often created by natural causes—a flood can cause washouts, a good rainfall can muddy roads creating the possibility that careless or inexperienced drivers create deep ruts. Regular data collection and consistent transmittal of GPS data and associated documents provide the BLM with information so they can develop an appropriate plan to promptly address such issues.

Likewise, efficient reporting of downed or damaged signs provides critical information to the BLM to quickly address this issue. In fact, "replacement of signs should be considered a cost of doing business in the Mojave Desert, ".[9] Signage is a well documented aid for users and land managers alike; another benefit of prompt sign repair and/or replacement is described in the Gold Butte Site Conservation Plan, "Prompt repair of signs demonstrates to land users that the area is regularly patrolled and maintained."[10]

The 2004 DCP's Adaptive Management Report noting the absence of habitat and threat monitoring, states … "as a measure of the overall effectiveness of all management actions, it is important to monitor threats."[11] Further, in that same paragraph, "Monitoring of threats can be a short cut to management actions in efforts to reduce the threats before they can have a significant and deleterious population level threat." Not only is road monitoring a specific Conservation Management Action, as noted in the Adaptive Management Report, such monitoring of threats is an indicator of the overall effectiveness of all management actions.

Finally the need for a non-agency entity to do the monitoring is described in that same report, "With some exceptions, the land management agencies generally are not sufficiently staffed to carry out the level of monitoring required by the HCP. As a result the majority of monitoring efforts for natural resources in Clark County do not produce data that can inform next management actions. … the agencies can seek independent assistance from private sources."[12]

Partners In Conservation (PIC), having worked with the BLM and the DCP earlier on data collection for the baseline inventory of roads and having actively assisted with the Roads EA, felt a strong desire to complete the process of road inventory, road designation, and road monitoring in the northeast part of Clark County; therefore, we submitted this proposal for the 2005 Project Round, which was subsequently accepted and approved. Early in 2009, the DCP and PIC started working on a scope of work package; with that contract approved, work began, eventually bringing PIC to the submittal of this final report.

MANAGEMENT ACTIONS ADDRESSED:

- **MSHCP Conservation/Management Action BLM (34):**
Monitor road and trail proliferation in desert tortoise ACECs, Las Vegas bearpoppy management areas, and WSAs.

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[8] Gold Butte Pakoon Desert Wildlife Management Area Site Conservation Plan, pg 9-6
[9] Gold Butte Pakoon Desert Wildlife Management Area Site Conservation Plan, pg 9-12
[10] Gold Butte Pakoon Desert Wildlife Management Area Site Conservation Plan, pg 9-11
[11] Adaptive Management Report, 2004; Chapter 4 'Adaptive Management Progress and Problems' subsection 'New and Persistent Problems'
[12] Adaptive Management Report, 2004; Chapter 6, 'Science Advisory Team Recommendations'

- **Ecosystem/Habitat Threats (401i):**

Educate the public (with special attention to the casual OHV rider) regarding the importance of staying on designated roads and trails.

- **Ecosystem/Habitat Threats (401j):**

Enlist users cooperation.

- **Ecosystem/Habitat Threats (403c):**

Enlist the support of OHV participants to discourage inappropriate OHV use.

- **Ecosystem/Habitat Threats (403f):**

Inform OHV participants of impacts to wildlife and habitats of unmanaged OHV activities.

- **Ecosystem/Habitat Threats (503b):**

Eliminate proliferation of roads and trails in key habitat areas.

- **Ecosystem/Habitat Threats (503f):**

Systematically monitor incidence of new illegal trails and mitigate as appropriate.

GOALS AND OBJECTIVES OF THE PROJECT:

The goals of this project were:
- Document road conditions
- Document baseline use of roads
- Document responses to reports of illegal use
- Assist the DCP with roads monitoring
- Increase public awareness of roads issues

The objectives of this project were:
- Monitor use of roads
- Monitor conditions of roads
- Collect, document, and transmit data to the BLM and the Clark County DCP
- Report damage and illegal use within road vicinities to appropriate agency(ies)
- Provide data and information from this project to the BLM to assist the BLM, Southern Nevada District Office with their extensive Roads Monitoring Project
- Involve the public through the use of volunteers and multiple outreach and public relations events such as town board meetings and other community events

METHODS and MATERIALS:

METHODS:

The methods followed to achieve the goals and objectives for this project are detailed below, albeit slightly condensed to avoid repetition and/or over-stating of the obvious.

1. Work plans were written and approved for each of the Work Areas, a Data Management Plan was written and approved, a Volunteer Recruiting and Management Plan was written and approved, and a Monitoring Protocols and Procedures Management Plan was written and approved.
2. GPS Trimble Geo-Explorer XM 2008 Series units were ordered, an on-line training class was taken by all PIC personnel, digital cameras were ordered as was all other small equipment and supplies.
3. A trial monitoring session was completed.
4. The first group of volunteers were recruited and trained; basically the volunteer program was as follows:
   - Recruitment of Volunteers
     a. Volunteers/Organizations PIC knows
     b. Volunteers/Organizations PIC does not know
   - Training of Volunteers
     a. Training Workshops
     b. Individuals Pass their own Data Collection Exercise
     c. Individuals Organized into 3-Person Teams
     d. Teams Pass their Team Data Collection Exercise
   - Monitoring and Data Collection Field Work
     a. PIC Communicates directly with Team Leader
     b. Team Leader Communicates directly with his Team
   - Summary Reports provided to entire Organization periodically
   - Final Presentation of Project, that Organization's Participation Highlighted, Certificate of Appreciation Awarded
5. After the first series of volunteers were trained, PIC moved on to the monitoring portion of the project. Volunteers were assigned different zones to monitor; sometimes they had preferences, sometimes they did not. All zones were preliminarily scheduled which always took some time. Before volunteers could go out and perform monitoring duties, a day/time had to be picked wherein each volunteer was available AND PIC had to have enough GPS units and other monitoring equipment/supplies available that day. Last minute issues, weather flare-ups, vehicle problems, and all manner of things could pop up, some at the last minute that necessitated rescheduling. Once that was all accomplished and all volunteers could go out, the weather was OK, the vehicle(s) were OK, etc., then the following checklist was followed:
   - Team Leader meets with PIC Field Assistant or PIC staff member
   - Review field work to be performed, review maps, discuss pertinent information
   - PIC staff delivers duffle bag, data collection equipment, supplies, and safety supplies
   - Team Leader & PIC staff confirm duffle bag contains all items and all items are fully stocked by checking off checklist and each initialing checklist
   - Team Leader confirms Trimble units and digital cameras are fully charged and checks off list
   - Team Leader confirms radio batteries are fully charged and checks off list
   - Team Leader confirms maps are in duffle bag and checks off list
   - The Field Work date is confirmed as is approximate departure time

- Cell phone numbers are confirmed and exchanged, if not done previously
- The Team Leader assigns the Field Work Tasks: Driver, Trimble Unit operator, and camera operator and field note taker
- Pickup date is established for when PIC staff will return and pickup duffle bag and collected data

6. Before going out in the field, the following safety checklist also had to be checked off:
    - Always tell a family member AND a PIC staff member WHEN you are leaving, WHERE you are going, and WHEN you expect to return (idea: leave a copy of the monitoring map with the area (A, B, C, etc) circled)
    - Make sure a family member AND a PIC staff member both have cell numbers for each volunteer.
    - Make sure you and the other volunteer both have each other's family contact number and both PIC cell numbers.
    - Do NOT go out alone; if the other volunteer can't make it; find someone else, another member of your group, a family member, or a PIC person---but if you can't find someone to go with you----cancel for the day. It is NOT SAFE to go out by yourself. Murphy's Law will happen; you might not have ever gotten stuck or lost or had an ATV break down---but if you are out by yourself---it can and does happen.
    - Take food and water for yourself, plus extra (this can be granola bars, trail mix).
    - Make sure your cell phone is fully charged.
    - Dress appropriately for the weather
        a. If above 85 degrees, PIC recommends taking sun screen, hats, wearing long sleeve shirts and long pants, desert boots, or hiking shoes
        b. If below 50 degrees, PIC recommends taking an extra jacket, warm hat, gloves
        c. If it could rain, PIC recommends taking a rain jacket, a warm jacket, an extra change of socks
        d. Take whatever 'extra' you usually take and err on the side of caution; it is always better to pack home an extra jacket than wish you had brought one
    - Please make sure your vehicle contains a spare tire, jack, and extra water for the vehicle; please make sure to take plenty of drinking water, even in the winter—if you exert yourself (get stuck, etc.), you will get thirsty and need extra water. First aid kits and fire extinguishers are also advisable to have in your vehicle.
    - MOST IMPORTANTLY, DO NOT GO ANYWHERE YOU DON'T FEEL SAFE—roads may have washed out or eroded, or the hill is steep, etc.—if you don't feel comfortable, STOP. STOP, please! Take a GPS point as to the road condition (washed out, too steep, extreme 4WD only) and turn around. No data is worth you being unsafe!!!!
    - Confirm all first aid items are in duffle bag
    - Confirm vehicle contains one extra gallon of water per person
    - Confirm vehicle contains a spare tire, jack, and extra water for the vehicle
    - Confirm vehicle contains fire extinguisher
    - Confirm vehicle has a shovel and tow strap
    - Confirm vehicle has a full tank of gas, as does accessory vehicles (ATV's, etc)
    - Confirm at least one team member has a cell phone
    - Confirm that cell phone is fully charged

7. The next step in this process is the actual data collection and monitoring field work. For ease of reading, the following documents that detail this process are included in the appendix. A brief description of each document follows here—all applicable to the daily tasks of data collection and monitoring, noting that all documents are not included within this final report to control the size of the document, eliminate duplicate information, and/or delete secondary, supporting documents or information. Additionally, a manual was prepared for each duffle bag and later the manual was laminated and placed in a binder as the wind, etc. wrecked havoc on regular paper. The manual contained significantly more information than is identified in the Appendix.

- **APPENDIX #1: STEP-BY-STEP PROCEDURES TO OPERATE GPS UNITS**—This document details each and every step needed to collect all GPS data. If volunteers got confused, forgot a step, got some steps out of order, they could reference this document and know exactly what to do, in what order; this document detailed every step, no matter how obvious or minuscule.
- **APPENDIX #2: ROAD MONITORING DATA DICTIONARY**—This document lists every item in the GPS unit's data dictionary; the format is exactly the same as in the data dictionary to assist the volunteer if they couldn't find an attribute or descriptive item in the drop down menu. For example, maybe a volunteer was on a road and found a tree had fallen over in front of him; he might wonder if this was even in the data dictionary, so to expedite his search, he could reference this document and find that 'Tree blocking' is under Hazards in the Incident Point Feature.
- **APPENDIX #3: INCIDENT REPORT FORM**—This document is what every volunteer used every time they GPSed an incident, route, area, etc. The Incident Report Form is cross-referenced to every GPS data entry.
- **APPENDIX #4: SUMMARY FOR EACH ZONE AND/OR DAY FORM**—This document was the cover sheet behind which all the Incident Report Forms and Zone Maps were filed. At times volunteers might do their zone and a portion of another zone; on rare occasions 2 zones could be completed in one long day. And often volunteers following a road in their original zone, the road would venture into another zone, so a Summary Form was required for each Zone volunteers GPSed in. At times this overlapped with other volunteers; at other times we could relay to volunteers that such and such in their zone had already been done by a previous team. Duplication did not occur often.
- **APPENDIX #5: NUMBERING SYSTEM FOR ALL INCIDENTS—**This document detailed the exact way unique numbers for each GPS data collection point, route, area, etc. were constructed so that volunteers could reference this in case they weren't numbering incidents correctly. This turned out to be the number one thing volunteers did not do correctly, requiring much editing just to get the numbering system accurate.
- **APPENDIX #6: INFORMATION ABOUT INCIDENTS—**This form provides more detailed descriptions of the various terms in the data dictionary. For example, if a volunteer did not know if a site was a staging area or a campsite, these descriptions might be helpful.
- **APPENDIX #7: WHAT TO GPS—**The document in Appendix #6 was created by the BLM; this document was created by PIC and as such is more informal. It describes and gives examples also, without duplicating information presented by the BLM. This document gives additional information about what a volunteer might see and what that is called as volunteers don't often refer to a camping site as a disturbance or even a recreation area; they wouldn't necessarily call a downed sign, an incursion or disturbance, so this provides supplemental information regarding what to GPS.
- **APPENDIX #8: STEP BY STEP INSTRUCTIONS FOR ILLEGAL ACTIVITY INCIDENTS—**Some incidents are labeled First Priority Incidents which means they are essentially happening RIGHT now or so negatively impact resources that the BLM needs to know about this RIGHT now. Fortunately, these first priority type of incidents happened only once or twice during the entire project.
- **APPENDIX #9: ITEMS TO REMEMBER WHILE GPSING—**This document is a refresher course or a little 'cheat sheet' for volunteers, to help them remember what all needs to be done while documenting and collecting data. For instance, this form reminds volunteers to mark on the Zone Map each incident approximately where it happened and also suggests that while the paperwork is being filled out, it is easiest for the person operating the GPS unit to read the GPS coordinates to the one filling

out the paperwork. Typically, filling out the forms takes far longer than doing the actual GPSing.

- **APPENDIX #10**: **IN-FIELD SAFETY PROTOCOLS—**This document essentially highlights a few steps and pointers that can also be found in the First Aid Instructions/Kit inside the duffle bag. Since the manual or binder is always being used, we thought it might be easier access than to dig through the duffle bag in a panic—therefore we listed steps to follow (including following the guidelines in the first aid kit) to help volunteers assess a situation, etc.
- **APPENDIX #11**: **STEP-BY-STEP INSTRUCTIONS FOR EMERGENCY SITUATIONS—**This document breaks down emergencies into 3 categories—Life Threatening, Major Non-life Threatening, and Minor Non-Life Threatening and provides instructions to get volunteers mobilized as to what to do. If offers several descriptions of each category to help volunteers, who might be in a panic, categorize the situation they are in. For example, items suggested for Minor Non-Life Threatening could be a flat tire, someone feeling a little sick, a vehicle not running properly, the weather turning a bit nasty, etc.

8. Upon completion of their data collection and monitoring, one of the volunteers calls PIC and we make arrangements to pick up the duffle bag. We then review the GPS data briefly cross-referencing it with the Daily Field Notes (Incident Form, etc.) and maps and make our notes as to whether that zone is completed or if there is an area or road that still needs to be monitored, etc. (If there is a first priority level incident, we would notify the BLM at this stage.) We recharge the units, restock the duffle bags, etc, but typically, the turnaround time with the GPS units/duffle bags is minimal at best, especially during the month-month and a half of peak volunteer activity. However, when we have the units for a few days, we then do our first round of editing, by systematically going through each item (in every GPS file) that has been GPSed, cross-referencing with the Daily Field Notes. We then develop a list that we need to ground truth which can range from 'I don't think there is a spring there' to a Daily Field Note that is only filled out for one item, up to a myriad of different reasons, etc. Sometimes all the data appears to be correct, but we visit the zone anyway, to make sure the monitoring has been complete. We don't change the volunteer's interpretation of items as we want the data to reflect what THEY see (for example calling old mining equipment trash, where others might think it historical, etc.), but we do confirm that their data collection is accurate and complete. Therefore, we ground truth the data, come back, and edit for the first time. The actual northerly/easterly coordinates NEVER get changed as they are internally correct (the GPS units will NOT collect satellite 'hits' unless it has sufficient satellites and those satellites are geometrically positioned to deliver accurate data); however we do change some of the menu offered attributes in the GPS unit—taking the 'I don't think that is a spring' example mentioned before. We travel to the area, discover that it is a guzzler there, not a spring. We then select 'guzzler' from the GPS unit's drop down menu and change the spring to the accurate description of 'guzzler'. Sometimes the little screens on the units are hard to read, especially if they have been exposed to direct sunlight—and sometimes people's fingers just make a wrong selection.
9. After our first round of editing, ground-truthing, then making those corrections, we usually wait until that entire Work Area is completed before doing our second round of editing. With the second round, we make sure nothing has been overlooked and usually something has— which often means another trip to the field to resolve that just-discovered issue. When the second round of editing is complete, we look at the data collection and monitoring from the whole Work Area level, making sure areas haven't been missed, and if they have—is there a reason (washed out road, etc.).
10. We do a third round of editing, this time mainly looking for typo mistakes and numbers recorded wrong—in the units, in the Daily Field Notes, etc. This is important as these numbers are all quite similar. A11032010a and B11032010a are two files; one is the monitoring route file, the other is the incident file; but if A11032010a is entered instead of

B...., that is a problem as it now references the wrong unit and file. A11022207a01 can be entered as A11022307a01—wrong number, referencing a wrong file and a wrong day. So we spend an inordinate amount of time going over all the data for these kinds of mistakes.

11. Once the third round of editing is complete, we then download and start post-processing the data; working up our spreadsheets, compiling, summarizing data, preparing the Daily Field Notes for transmittal, getting everything ready so that we can transmit all GPS and non-GPS data to the DCP and the BLM. We then finish our monitoring summary report and other associated milestones and/or deliverables. Upon acceptance of everything, we are approved to start the next quarter of data collection, and the entire process gets repeated again.

MATERIALS:

The following materials were used throughout this project:
- Trimble Geo-Explorer 2008 series, XM GPS handheld units
- Pathfinder Office 4.10
- Terrasync software 4.0
- Update of Pathfinder Office 2.90
- Digital cameras
- 1 laptop computer for field work; 1 desktop computer for post-processing, reports
- Microsoft Office 2007 (Outlook, Excel, Word, Access)
- Carbonite (off-site) data storage to ensure that project data is not lost
- Multiple vehicles of volunteers and PIC, from 2WD trucks, 4WD trucks, jeeps, ATVs, UTVs, an assortment of trailers, etc.
- Large duffle bags—our duffle bags had a few things added to them as the project progressed at the suggestions of various volunteers; here is a basic list of duffle bag items: INSIDE DUFFLE BAG: 2 GPS units, 1 antenna, 1 car charging device, 1 digital camera, 1 clipboard, 1 binder including the manual, forms, pens, pencils, highlighters, copies of maps, other reference maps, first aid kit, hand held radios, small plastic trays (to hold GPS units), trash bags, gloves, batteries, rechargeable batteries, tape, 3x5 cards (to cover GPS unit screen when it gets hard to read), towels to cushion GPS units, flashlights, tissues, hand cleanser, wet-wipes, reference books to identify wildlife, plants, safety vests; OUTSIDE DUFFLE BAG: bungee cords, safety cones, small shovel, flares, trash bags, gloves.
- Office supplies including lots of paper and ink including color ink to make multiple copies of all the maps

RESULTS and EVIDENCE OF THE RESULTS:

OBJECTIVES COMPLETED:

MILESTONE #01:   **CONTRACT AWARD AND MOBILIZATION.**
                                        DUE DATE 08-04-09
Status: *completed.*
Comments: This milestone was accomplished on August 4, 2009.

MILESTONE #02:   **PROJECT KICK-OFF MEETING**
                                        DUE DATE 08-19-09
Status: *completed.*
Comments: This milestone was accomplished on August 19, 2009.

MILESTONE #03:   **BEGIN TRIAL DATA COLLECTION PROJECT**
                                        DUE DATE 10-02-09
Status: *completed.*
Comments: This milestone was accomplished on October 2, 2009.

MILESTONE #04:   **COMPLETE TRIAL DATA COLLECTION PROJECT**
                                        DUE DATE 11-02-09
Status: *completed.*
Comments: This milestone was accomplished on December 4, 2009.

MILESTONE #05:   **BEGIN MONITORING ACTIVITIES FOR ALL FIVE SITES**
                                        DUE DATE 11-15-09
Status: *completed.*
Comments: This milestone was accomplished on December 4, 2009.

MILESTONE #06:   **COMPLETE FIRST 3-MONTHS OF MORMON MESA**
                                        SITE MONITORING VISITS (4-6)
Status: *deleted per Amendment #1*

MILESTONE #07:   **COMPLETE FIRST 3-MONTHS OF NORTH GOLD BUTTE**
                                        SITE MONITORING VISITS (8-11)
Status: *deleted per Amendment #1*

MILESTONE #08:   **COMPLETE FIRST 3-MONTHS OF SOUTH GOLD BUTTE**
                                        SITE MONITORING VISITS (8-11)
Status: *deleted per Amendment #1*

MILESTONE #09:   **REVISED: COMPLETE FIRST TWO QUARTERS OF MORMON MESA SITE MONITORING VISITS (TOTAL OF 10 VISITS) DUE DATE 06-30-10**

Status: *completed.*
Comments: This milestone was accomplished on or before May 21, 2010.

MILESTONE #10:   **REVISED: COMPLETE FIRST TWO QUARTERS OF NORTH GOLD BUTTE SITE MONITORING VISITS (TOTAL OF 7 VISITS) DUE DATE 06-30-10**

Status: *completed.*
Comments: This milestone was accomplished on or before May 21, 2010.

MILESTONE #11:   **REVISED: COMPLETE FIRST TWO QUARTERS OF SOUTH GOLD BUTTE SITE MONITORING VISITS (TOTAL OF 10 VISITS) DUE DATE 06-30-10**

Status: *completed.*
Comments: This milestone was accomplished on or before May 21, 2010.

MILESTONE #12:   **REVISED: COMPLETE THIRD QUARTER OF MORMON MESA SITE MONITORING VISITS (4-6) DUE DATE 11-15-10**

Status: *completed.*
Comments: This milestone was accomplished on or before November 15, 2010.

MILESTONE #13:   **REVISED: COMPLETE THIRD QUARTER OF NORTH GOLD BUTTE SITE MONITORING VISITS (8-11) DUE DATE 11-15-10**

Status: *completed.*
Comments: This milestone was accomplished on or before November 15, 2010.

MILESTONE #14:   **REVISED: COMPLETE THIRD QUARTER OF SOUTH GOLD BUTTE SITE MONITORING VISITS (8-11) DUE DATE 11-15-10**

Status: *completed.*
Comments: This milestone was accomplished on or before November 15, 2010.

MILESTONE #15:   **REVISED: COMPLETE FOURTH QUARTER OF MORMON MESA SITE MONITORING VISITS (4-6) DUE DATE 03-31-11**

Status: *completed.*
Comments: This milestone was accomplished on or before March 31, 2011.

MILESTONE #16:   **REVISED: COMPLETE FOURTH QUARTER OF NORTH GOLD BUTTE SITE MONITORING VISITS (8-11) DUE DATE 03-31-11**

Status: *completed.*

Comments: This milestone was accomplished on or before March 31, 2011.

MILESTONE #17:   **REVISED: COMPLETE FOURTH QUARTER OF SOUTH GOLD BUTTE SITE MONITORING VISITS (8-11) DUE DATE 03-31-11**

Status: *completed.*
Comments: This milestone was accomplished on or before March 31, 2011.

MILESTONE #18:   **REVISED: DRAFT FINAL REPORT DUE DATE 05-01-11**

Status: *completed.*
Comments: This milestone was accomplished on 05-21-11.

MILESTONE #19:   **REVISED: COMPLETE FIRST TWO QUARTERS OF COYOTE SPRINGS SITE MONITORING VISITS (TOTAL OF 3 VISITS) DUE DATE 06-30-10**

Status: *completed.*
Comments: This milestone was accomplished on or before May 21, 2010.

MILESTONE #20:   **COMPLETE SECOND 3-MONTHS OF COYOTE SPRINGS SITE MONITORING VISITS (4-6)**

Status: *deleted per Amendment #1*

MILESTONE #21:   **COMPLETE THIRD 3-MONTHS OF COYOTE SPRINGS SITE MONITORING VISITS (4-6)**

Status: *deleted per Amendment #1*

MILESTONE #22:   **COMPLETE FINAL 3-MONTHS OF COYOTE SPRINGS SITE MONITORING VISITS (4-6)**

Status: *deleted per Amendment #1*

MILESTONE #23:   **REVISED: COMPLETE FIRST TWO QUARTERS OF PIUTE/ELDORADO SITE MONITORING VISITS (TOTAL OF 8 VISITS) DUE DATE 06-30-10**

Status: *completed.*
Comments: This milestone was accomplished on or before May 21, 2010.

MILESTONE #24:   **COMPLETE SECOND 3-MONTHS OF PIUTE/ELDORADO SITE MONITORING VISITS (10-13)**

Status: *deleted per Amendment #1*

MILESTONE #25:   **COMPLETE THIRD 3-MONTHS OF PIUTE/ELDORADO SITE MONITORING VISITS (10-13)**

Status: *deleted per Amendment #1*

MILESTONE #26:   **COMPLETE FINAL 3-MONTHS OF PIUTE/ELDORADO SITE MONITORING VISITS (10-13)**

Status: *deleted per Amendment #1*

MILESTONE #27:   **ADDED PER AMENDMENT #1: START THIRD QUARTER OF MORMON MESA SITE MONITORING VISITS DUE DATE 08-15-10**

Status: *completed.*

Comments: This milestone was completed on or about August 15, 2010.

MILESTONE #28:   **ADDED PER AMENDMENT #1: START THIRD QUARTER OF NORTH GOLD BUTTE SITE MONITORING VISITS DUE DATE 08-15-10**

Status: *completed.*

Comments: This milestone was completed on or about August 15, 2010.

MILESTONE #29:   **ADDED PER AMENDMENT #1: START THIRD QUARTER OF SOUTH GOLD BUTTE SITE MONITORING VISITS DUE DATE 08-15-10**

Status: *completed.*

Comments: This milestone was completed on or about August 15, 2010.

MILESTONE #30:   **ADDED PER AMENDMENT #1: START FOURTH QUARTER OF MORMON MESA SITE MONITORING VISITS DUE DATE 01-01-11**

Status: *completed.*

Comments: This milestone was completed on or about January 18, 2011.

MILESTONE #31:   **ADDED PER AMENDMENT #1: START FOURTH QUARTER OF NORTH GOLD BUTTE SITE MONITORING VISITS DUE DATE 01-01-11**

Status: *completed.*

Comments: This milestone was completed on or about January 18, 2011.

MILESTONE #32:   **ADDED PER AMENDMENT #1: START FOURTH QUARTER OF SOUTH GOLD BUTTE SITE MONITORING VISITS DUE DATE 01-01-11**

Status: *completed.*

Comments: This milestone was completed on or about January 18, 2011.

MILESTONE #33:   **ADDED PER AMENDMENT #1: QUARTERLY PROJECT STATUS MEETING DUE DATE 06-30-10**

Status: *completed.*

Comments: This milestone was accomplished on or before 06-30-10.

MILESTONE #34:   **ADDED PER AMENDMENT #1: QUARTERLY PROJECT STATUS MEETING DUE DATE 11-15-10**

Status: *completed.*
Comments: This milestone was accomplished on or before 11-15-10.

MILESTONE #35:   **ADDED PER AMENDMENT #1: QUARTERLY PROJECT STATUS MEETING DUE DATE 03-31-11**

Status: *completed.*
Comments: This milestone was completed and a report filed on or before 3-31-11.

DELIVERABLE #01:   **MORMON MESA DRAFT WORK PLAN DUE DATE 09-03-09**

Status: *completed.*
Comments: This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #02:   **NORTH GOLD BUTTE DRAFT WORK PLAN DUE DATE 09-03-09**

Status: *completed.*
Comments This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #03:   **SOUTH GOLD BUTTE DRAFT WORK PLAN DUE DATE 09-03-09**

Status: *completed.*
Comments: This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #04:   **DRAFT DATA MANAGEMENT PLAN DUE DATE 09-03-09**

Status: *completed.*
Comments: This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #05:   **MONITORING PROTOCOLS AND PROCEDURES PLAN DUE DATE 09-18-09**

Status: *completed.*
Comments: This deliverable was submitted on or before September 18, 2009, revised to include the DCP's suggestions, resubmitted, and accepted in October, 2009.

DELIVERABLE #06:   **VOLUNTEER RECRUITMENT AND MANAGEMENT PLAN DUE DATE 09-18-09**

Status: *completed.*
Comments: This deliverable was submitted on or before September 18, 2009, revised to include the DCP's suggestions, resubmitted, and accepted in October, 2009.

DELIVERABLE #07: **FINAL DATA MANAGEMENT PLAN**
                      DUE DATE 09-18-09
Status: *completed.*
Comments: This deliverable was submitted on or before September 18, 2009.

DELIVERABLE #08: **QUARTERLY PROGRESS REPORT**
                      DUE DATE 10-01-09
Status: *completed.*
Comments: This deliverable was submitted on October 1, 2009.

DELIVERABLE #09: **MORMON MESA FINAL WORK PLAN**
                      DUE DATE 10-02-09
Status: *completed.*
Comments: This deliverable was accepted in October, 2009.

DELIVERABLE #10: **NORTH GOLD BUTTE FINAL WORK PLAN**
                      DUE DATE 10-02-09
Status: *completed.*
Comments: This deliverable was accepted in October, 2009.

DELIVERABLE #11: **SOUTH GOLD BUTTE FINAL WORK PLAN**
                      DUE DATE 10-02-09
Status: *completed.*
Comments: This deliverable was accepted in October, 2009.

DELIVERABLE #12: **TRANSFER TRIAL DATA TO COUNTY**
                      DUE DATE 11-02-09
Status: *completed.*
Comments: This deliverable was completed and accepted on December 4, 2009.

DELIVERABLE #13: **RECEIPT SUBMITTAL (AS NECESSARY)**
                      DUE DATE: TBD
Status: *not applicable.*
Comments:

DELIVERABLE #14: **WRITTEN AND ORAL REPORTS (IF REQUESTED)**
                      DUE DATE: TBD
Status: *has not been requested as of 5-21-11.*
Comments:

DELIVERABLE #15: **OUTREACH EVENT #1**
                      DUE DATE: TBD
Status: *completed.*
Comments: This deliverable was accomplished by attending the Pomegranate Festival on November 5th and November 6th of 2010 and submitting a report of the event.

DELIVERABLE #16:   **OUTREACH EVENT #2**
                                 DUE DATE: TBD

Status: *completed.*
Comments: This deliverable was accomplished by attending the Pre Fair Pig Out on March 12, 2011 and by submitting a report of the event.

DELIVERABLE #17:   **OUTREACH EVENT #3**
                                 DUE DATE: TBD

Status: *completed*
Comments: This deliverable is completed by attending the 2011 Clark County Fair, April 7, 8, 9, and 10 and submitting a report of the event.

DELIVERABLE #18:   **OUTREACH EVENT #4**
                                 DUE DATE: TBD

Status: *completed.*
Comments: This deliverable is completed by attending the 2011 City of Mesquite Festival, May 6th and 7th and submitting a report of the event.

DELIVERABLE #19:   **OUTREACH EVENT #5**
                                 DUE DATE: TBD

Status: *completed.*
Comments: This deliverable is completed by attending the May Moapa Valley Chamber of Commerce general business meeting, giving a presentation, and submitting a report of the event.

DELIVERABLE #20:   **ANNUAL PROJECT REVIEW PRESENTATION**
                                 DUE DATE: TBD

Status: *completed for 2010*
Comments: This deliverable, for 2010, was completed in August of 2010; a presentation, if requested in 2011, would not be started yet.

DELIVERABLE #21:   **QUARTERLY PROGRESS REPORT**
                                 DUE DATE 01-01-10

Status: *completed.*
Comments: This deliverable was completed on December 30, 2009.

DELIVERABLE #22:   **FIRST 3-MONTH MONITORING SUMMARY REPORT**
Status: *deleted per Amendment #1.*

DELIVERABLE #23:   **REVISED: SUBMIT FIRST TWO QUARTERS OF GIS DATA FOR MORMON MESA**
                                 DUE DATE 07-30-10

Status: *completed.*
Comments: This deliverable was completed and accepted on or before August 31, 2010.

DELIVERABLE #24: **REVISED: SUBMIT FIRST TWO QUARTERS OF GIS DATA FOR NORTH GOLD BUTTE**
DUE DATE 07-30-10

Status: *completed.*

Comments: This deliverable was completed and accepted on or before August 31, 2010.

DELIVERABLE #25: **REVISED: SUBMIT FIRST TWO QUARTERS OF GIS DATA FOR SOUTH GOLD BUTTE**
DUE DATE 07-30-10

Status: *completed.*

Comments: This deliverable was completed and accepted on or before August 31, 2010.

DELIVERABLE #26: **QUARTERLY PROGRESS REPORT**
DUE DATE 04-01-10

Status: *completed.*

Comments: This deliverable was completed on April 6, 2010.

DELIVERABLE #27: **REVISED: SUBMIT MONITORING SUMMARY REPORT FOR FIRST TWO QUARTERS**
DUE DATE 07-15-10

Status: *completed.*

Comments: This deliverable was completed and accepted on or before August 11, 2010.

DELIVERABLE #28: **BIENNIUM PROJECT SUMMARY REPORT**

Status: *deleted per Amendment #1.*

DELIVERABLE #29: **QUARTERLY PROGRESS REPORT**
DUE DATE 07-01-10

Status: *completed.*

Comments: This deliverable was completed on 07-01-10.

DELIVERABLE #30: **REVISED: SUBMIT MONITORING SUMMARY REPORT FOR THIRD QUARTER**
DUE DATE 12-15-10

Status: *completed.*

Comments: This deliverable was completed on or about 1-16-2011.

DELIVERABLE #31: **QUARTERLY PROGRESS REPORT**
DUE DATE 10-01-10

Status: *completed.*

Comments: This deliverable was completed on 10-01-10.

DELIVERABLE #32: **REVISED: SUBMIT FOURTH QUARTER OF GIS DATA FOR MORMON MESA**
DUE DATE 05-01-11

Status: *completed.*

Comments: This deliverable was completed on or before May 12, 2011.

DELIVERABLE #33:   **REVISED: SUBMIT FOURTH QUARTER OF GIS DATA FOR NORTH GOLD BUTTE**
DUE DATE 05-01-11

Status: *completed.*
Comments: This deliverable was completed on or before May 12, 2011.

DELIVERABLE #34:   **REVISED: SUBMIT FOURTH QUARTER OF GIS DATA FOR SOUTH GOLD BUTTE**
DUE DATE 05-01-11

Status: *completed.*
Comments: This deliverable was completed on or before May 12, 2011.

DELIVERABLE #35:   **REVISED: FINAL PROJECT REPORT**
REVISED DUE DATE 06-01-11

Status: *completed.*
Comments: This deliverable was completed on May 23, 2011.

DELIVERABLE #36:   **REVISED: FINAL BIENNIUM PROJECT SUMMARY REPORT**
DUE DATE 05-15-11

Status: *completed.*
Comments: This deliverable was completed on May 25, 2011.

DELIVERABLE #37:   **REVISED: FINAL PROJECT REVIEW SUMMARY FORM**
DUE DATE 06-15-11

Status: *completed.*
Comments: This deliverable was completed on May 26, 2011.

DELIVERABLE #38:   **COYOTE SPRINGS DRAFT WORK PLAN**
DUE DATE 09-03-09

Status: *completed.*
Comments: This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #39:   **COYOTE SPRINGS FINAL WORK PLAN**
DUE DATE 10-02-09

Status: *completed.*
Comments: This deliverable was accepted in October, 2009.

DELIVERABLE #40:   **REVISED: SUBMIT FIRST TWO QUARTERS OF GIS DATA FOR COYOTE SPRINGS**
DUE DATE 07-30-10

Status: *completed.*
Comments: This deliverable was completed and accepted on or near August 11, 2010.

DELIVERABLE #41:   **FINAL COYOTE SPRINGS GIS DATA**
Status: *deleted per Amendment #1.*

DELIVERABLE #42:   **PIUTE/ELDORADO DRAFT WORK PLAN**
      DUE DATE 09-03-09
Status: *completed.*
Comments: This deliverable was submitted on or before September 3, 2009 and accepted.

DELIVERABLE #43:   **PIUTE/ELDORADO FINAL WORK PLAN**
      DUE DATE 10-02-09
Status: *completed.*
Comments: This deliverable was accepted in October, 2009.

DELIVERABLE #44:   **REVISED: SUBMIT FIRST TWO QUARTERS OF GIS DATA FOR PIUTE/ELDORADO**
      DUE DATE 07-30-10
Status: *completed.*
Comments: This deliverable was completed and accepted on or near August 11, 2010.

DELIVERABLE #45:   **FINAL PIUTE/ELDORADO GIS DATA**
Status: *deleted per Amendment #1.*

DELIVERABLE #46:   **ADDED PER AMENDMENT #1: SUBMIT THIRD QUARTER OF GIS DATA FOR MORMON MESA**
      DUE DATE 12-15-10
Status: *completed.*
Comments: This deliverable was completed on or about 1-16-2011.

DELIVERABLE #47:   **ADDED PER AMENDMENT #1: SUBMIT THIRD QUARTER OF GIS DATA FOR NORTH GOLD BUTTE**
      DUE DATE 12-15-10
Status: *completed.*
Comments: This deliverable was completed on or about 1-16-2011.

DELIVERABLE #48:   **ADDED PER AMENDMENT #1: SUBMIT THIRD QUARTER OF GIS DATA FOR SOUTH GOLD BUTTE**
      DUE DATE 12-15-10
Status: *completed.*
Comments: This deliverable was completed on or about 1-16-2011.

DELIVERABLE #49:   **ADDED PER AMENDMENT #1: SUBMIT MONITORING SUMMARY REPORT FOR FOURTH QUARTER**
      DUE DATE 05-01-11
Status: *completed.*
Comments: This deliverable was completed on or before 5-17-11.

DELIVERABLE #50: **ADDED PER AMENDMENT #1 AND LETTER DATED JULY 7, 2010: QUARTERLY PROGRESS REPORT DUE DATE 01-01-11**

Status: *completed.*
Comments: This deliverable was completed on 01-03-11.

DELIVERABLE #51: **ADDED PER AMENDMENT #1 AND LETTER DATED JULY 7, 2010: QUARTERLY PROGRESS REPORT DUE DATE 04-01-11**

Status: *completed.*
Comments: This deliverable was completed on 4-3-11.

EVIDENCE OBJECTIVES/NEEDS WERE MET/FULFILLED:

The following totals provide evidence of the work that was completed to satisfy the objectives, milestones, deliverables, and goals of this project:

- **Total project waypoints**   545
- **Total project incident points**   2,043
- **Total project linear GPS data**   **2,264 kilometers or 3,654 miles**
- **Total project field work hours**   3,757
- **Total project field work miles**   44,425
- **Total project Daily Field Notes**   1,067

The above totals broken down into each Work Area are as follows:

COYOTE SPRINGS:

- **Total CS work area waypoints**   14
- **Total CS work area incident points**   110
- **Total CS work area field work hours**   201
- **Total CS work area field work miles**   1,060
- **Total CS work area Daily Field Notes**   30

PIUTE/ELDORADO:

- **Total PE work area waypoints**   37
- **Total PE work area incident points**   240
- **Total PE work area field work hours**   555
- **Total PE work area field work miles**   15,275
- **Total PE work area Daily Field Notes**   119

MORMON MESA:

- **Total MM work area waypoints**   152
- **Total MM work area incident points**   480
- **Total MM work area linear GPS data**   475 kilometers or 767 miles
- **Total MM work area field work hours**   727

- **Total MM work area field work miles**   4,560
- **Total MM work area Daily Field Notes**   256

<u>NORTH GOLD BUTTE:</u>

- **Total NGB work area waypoints**   179
- **Total NGB work area incident points**   732
- **Total NGB work area linear GPS data**   **917 kilometers or 1,480 miles**
- **Total NGB work area field work hours**   1,097
- **Total NGB work area field work miles**   10,595
- **Total NGB work area Daily Field Notes**   344

<u>SOUTH GOLD BUTTE:</u>

- **Total SGB work area waypoints**   163
- **Total SGB work area incident points**   481
- **Total SGB work area linear GPS data**   **872 kilometers or 1,407 miles**
- **Total SGB work area field work hours**   1,177
- **Total SGB work area field work miles**   12,935
- **Total SGB work area Daily Field Notes**   318

EVALUATION/DISCUSSION OF RESULTS:

COYOTE SPRINGS WORK AREA:

An evaluation of the Coyote Springs Work Area is necessarily limited to the first quarter of data collection, but even with that limited monitoring, data collected shows trends and issues that are unique to the Coyote Springs Work Area. Out of the 35 waypoints, 15 of them were photo points as this monitoring protocol was not revised until the start of the third quarter of data collection—that leaves 20 way points, 7 of which were trash related, 2 were burned wire locations, and 1 was a Haz Mat location---making 50% of the way points collected for Coyote Springs trash related. And that doesn't even tell the whole story; most of the locations were big trash areas; 1 was over 5 acres with trash everywhere, another was close to 5 acres—5 acres of trash equals 1 data point or 1 area, so although the GPS data gives the BLM an exact location of the dump site, it doesn't relay all the pertinent information the BLM would need to make an accurate assessment of these areas. That is where the Daily Field Notes and photos become valuable; photos show the visuals of the monitored area; the Daily Field Notes convey written information; it takes all three pieces of data to tell the whole story.

It is a sad irony that people from Vegas drive right up to the entrance of the regional land fill, turn and drive FURTHER to illegally dispose of this trash. Some of the trash is related to shooting where people have brought creative items to the desert to shoot—then they leave it there, and it becomes trash. Trash that is broken up and strewn about too, so it is a bigger mess, harder to clean up, and potentially the smaller pieces can get lodged in the dirt, making them harder to find and remove. The public using areas in Coyote Springs to shoot is an increasing issue since target shooting is illegal within a 15 mile parameter of Las Vegas. With the opening of the regional shooting range, it is hoped this will curtail some of the shooting on the side roads leading off of Highway 93, which is the Coyote Springs Work Area.

The final issue regarding trash in the Coyote Springs area is that some of this trash is landscape and/or construction related. Again, trucks drive right up to the regional landfill to access Highway 93, so they drive FURTHER to illegally dump their construction and landscape debris—however there is a cost to using the landfill; that is probably the chief factor in the illegal construction/landscape debris dumping.

The last observation about the Coyote Springs Work Area is this is the only time we had a Tier One Priority Incident. A shallow grave with bones were observed and thus the volunteers retraced their steps, left the immediate area, called the BLM ranger, who secured the site and worked with Metro to analyze the bones and the area. We found out later that the bones were that of a large dog; nevertheless, it was an unnerving moment for the volunteers.

Summarizing the data collection and monitoring of the Coyote Springs Work Area, it must be stated again that work was only done in this area for one quarter. Given that this area is the closest to Las Vegas of all the areas monitored and given that this area's main issue was trash and shooting, it can probably be surmised that use in the Coyote Springs area is mostly from the Vegas area. Informal observations are that the roads on the west side of Highway 93, leading towards the Refuge, are not used as much as the roads on the east side of Highway 93 and the one road that goes south, behind Apex and back towards Las Vegas. Perhaps topography partially explains that use pattern—shooters want a solid backdrop to shoot towards, the roads to the east of 93 have the Arrow Canyon Range as backdrop—and a close backdrop at that, so they don't have to drive far off the main road.

PIUTE/ELDORADO WORK AREA:

As with Coyote Springs, the monitoring and data collection for the Piute/Eldorado Work Area was extremely limited to that of only one quarter and thus makes an evaluation more of a first-impression. But

just as with Coyote Springs—certain trends and unique issues were immediately noticeable. First, for the size of the area, there were not many camping sites; second, there were a multitude of miscellaneous way points---items such as old corrals, mines, guzzlers---things the public is very interested in, but strictly speaking, this project is not as the focus is on incursions or disturbances. However, it is an observation that is relevant as the public gravitates towards points of interest, places to see and thus all those features in the Piute/Eldorado area suggest a lot of use, especially day use.

Most of the camp sites were seen directly outside the Wee Thump Wilderness Area and it can easily be said that we observed the most people/users in that area. The campsites, for being right at the edge of the wilderness area, had a bit of trash and were heavily used. Speaking of trash, given the size of the work area, we saw little trash and what we saw was a bit here and a bit there---no big accumulations anywhere with the majority of trash being right off of the main roads—and that helps to explain usage of the Wee Thump area as it is also directly off of a main road with most of that use (and trash) being close to the main road. As you get further away from the main road, the trash and visible signs of usage diminished significantly.

Another observation unique to Piute/Eldorado is that of the illegal tracks. We found the most illegal tracks here, 14 in all with most of the tracks being motorcycle, or single-track. This is entirely different from all the other areas where 2-track incursions are the norm, most of those being ATV-size. In Piute/Eldorado we found most single-track incursions to be close to the several small communities and near utility right of ways.

Speaking of utility right of ways—that is another major feature specific to this area; there are lots and lots of utility right of ways, and most of them have multiple roads associated with them. The entire area is criss-crossed with utility corridors. These long, mostly straight routes are opportunities for users to drive fast, kicking up dust; these corridors often have several routes inside them and it is unclear which routes are designated and which ones are not—and maybe that is a non-issue for this project as the corridor is one giant incursion unto itself, and an approved one at that, so we did not monitor any incursions or incidents inside the utility corridors unless they were significant or trash related.

Quail hunting, and probably dove and rabbit also, is quite popular in the entire area; multiple guzzlers exist and the area as a whole, seems to be more viable for small birds and animals; there is more vegetation, more washes, and the area probably gets more rainfall on average than the northeast part of the county. Spent shotgun shells are widespread and with the Vegas area so close, it is clear to see this is a popular hunting area for quail, dove, and rabbit.

The last significant issue of this area is that of signage; the area has been signed, but the signs are old; we documented almost 20 incidents where signage was the dominant issue and most of those signs were so sun-rotted they were splintering, almost unreadable, or broken. The area has been signed, but they need to be replaced and soon.

MORMON MESA WORK AREA:

The Mormon Mesa Work Area was able to get 4 good quarters of monitoring and data collection, thus providing an excellent platform for evaluation; in fact this area has had the best coverage and the most consistent coverage of all the areas. Most of the area is easy driving and we had no limit of volunteers that wanted to monitor this area just for that fact alone. The actual mesa part of this work area is indeed a pleasant place to drive; most roads might be bumpy or rocky (it is the mesa after all) but the roads are well defined, not prone to washouts, and wider than most side roads. Also, it is close to both valleys and it is often an 'afternoon drive', day trip option for folks that just want to get out of the house for a few hours. The views are sweeping as you can see the Virgin Mountains, the Mormon Mesa, Valley of Fire, Gold Butte and the lake in the distance—no wonder we often see folks 'just driving around' on the mesa section of this area.

This area actually has several distinctive parts and each sub-area has their own unique issues. First there is Arrow Canyon to the extreme west, in fact mentally this area is a part of Coyote Springs as it literally borders Coyote Springs. For that reason, it is getting much visitation from the Vegas area and it is here that we found several areas where wire has been burned, although not repeatedly. Several of the side roads are where appliances have been dumped, this is probably done by residents of the Moapa area as people tend to illegally dump these items close to their homes. The first two quarters of monitoring picked up several washed out sections of roads, but that waypoint dominated the third quarter, with some carry-over into the fourth quarter. Also, data substantiates what we informally observed—that the parking area next to the wilderness is getting used more and more and is now a camping site with a fairly large campfire area there now. The Double Canyon/back side of Arrow Canyon route (to get to the wilderness areas) is used by far the most; the other side roads do not see much use at all.

The second unique sub-area to the Mormon Mesa Work Area is the Meadows Wash area; the same volunteers have monitored this site 4 times. They are actually the site stewards for the Stewart Ranch site and have access to that temporarily closed site, so they are about the only ones that could do a decent monitoring of the entire area since several roads are not accessible with the cultural site being temporarily closed. This site is unique because of the Meadow Valley Wash which is the definitive feature in this area, with most of the roads intersecting the wash in some manner. The Meadow Valley Wash has been busy lately, with floods and/or rainy, muddy conditions prevalent in three of the four quarters. As such, what access there is for the public has been seriously impeded by natural events. Therefore, usage has been minimal throughout the entire monitoring period.

The flooding has created another problem also, that being signage as most of the signage near the main wash channel has been washed away. The same volunteers have reported signage as a problem each time, although the BLM has definitely been in the area replacing signs—that can easily be seen by comparing the report of the first quarter to the fourth quarter report and noting that the number of missing or damaged signs went from 18 to 5 in that time period.

The third unique area to Mormon Mesa is the Wiser Wash, west side of Mormon Mountains area; this area hardly sees any visitation and the only incident ever reported is that of a missing sign, which has been missing each quarter, so that one sign, in an area hardly visited, still does need to be taken care of.

The fourth unique area in the Mormon Mesa Work Area is the mesa itself; four of the 7 zones are on the mesa and these four areas see use, a little trash—most of it concentrated right at the exits of the freeway—but rarely other incursions or disturbances. There are a few camping sites, but as mentioned earlier, this area is primarily an afternoon drive, day use area. It isn't big and you can just about always see the freeway as this area starts at the freeway and then slowly proceeds uphill towards the Mormon Mountains. There were numerous road washouts or eroded areas in the third quarter because of the rains, but because of the frequent use, most of those washouts or eroded areas have been smoothed over enough to not be documented during the fourth quarter as road conditions such as washouts or eroded areas.

NORTH GOLD BUTTE WORK AREA:

The North Gold Butte Work Area received three quarters of monitoring and data collection, and if you compared that with only three quarters of data collection from the South Gold Butte Work Area and the Mormon Mesa Work Area, the North Gold Butte Work Area would have had the most time and miles spent in it. As it is, with only three quarters of monitoring, the most linear kilometers/miles of data were collected and the most waypoints were collected of all areas. That's because it is used the most and PIC really wanted to have this work area be the one with the most comprehensive monitoring and the most consistent monitoring. As such, we know a lot about this area now and offer the following evaluation--first and foremost it receives the most visitation. Duh. With Whitney Pockets being part of this work area, that is a

no-brainer. BUT, because of that visitation and probably because of the attention this area receives, so much has been done in this area, especially around Whitney Pockets, that the area is vastly improved over a few years ago. This can be attributed, mostly, to the BLM's efforts; they have done substantial rehabilitation and restoration and have a real presence in this area. Also several groups have taken this area under their wing, most notably the Friends of Gold Butte who have done multiple projects focusing on the Falling Man cultural site area to the large staging area in Whitney Pockets proper. Another local group has taken action lately to help improve the area also and informally, it seems the public at large is doing a better job of demonstrating responsible use. That observation is based on the lack of trash at the campsites and the noticeable lack of incursions into the restored and/or rehabilitated areas. A few years ago, public sentiment would not have respected some of that restoration work, but we have only collected data on 1 or 2 incursions at most, for each quarter. Still there is room for improvement, but overall the restoration work and the respect for it have been remarkable.

Issues exist though; some of the campsites around Whitney Pockets have become larger and there is still some tracks between campsites, especially those areas east of the Byway Road where these tracks between campsites and back out to the main road are happening. Signage is good in the Whitney Pockets area and the cultural resource areas. The post-and-cable work on the road to the sheep panel has been well respected, although one set of tracks was reported as an incursion in this area during the third quarter. About the only place we see a little trash or refuse is in partially burned fires in the fire rings at the campsites at Whitney Pockets.

There is a lot of use in the Riverside area also; on the north side of the river along the utility corridor there is a significant hill climb that is illegal as well as a road that is well used, but doesn't even exist on the map, so we need to bring these areas to the attention of the BLM. On the south side of the Virgin River, along the Gold Butte Byway, lots of day use is observed and the flat area in Zone E—an overlook of the river sees a lot of camping in the winter, early spring.

The higher elevations of Virgin Mountain see little use; that is because basically all access to this area has been washed out—and not washed out a little bit, but big sections of the road virtually gone from flooding, rock slides, erosion. Where there is access, it should only be undertaken by experienced drivers as the terrain is rough. With such little visitation, the upper portions of the Virgin Mountains have had few incursions or disturbances monitored; most of the reports are for washed out or eroded roads.

White Rock continues to be an area of day use and there is considerable trash in this area; one site in particular is at least 5 acres with all manner of old pipes and wire, lots of stuff that has been shot up, lots of current trash. This area has some very nice campsites and is an easy escape from Mesquite, so it is very popular. Signage is good, trash is the main issue and it looks like teenagers may come up this way to party. You can see downhill towards Mesquite for miles, so no doubt they like that, but party-type use has increased since we first started monitoring the area.

The foothills east of Bunkerville have two use patterns; the roads to the east are not used much (except those that intersect with roads in the White Rock area). The roads close to the town of Bunkerville are used by residents to get back and forth between houses, etc.; however most of the roads used for that purpose are outside of the ACEC boundaries. The roads to the west do get used, especially those roads to the Steam Engine, that being a particularly popular site. Some of the minor roads in this area are missing a few signs and these missing signs have been in each of our quarterly GPS documentation so the signage issue, albeit minor, still needs to be resolved. The roads around the Nickel Creek area and those around the Key West mines are also used but with little, if any actual incursions or disturbances; most of the waypoints gathered are of water troughs, corrals, and guzzlers.

SOUTH GOLD BUTTE WORK AREA:

The South Gold Butte Work Area received four quarters of monitoring, although the 2nd quarter was quite sketchy. However the monitoring and data collection done over those four quarters does allow a detailed evaluation to be made. This Work Area, like the others, has its distinguishing characteristics with two completely separate use patterns. The Zones A and B, and even C to some extent, are much more akin to the Whitney Pockets area; the use patterns are similar as is the terrain, full of sand, glorious colors of sandstone, big washes that drain the areas. South of Devil's Throat, though, it is a different world. Literally. Sandstone and sand come to a screeching halt and a vast area with stunning landscapes opens up; usage, too, comes to an abrupt stop with only the hardiest of folks and those that strive to get away from everyone else venturing on. If one were to divide all of Gold Butte into similar regions, it would be done in thirds—the first third is the Virgin Mountain area; secondly would be Whitney Pockets AND Devil's Throat, Mud Wash area; thirdly, would be everything south.

Zones A and B are so much like Whitney Pockets, they are siblings in the geographical sense; culturally they are the same also as both of these zones contain petroglyphs in the size and scale of the Whitney Pockets area. Usage is about the same also, the main difference being there are less camping sites in the Mud Springs, Devi's Throat area. People camp where they can though and visit both areas; time and time again, informal conversations with visitors point this out. The Mud Wash area has about one incursion per quarter down by the Lone Palm area and the Red Springs area where some of the more controversial road closures from the Roads EA happened. Roads were closed a little back from some of the cultural resources to help prevent abuse, but people have historically traveled right up to the sites and that is a habit a few irresponsible folks have not been able to break yet. The BLM has also done extensive rehabilitation and restoration in this area and that has been very effective. A few fire rings have been noted as have the flat, denuded places people camp, but no trash was reported in the last quarter and only minimal trash in earlier quarters.

Zones C, D, E, I, J are the routes into Gold Butte proper with Zone D being the 4WD portion of the Back Country Byway on the far west side of this area. All of these zones have had few incursions or disturbances reported; most of the waypoints have been the corrals, water troughs, old mines, guzzlers and springs—none of which are current disturbances. They are points of interest for people to visit though and the few that venture back to Gold Butte usually check out a few of these sites. Quail hunters in particular seek out the water sources as quail hunting can be very good some years.

Many of the side roads are traveled infrequently though and with little travel and some storms causing washouts or erosion, some side roads are becoming more challenging as time passes. In several places side roads just can't be found anymore, even when approached from several directions. (A side road might not be seen driving one direction, but coming back you might have a good visual of it—depending on the terrain and vegetation growth—and roads in washes do get washed out to the extent that you would never know a road had once gone down that wash.) However, volunteers did finally find the side road that makes a loop in Zone D; it sometimes takes persistence, and maybe a little luck.

The Gold Butte Township is definitely a destination as most people like to either camp there or at least explore it. This relatively small area has a multitude of roads in it and a lot of camping sites also. All the roads in this small area are not signed completely and this is probably one of those small areas where the BLM could spend a day or two and finish the signage. Also, Zone F has several eroded places and washouts that have created confusion as it is difficult for people to make it through several of those areas. Some minor road maintenance and a couple of new signs would also make Zone F more user friendly. Trash issues in and near the Gold Butte Township are minimal, but with so many camping sites, occasionally some trash is left, especially in the fire rings. Some people must think it OK to leave a few soda or beer cans and such in a fire ring, but it is still trash—and noted so in the data collection and monitoring of the area.

Getting to Gold Butte can be a bone-rattling journey unto itself; the wash-board main road joggles you for literally miles and miles and the side roads become so rocky, twisty and turny, steep, eroded, washed out, slick at some points as to challenge the best. This is particularly true on the very south side of Gold Butte. A good portion of Zones K, L, and M are downright treacherous and we have had volunteer after

volunteer say they would 'do' that area only to have them come back saying it was too rough, too washed out, too difficult, they didn't feel comfortable driving further, etc. and they turned back. We finally got more coverage then ever during the fourth quarter, but still some areas volunteers have not been willing to go. Where monitoring has been done in Zones K, L, and M though, there have been little if any incursions and disturbances. When you are that far back, you are pretty much all alone and few people spend much time back in those deep washes and steep ridges. And to further complicate the issue, the boundary with NPS has many of the ATVers not wanting to go too far south or west in the Gold Butte area for fear of treading onto NPS land and getting a ticket. In Gold Butte and especially in the Arizona Strip area, the NPS has given many an ATVer a ticket for straying off of BLM managed land and this is an issue for some ATVers.

EVALUATION AND DISCUSSION OF OVERALL PROJECT:

Overall, the monitoring and data collection of these work areas revealed areas of heavy use and areas where usage is minimal. Most of the roads are side roads off of main roads; the side roads tend to get little use and are often overgrown or have no signs of recent use. Main access routes and popular, heavily used areas are where most incursions and disturbances are.

Some of the side roads, particularly in the higher terrain or rocky canyons are more suited for ATVs, jeeps, and/or modified 4WD vehicles. Typically motorized vehicles with a shorter frame, higher clearance, and more narrow width can navigate over the more challenging roads. Future maps might make note of those roads.

This project provides GPS data and other information for over 100 primitive camping sites; this information can be helpful in the understanding of where people like to camp and can now be designated as camping sites, likewise with parking and/or staging areas. With this data, those areas are now known where people traditionally like to stage or park and those sites can be formally designated as such.

Most target shooting occurs in the Coyote Springs area along Highway 93 and at White Rock; those areas have concentrated target shooting use. Otherwise, target shooting is spread out across the area and is not nearly as noticeable as the above identified areas.

Most hunting is for quail with some hunting for dove and rabbit. The vast majority of quail hunters go to Piute/Eldorado or the extreme south end of Gold Butte.

Day use happens in all areas, but the majority of use on Mormon Mesa is day use and the same can be said for the roads north of the Virgin River (along the utility corridor) and the roads behind Bunkerville, the foothills of Virgin Mountain. All along the Gold Butte Back Country Byway day use is prevalent until you get past Devil's Throat. People that go farther than that usually are staying for several days.

CONCLUSION

Utilizing volunteers provided the DCP and the BLM with an opportunity to view how public land is seen through the public's eyes. Using the terminology and definitions such as 'incursion' and 'disturbance' provided the volunteers with the opportunity to see public land through the agencies' eyes that are tasked with taking care of the land, habitat, ecosystems, wildlife, and vegetation. Those two acts alone made this project a success; we all need to stand in each other's shoes from time to time, to see the world through another's eyes. This was one of the intangible successes of this project that cannot be measured. The tangibles, all listed above, provide the BLM with specific information that they can analyze and incorporate into their land management plans.

In one of those fortunately/unfortunately situations, this project's learning curve was partly very helpful and partly frustrating. Helpful as a good project was tweaked and made into a great project after assessing the first quarter; frustrating as a now great project only collected two quarters worth of really good information. Unfortunately, the protocols and procedures set into place in the third and fourth quarters can't be continued for a year or even 2—that in-depth amount of data and monitoring could really provide insight into usage patterns, where and how good behavior happens on public lands and where and how bad behavior, resulting in incursions and disturbances, happens on public lands—and maybe even gain some insight into WHY that behavior happens. However, this economy does not provide the opportunity to spend forever monitoring something, and really, when it comes right down to it---what the volunteers monitored and the data they collected is rock solid and indicates what is really going on in those work areas right now— maybe more monitoring would just be reporting the same thing. After all, how many times does one monitor a washed out road in the same place or how many times do you stop and GPS the same campsite— that data is collected; it now needs to be used.

RECOMMENDATIONS

The main recommendation is simple; use this data. Easier said than done, though, in this economy where job vacancies are not filled, where positions are left open, where programs are closed down, where whole departments are eliminated. So maybe using this data won't be that simple. A recommendation along that line is to use volunteers more; PIC and many other groups have now learned how important it is to help, that land managers can't do everything and really never could—it was wrong of us, the public, to even expect that. Now, it is time for the land managers to learn they can use help—the public wants to be a partner, more than ever. It is time to trust the public to help and that is actually happening. Within a week or two, volunteers from Moapa Valley and Virgin Valley are going to help the BLM install directional signs and kiosks. Honestly, 10 years ago, would any of us ever thought rural residents would WANT to help the BLM—but here it is happening---let's all of us take full advantage of that. In the future, volunteers can help do road maintenance, clean out camp fire rings, remove trash, help decide what historical sites are important enough to put on maps, and help provide historical information for those interpretative signs at those sites.

The second recommendation is for PIC to work with the DCP and the BLM, after all this paperwork is read, reviewed, approved, and the contract is closed---this work needs to go on and PIC and the volunteers need to be there, to help the BLM understand this data, visit these sites where we know a road is washed out, where we know the map doesn't correlate with what we saw on the ground---we need to still be there working through this data with the BLM and the DCP. Many of the volunteers have asked to be a part of what comes next---using this data, improving our public lands, that's what comes next.

LITERATURE CITED

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Clark County Desert Conservation Program, Biennial Adaptive Management Report, 2004. Science Advisory Team, Biological Resource Research Center, University of Nevada, Reno. March 15, 2004.

APPENDIX #1:

Step by Step procedures to operate GPS units

PROCEDURES FOR GPS UNIT COLLECTING 'BREAD CRUMB TRAIL':

1. Power on (green button at bottom of unit); attach antenna cord to GPS Unit on left-upper side; place magnetic antenna on top of roof; roll up excess cord and Velcro—you want this GPS unit to sit in the plastic box, with a tool underneath (for cushion). YOU DON'T WANT THIS UNIT ON THE DASHBOARD AS IT WILL SLIP OFF, GET TOO HOT, ETC. THIS UNIT NEEDS TO SIT ON THE SEAT OR ON THE CONSOLE, SOMEWHERE THAT IT DOESN'T GET EXPOSED TO FULL SUN AND SOMEWHERE THAT IT WON'T SLIP AND FALL. This GPS unit, once the following steps are completed, is just left alone until you are finished as it is merely collecting points of everywhere you go—it is making a 'bread crumb trail' of everywhere you go. BE CAREFUL NOT TO PINCH THE CORD IN A DOOR OR WINDOW; IF YOU HAVE A REAR WINDOW, THAT WORKS GREAT TO RUN THE CORD THROUGH A CRACK IN THE REAR WINDOW.

2. (TAP) 'GPS' at lower right of screen (the unit will say 'external antenna connected)

3. Terrasync skyplot (opens up)

4. GPS is looking for satellites (usually, but not always need to be outside of vehicle--for good signal ----need at least 4 or 5) This takes a few minutes to acquire the satellite signals.

5. (TAP) the Status drop down menu in the upper left of screen

6. (TAP) Data and the unit will open up the data section; status needs to say 'NEW' under data; if not, select 'new'.

7. Scroll down to Dictionary Name ("Road_Monitoring_Final" should appear) as default, if not select this from drop down menu

8. Write down File Name (begins w/ 'A', 'B', 'C', or 'R') on Daily Field Note form

9. (TAP) Create in the upper right of screen

10. Antenna height screen appears (TAP) OK

11. (TAP) Options in the upper middle of the screen

12. (TAP) LOG NOW   (VERY IMPORTANT)*

13. (HIGHLIGHT BY TAPPING STYLUS) MONIT_ROUTES

14.   Have your partner read back the file name you wrote in the Daily Field Notes and enter that in the 'GPS_File_No:' blank. (keyboard icon is at bottom middle of screen if it doesn't open up automatically—tap it to open up)

15.   (confirm correct date and start time (YOU ALSO MUST ENTER THE END TIME WHEN YOU ARE COMPLETELY FINISHED COLLECTING DATA.)

16.   enter 'picorg' in 'name' field or enter your first names if you want

17.   Confirm that the little pencil icon is 'writing'. If it isn't, tap the 'log' button just right of the 'options' button. Next to the pencil icon is '0'; as you move/drive, this number should slowly increase, 1, 2, 3, etc.; when you aren't moving, it becomes dormant and doesn't record Page 2 'hits' from the satellites. If the pencil icon is showing, you are in collecting mode. Set the unit in the plastic box, somewhere where it won't fall, and start your monitoring. When you are completely finished for the day and headed home, stop (before you get on the freeway or such), pick up the GPS unit in the plastic box, (TAP) 'pause' under the pencil icon; then (TAP) 'OK'; the unit will go to a different screen; (TAP) 'Close'; a screen will pop up that asks if you are sure, (TAP) 'yes'; then at the very uppermost left hand corner, (TAP) the 'X'; a screen will ask you if you want to exit TerraSync, (TAP) 'yes'; then simply hit the green button at the bottom of the unit to turn this unit off.

PROCEDURES FOR GPS UNIT THAT COLLECTS ACTUAL POINTS, ETC.:

1.   Power on (green button at bottom of unit)

2.   (TAP) 'GPS' at lower right of screen

3.   Terrasync skyplot (opens up)

4.   GPS is looking for satellites (usually, but not always need to be outside of vehicle--for good signal ----need at least 4 or 5) This takes a few minutes to acquire the satellite signals.

5.   (TAP) the Status drop down menu in the upper left of screen

6.   (TAP) Data and the unit will open up the data section; status needs to say 'NEW'; if not, select 'new'

7.   Scroll down to Dictionary Name ("Road_Monitoring_Final" should appear) as default, if not select this from drop down menu

8.   Write down File Name (begins w/ 'A', 'B', 'C', or 'R') on Daily Field Note form

9.   (TAP) Create in the upper right of screen

10.   Antenna height screen appears (TAP) OK

11.   (TAP) Options in the upper middle of the screen

12.   (TAP) LOG LATER   (VERY IMPORTANT)*

12.   (TAP) Who am I; type in 'PIC' (keyboard icon is at bottom middle of screen if it doesn't open up automatically)

13.   (TAP) Name; type in either 'PIC' or your name or your organization's name; the date is entered automatically

14.   (TAP) 'OK' in the upper middle of the screen, right under 'options'

15.   No position recorded (TAP) (Yes); Now you should be able to collect Data

16.   Proceed to first incident, at which time you will record your first GPS data

17.   Select incident type/feature name (most often it will be an Incident Point (TAP); the other features you will also use are Incident Area, Photo Point, and Observed Use; rarely will you use Incident Line—the generic features will never be used.

SPECIAL NOTE: Each time you collect GPS data, you will need to start with a unique incident # which is the complete GPS file # (starting w/ A, B, C, or R), followed by 01, 02, 03, etc. Each photo number is the same number as above (so that the photos correspond with the incident) except each photo is also identified as A (2nd photo of same incident is B), etc.

18.   Each of the above features, when tapped, open up their own unique submenu. Select the most appropriate comment for each drop down menu; some items may need a comment; type in -/ NA if there is no relevant information to add. Every field needs to be filled in; you can't finish data collection for this point unless you enter something in every field. You may have to answer several questions before you can go back and change an answer in a previous field.

19.   Enter data in screen, either by selecting items in drop down menu or by entering short descriptions. Use stylus and select letters/number from keyboard (if keyboard doesn't appear, tap icon at bottom of screen). Once all information has been entered, (TAP) Log in upper right hand side—a red target icon and the number '0' will appear above Log (which now reads 'pause'). If the number counts up (1,2,3) you will be collecting GIS 'hits' from the satellites; if the number doesn't increase, confirm that you did (TAP) Log; if you did, that means the unit doesn't have enough satellites to begin accurate data collection.

20.   If collecting a point, do not move once you (TAP) Log in the upper right hand side; if you do move, the GPS data will not be accurate, so stand still until you collect at least 20 hits from the satellites. Once you have collected at least 20 hits, (TAP) OK right under 'options' in the center/right of the screen; this action closes your GPS data collection session for that point and the unit returns you to the main 'feature name' screen.

21.   If collecting for an area (or in the unlikely event—a line), once you (TAP) Log, you MUST start moving and walk either around the area or in a linear direction; the number of hits you get

depends on how large your area/line is. Once you have completed your area/line, (TAP) OK, located right under 'options' in the center/right of the screen. This action closes your GPS data collection session for this area/line and the unit returns you to the main 'feature name' screen.

22.   Your partner is filling out the Incident Form; he/she will need the northerly / easterly coordinates from you; tap status, select sky-plot; underneath the satellite display are the Northerly and Easterly coordinates; read them to your partner; then tap DATA to get back to the collecting data screen.

23.   Proceed further into your area until you observe another incident, disturbance, etc.; repeat steps 17 through 21.

24.   When finished data collection for the day, (TAP) the small blue 'ok' in the very upper right of the screen in the taskbar that says "TerraSync". The unit will ask you if you are sure you want to exit TerraSync? (TAP) yes and the unit will return you to the initial screen; merely hit the green button below the screen to turn the unit off.

UNUSUAL SITUATIONS / ISSUES:

If you realize you are in a feature/area you didn't want to be in, (TAP) Cancel or Close in the upper right of the screen. The unit will ask you whether you want to abandon this feature or close this file—(TAP) Yes and you can start all over again. It is the easiest way to 'reset' yourself; now select the correct feature/function and start over.

If you realize you need to add something or change a field for a previously GPSed point, area, etc., hit drop down menu by 'collect' and tap 'update'; select the previous point you wish to update, scroll through, make your changes, tap OK, then tap 'collect' in the drop down menu.

These GPS units have many settings/menus/programs, etc., but please, please USE ONLY the settings listed above. If you would like to 'explore' the other programs and menus, let PIC (Elise or Bonnie) know and we'll meet with you, explain the other settings, etc., and explore with you. AND we'll bring another unit as back-up to make sure we don't change any of the settings while exploring. Please know that changing any of the settings or variables will drastically affect the accuracy of the data collected—such that we'll have to do it over again.

APPENDIX #2:

Road Monitoring Data Dictionary

MONITOR ROUTES

```
GPS FILE NO
MON DATE
START TIME
END TIME
ORGANIZATION
NAME
DATE CREATED
DATE MODIFIED
DATA HISTORY
```

INCIDENT LINE

```
INCIDENT NO
ORGANIZATION
      PIC
      BLM
      OTHER

DESIGNATED ROUTE
      YES
      NO

DISTURBANCE
      N/A
      2 TRACK
      MOTORCYCLE
      HILL CLIMB
      SIGN DAMAGE
      BURN AREA
      DENUDED
      GRAFFITI
      SCRAPE
      SHOOTING AREA
      SHOOTING AREA W TRASH
      DUMPSITE W/O TIRES
      DUMPSITE W TIRES
      OHV PLAY AREA
      HAZMAT
```

```
        FENCE DAMAGE
        MINE
        RANCH
        OTHER
        CATTLE GUARD
        GATE

DISTURBANCE DESCRIPTION

        ROUTE TYPE
                UNIMPROVED;2 TRACK
                IMPROVED; DIRT/BLADE
                DRIVABLE WASH
                SINGLE TRACK
                IMPROVED; GRAVEL
                PAVED
                ANIMAL TRAIL
                HIKING TRAIL
                POWER LINE
                N/A
        SUITABILITY
                ALL VEHICLES
                HIGH CLEAR
                4WD
                ATV
                MOTORCYCLE
                MTN BIKE
                PEDESTRIAN
                EQUESTRIAN
                N/A

CONDITION
        N/A
        ROCKS IN ROAD
        ROCKY; ROUGH
        BRUSHED IN
        POOR DRAINAGE; FLOODED
        LOOSE SAND; SILT
        STEEP
        TREES BLOCKING
        IMPASSIBLE
        RUTTED

ROUTE WIDTH
        2
        4
        6
        8
        10
        12
        14
        20
        >20
        N/A
```

UNITS
      FT
      METERS
      N/A

TRAIL CLASS
      TCl_Prim/Undvlpd Default
      TC2_Minor Dvlpmnt
      TC3-Dvlpd/Imprvd
      TC4_Highly_Dvlpd
      TC5_Fully_Dvlpd
      N/A

VEGETATION
      MOJAVE SCRUB
      MESQUITE/CATCLAW
      BLACKBRUSH
      SALT SCRUB
      SAGEBRUSH
      PINYON/JUNIPER
      RIPARIAN/AQUATIC
      MIXED CONIFER
      CHAPARRAL
      ASPEN
      JOSHUA TREE
      TAMARISK
      OTHER WEEDS
      OTHER
      N/A

BIO CRUST DAMAGE
      NO
      YES
      N/A

EROSION
      NO
      YES
      N/A

COMPACTED SOIL
      NO
      YES
      N/A

AFFECTED SOIL TYPE
      SAND
      SILT
      CLAY
      SAND/DUNE
      SAND/WASH
      GYPSUM
      DESERT PAVEMENT
      ROCK
      N/A

OTHER

SPRING AFFECTED
      N/A
      NO
      YES

TRAIL NUM

TRAIL NAME

METHOD
      GPS RES GRD
      GPS REC GRD

DIGITIZED

DUPLICATE

AGENCY
      BLM
      BR
      NPS
      BIA
      FWS
      USFS
      DOD
      PVT
      COE
      ST
      CNTY
      UNK
      DOE
      OTH

ROW
      Authorization Needed
      Existing Easement
      Existing_Lease
      Existing_Permit
      Existing_Tmp_Easmnt
      OTHER

COUNTY
      Carson City
      Churchill
      Clark
      Douglas
      Elko
      Esmeralda
      Eureka
      Humboldt
      Lander
      Lincoln
      Lyon

```
        Mineral
        Nye
        Pershing
        Storey
        Washoe
        White Pine
        Other

STATE
        NV
        UT
        CA
        ID
        AZ
        OR

DATE CREATED

DATE MODIFIED

DATA HISTORY
```

INCIDENT POINT

```
INCIDENT NO

ORGANIZATION
        PIC
        BLM
        OTHER

DISTURBANCE
        N/A
        2 TRACK
        MOTORCYCLE
        SIGN DAMAGE
        BURN AREA
        DENUDED
        GRAFFITI
        DUMP W/O TIRES
        DUMP W TIRES
        SHOOTING AREA
        SHOOTING AREA W TRASH
        HILL CLIMB
        OHV PLAY AREA
        FENCE DAMAGE
        HAZMAT
        SCRAPE
        MINE
```

```
        RANCH
        OTHER
        Cattle Guard
        Gate


COMMENT


VEGETATION
        MOJAVE SCRUB
        MESQUITE/CATCLAW
        BLACKBRUSH
        SALT SCRUB
        SAGEBRUSH
        PINYON/JUNIPER
        RIPARIAN/AQUATIC
        MIXED CONIFER
        CHAPARRAL
        ASPEN
        JOSHUA TREE
        TAMARISK
        OTHER WEEDS
        OTHER
        N/A


BIO CRUST DAMAGE
        NO
        YES
        N/A


EROSION
        NO
        YES
        N/A


COMPACTED SOIL
        NO
        YES
        N/A


AFFECTED SOIL TYPE
        SAND
        SILT
        CLAY
        SAND/DUNE
        SAND/WASH
        GYPSUM
        DESERT PAVEMENT
        ROCK
        N/A
        OTHER


FIRE RING


RECREATION AREA
        N/A
```

```
        CAMPSITE
        TRAILHEAD
        SCENIC OVERLOOK
        STAGING AREA
        WILDLIFE VIEWING
        DEVELOPED REC SITE
        OTHER

SIGN CONDITION
        N/A
        MISSING
        DAMAGED
        OK
        DETERIORATED
        OBSOLETE
        SIGN TYPE
        N/A Default
        Directional
        Designated Open
        Designated Closed
        Non-BLM sign
        Restoration Sign
        Kiosk
        Sensitive Area
        Sensitive Cultural
        Sensitive Historical
        Sensitive Plant
        Sensitive Wildlife
        Traffic Counter
        Wilderness
        Other

HAZARDS
        N/A
        ERODED
        FLASH FLOOD AREA
        WASHOUT
        HIGH WALL
        WATER XING
        POOR VISIBILITY
        BRUSHED IN
        DUMPSITE W TIRES
        DUMPSITE WO TIRES
        SHOOTING AREA
        STEEP
        ROCK/BOULDER
        TREE BLOCKING
        FLOODED
        IMPASSIBLE
        OTHER

HAZARD COMMENT

POINT TYPE
        N/A
```

```
        Y,T_INTERSECTION
        4 WAY
        5 WAY
        6 WAY
        END OF ROUTE
        Other
        End of Day

WATER FEATURE
        N/A
        TROUGH
        STOCK POND
        DAM
        GUZZLER
        SPRING
        SEEP
        WATER POCKET
        OTHER

SPRING AFFECTED
        N/A
        NO
        YES

METHOD
        GPS RES GRD
        GPS REC GRD

DIGITIZED

DUPLICATE

DATE CREATED

DATE MODIFIED

DATA HISTORY
```

INCIDENT AREA

```
INCIDENT

ORGANIZATION
        PIC
        BLM
        OTHER

AREA TYPE
        OHV PLAY AREA
```

```
     DUMPSITE W TIRES
     DUMPSITE WO TIRES
     SHOOTING AREA
     SHOOTING AREA W TRASH
     CAMPSITE
     STAGING AREA
     PARKING AREA
     SCENIC OVERLOOK
     STOCK PENS/CORRAL
     MINE/GRAVEL PIT
     HAZMAT
     SENSITIVE PLANT
     OTHER
     N/A

COMMENT

DISTURBANCE
     N/A
     2 TRACK
     MOTORCYCLE
     DUMPSITE W/O TIRES
     DUMPSITE W TIRES
     BURN AREA
     DENUDED
     SIGN DAMAGE
     GRAFFITI
     HAZMAT
     FENCE DAMAGE
     SCRAPE
     MINE
     RANCH
     CATTLE GUARD
     GATE
     OTHER

VEGETATION
     MOJAVE SCRUB
     MESQUITE/CATCLAW
     BLACKBRUSH
     SALT SCRUB
     SAGEBRUSH
     PINYON/JUNIPER
     RIPARIAN/AQUATIC
     MIXED CONIFER
     CHAPARRAL
     ASPEN
     JOSHUA TREE
     TAMARISK
     OTHER WEEDS
     OTHER
     N/A

BIO CRUST DAMAGE
     NO
```

```
      YES
      N/A

EROSION
      NO
      YES
      N/A

COMPACTED SOIL
      NO
      YES
      N/A

AFFECTED SOIL TYPE
      SAND
      SILT
      CLAY
      SAND/DUNE
      SAND/WASH
      GYPSUM
      DESERT PAVEMENT
      ROCK
      OTHER
      N/A

SPRING AFFECTED
      N/A
      NO
      YES

USE LEVEL
      Light
      Moderate
      Heavy

DATE CREATED

DATE MODIFIED

DATA HISTORY
```

INCIDENT PHOTO POINT

```
INCIDENT NO

ORGANIZATION
      PIC
      BLM
      OTHER
```

PHOTO

ASPECT
        North
        South
        East
        West
        NE
        NW
        SE
        SW

MARKER
        REBAR
        NAIL
        STAKE
        NONE
        OTHER

COMMENT

DATE CREATED

DATE MODIFIED

DATA HISTORY

OBSERVED USE

GPS FILE NO

ORGANIZATION
        PIC
        BLM
        OTHER

RECREATION USE TYPE
        2WD
        4WD
        4WD(modified)
        ATV/UTV
        RV
        MOTORCYCLE
        BICYCLE
        PEDESTRIAN/HIKING
        CAMPING
        ROCK CLIMBING
        EQUESTRIAN

HUNTING
            OTHER

COUNT OF USERS

DATE CREATED

DATE MODIFIED

DATA HISTORY

APPENDIX #3:

Incident Report Form

Incident #: _____   *Date/ Time:* _____

*Name(s):*_____

Area/Zone: _____ *GPS File#:* _____ *Coordinates:* _____

Photo ID#:_____, _____, _____, _____, _____

Type of Incident/ Disturbance: (Mark/Circle selections)

  ✍ **Missing or Damaged Sign_____ Explain:**

  _____

  ✍ **Dumpsite_____ Approx. Size: _____Sq/Ft   Description:**

  _____

        Heavy Machinery Needed? Yes/ No

  ✍ **Staging Area_____ Approx. Size: _____Acres   No. of Fire Rings: _____**

  ✍ **Campsite_____ Approx. Size: _____Sq/Ft   No. of Fire Rings: _____**

  ✍ **Burn Area_____ Description:_____**

  ✍ **Denuded_____ Approx. Size: _____Sq/Ft**

  ✍ **Hazmat_____ Description:**

  _____

     ○ **CAUTION: 3 "R" rule: " Recognize, Retreat, Report"**

  ✍ **Shooting Area_____**

  ✍ **Graffiti_____ Description: _____Approx. Size: _____Sq/Ft**

  Incursion_____ New Incursion: Yes/No   Biological Crust Damage: Yes/No

  Erosion: Yes/No   Compacted Soil: Yes/No   Ruts: Yes/No

  Track Width: _____ft Spring Affected: Yes / No / N/A

Affected Soil Type: (Gypsum, Desert pavement, sandy, _____

Description of Disturbance: (vegetation type & condition, other damages, etc.)

_____

_____

- Road Hazard_____
    - o Erosion_____   Flash Flood Area_____   Washout_____
    - o High Wall_____   Water Xing_____   Poor
      Visibility_____   Brushed In_____   Steep_____
      Rock/Boulder____   Tree Blocking_____   Other____
      Explain:_____
    - o Flooded_____   Impassible_____   Explain: _____
- Other_____   Explain: _____

Comments/Suggestions (Use Back of Page)

APPENDIX #4:

Summary for Each ZONE --- PIC Route Monitoring Field Report

Name(s): _____   Date/ Time: _____

😎 *Area/ Zone Monitored:* _____

😎 *Miles Traveled* _____   *GPS File #:* _____

😎 *Vehicle Type Used (2WD, 4WD, ATV, Motorcycle, etc.)*_____

Recreational Activities Observed: (approximate number of each)
- 👢 Pedestrian/Hiking_____   Rock Climbing_____   Hunting_____
- 👢 Bicycling_____   Equestrian____   2WD _____   4WD _____
- 👢 4WD (Modified) _____   ATV/UTV_____   Motorcycle _____
- 👢 Other:_____

Incidents/ Disturbances: (Mark location on provided map with respective incident number)

Number of Total Incursions/ Disturbances / Hazards/ Incidents/:_____
(Complete Incident Report Form for each Incident)

Affected Plant Associations: (Identify with number of Incursion/ Hazard/ Incident)
- 👢 Mojave Desert Scrub_____   Blackbrush_____   Sagebrush_____
- 👢 Mesquite/ Catclaw_____   Salt Desert Scrub_____   Chaparral_____
- 👢 Pinyon/ Juniper_____   Mixed Conifer_____   Aspen_____
- 👢 Riparian/Aquatic_____

Wildlife Observed (Approx. # of each and mark on map location with name of animal):
- 👢 Road Kills_____   Species:_____,_____,_____,_____,_____
- 👢 Bighorn Sheep_____   Coyotes_____   Bobcats_____
- 👢 Mountain Lions_____   Horses_____   Burros_____
- 👢 Deer_____   Foxes_____   Pack Rats_____
- 👢 Squirrels_____   Kangaroo Rats_____
- 👢 Eagle____ Nesting? y/n   Species: _____
- 👢 Hawk___ Nesting? y/n   Species:_____
- 👢 Falcon___ Nesting? y/n   Species:_____
- 👢 Other Birds_____   Species:_____
- 👢 Rattlesnakes_____   Other snakes_____   Lizards_____
- 👢 Tortoise_____   Gila Monster_____

Springs and Runoff: (Mark locations on Map with "Spring1", "Spring2", etc. respectively)

    1. Spring Name_____

    Water flowing: Yes / No

    Spring affected by route: Yes / No

    If yes, explain:

_____

Overall Route Conditions:

    Adequately Signed: Yes / No **(If no, mark location(s) on mop)**

    Comments:_____

_____

Work Performed: (Mark locations on map)

    Litter Removed _____   Route re-defined/Marked_____

    Road Cleaned_____   Signs replaced/repaired_____

    Tracks Swept_____

    Repairs Made (specify):

_____

_____

_____

Visitor Contact

Summary of all visitor contacts: Total Number of Contacts: _____

(Sort by Time)

_____

_____

_____

_____

_____

Suggestions/Comments:_____

_____

_____

(Office Use) Date Received _____   Date Recorded_____   Initials_____

Revised 09/2009 JL

APPENDIX #5:

Numbering System for all Incidents

Incident #
This number is the sequential number of the incident, beginning with 1, for that monitoring session. For example, the first incident you record for any particular Zone monitored will be Incident #1. The second incident recorded will be Incident # 2. And so on and so forth.
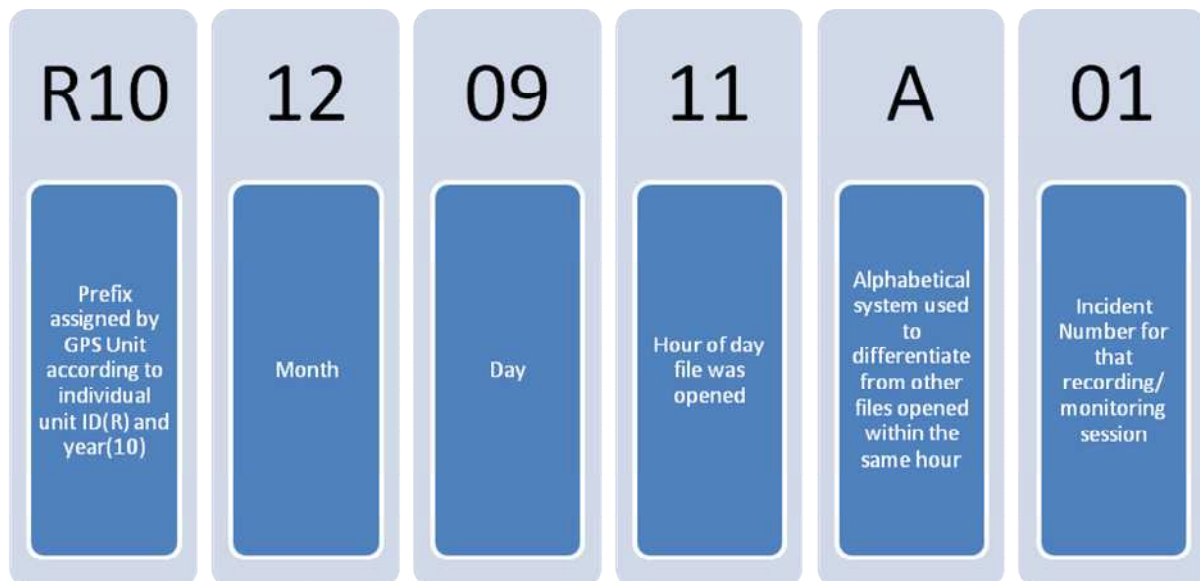
Area/ Zone Monitored
The Area and Zone that is being monitored according to the maps provided.

GPS File #
Individual Identification codes will be assigned to each incident recorded with a GPS. This number will be determined by the original number automatically assigned by the GPS unit and the incident number of that monitoring session. Ex:

R10120911A001

R10	12	09	11	A	01
Prefix assigned by GPS Unit according to individual unit ID(R) and year(10)	Month	Day	Hour of day file was opened	Alphabetical system used to differentiate from other files opened within the same hour	Incident Number for that recording/ monitoring session

APPENDIX #6:

Information about Incidents

For the purpose of this form "Incident" will be synonymous with "Disturbance" and includes "Incursion" and "Hazard".

A. *Missing or Damaged Sign*
    - To be selected when any sign is missing, damaged or vandalized

B. *Dumpsite*
    - Select t this option when a dumpsite is found.
    - Note approximate size in square feet or acres.
    - Describe the types of materials found including Hazardous Materials, tires, large objects, etc.
    - Make an assessment for the need for the use of Heavy Machinery for the removal of large materials.

C. *Staging Area*
    - Select this option when an area has been denuded due to the repeated use of unloading and loading of OHVs, horses, or other recreational equipment.
    - Note the approximate size of the area affected in acres or square feet.

D. *Campsite*
    - Select this option when a camping area with noticeable vegetation or soil damage is present.
    - Note the approximate size of the affected area in square feet or acres.
    - Note the number of fire rings associated with that campsite.

E. *Burn Area*
    - Select this option when vegetation has been burned.
    - Describe the size or number of plants affected and the type of vegetation affected.

F. *Denuded*
    - Select this option for large areas of land that have been denuded of vegetation and/or soils have been compacted

G. *HazMat*
    - Select this option when any hazardous materials or containers with potentially hazardous materials are encountered (e.g.: oil drums, oil spills, gas containers, etc.)
    - Give a description of the materials.
    - If the it is a unknown or potentially hazardous material do not approach or come into contact with the materials.
    - Take point from a safe distance and note the distance from which you took the waypoint.
    - Report materials immediately to BLM personnel.

H. *Shooting Area*
    - Select this option when an area has been visibly disturbed by the repeated use of firearms.

I. *Graffiti*
    - Select this option when graffiti is found on or around any natural structures such as rock formations or boulders.
    - Give a description of the graffiti including type of materials or instruments used and if it is situated near any petro glyphs or pictographs.

- Note the approximate size of the area affected.

J. *Incursion*
- Select this option when a new, non-designated or non-documented route is found.
- Determine if the incursion is new and not a designated route.
- Inspect affected area for any damage to biological crusts. If damage is found note it on the form.
- Inspect disturbed soils for erosion. If erosion is found note it on the form.
- Inspect disturbed soils for any noticeable compaction. If compaction is found note it on the form.
- Inspect disturbed soils for ruts. If any ruts are found note it on the form.
- Document the width of the tracks or the average width of the linear disturbance.
- Note if the incursion has affected or travels through a spring or spring system.
- Document the type of soil affected.
- Give a description of the vegetation type damaged, to what extend and any other significant details related to the incursion.

K. *Road Hazard*
- Select this option when an obstacle exists on a route that makes travel on that route dangerous, extremely difficult or impossible.
- Determine what the Hazard is and check the appropriate box on the form that reflects the conditions on the road.
- Make a selection from the following:
  1. *Erosion*: Significant loss of road surface materials
  2. *High Wall*: The large buildup of surface materials so that a berm or wall is created
  3. *Brushed In*: Vegetation growing on or into the road
  4. *Tree Blocking*: A fallen tree impeding traffic movement
  5. *Flooded*: a great flowing or overflowing of water, esp. over land not usually submerged causing dangerous conditions for travel
  6. *Flash Flood Area*: An area deemed susceptible to flooding during heavy rainfalls or actually flooded during heavy rainfall
  7. *Water Xing*: Where a route intersects a flowing stream, river or creek
  8. *Steep*: A significantly steep road segment
  9. *Washout*: A gap created in a road segment by a sudden, strong flow of water that has eroded away the road bed
  10. *Poor Visibility*: The inability to see the road directly ahead
  11. *Rock/Boulder*: A large boulder or rock in the road impeding traffic movement
  12. *Other*: Any other road hazard or road condition not mentioned above
  13. *Impassible*: A road segment that is impassible and does not fit any other category

L. *Other*
- Select this option when a description of the disturbance or incident is not compatible with any of the other selection in this form.
- Provide a explanation of the incident or disturbance including any pertinent information such as affected resources, size and quantities.

APPENDIX #7:

What to GPS—what to stop for, not just for the bad, but also for the good:

** indicate photos should be taken, BUT ONLY TAKE PHOTOS OF MAJOR INCIDENTS, NEW INCIDENTS, ETC. Photos of old tracks or small piles of trash or damaged signs are not necessary;

- Restored areas that HAVE NOT been trespassed upon ****** indicate as **RM** in notes and on forms, (restoration maintained)
- Restored areas that HAVE been trespassed upon ****** these are incursions, illegal tracks, note accordingly
- Trash, hand trash (litter), burned wire areas, tires, big pieces of trash that require equipment to move, Illegal dumping, shooting areas if there is anything except bullet casings; shotgun shells if there are a lot in a concentrated area ****** (if you pick up litter, take a picture of your work)
- Hazards—oil, chemicals, dumpsites with drums, paint, industrial waste, mining waste, odors, pesticides ******
- Incursions (illegal tracks) *all roads have a buffer of at least 15 feet on each side wherein people can pullover, backup, etc—so these are not incursions unless they go further than the 'buffer'******* (if multiple tracks have pulled over or backed up, etc. than this may be a staging area, disturbance (see below) and you can document it—if it is just a track or two and completely inside the buffer zone, there is no need to document it)
- Disturbances (areas where people have camped, parked, pulled over)—areas that are not officially designated. Most disturbances are denuded (little if any growing vegetation), so note that if applicable
- Recreation areas, trailheads, scenic views, staging areas, wildlife viewing areas
- Cattle guards, corrals, mines, gates, gravel pit
- Erosion of roads, washed out, brushed in, blocked---anything that alters a road so that it is difficult to continue down the road ******
- OK, damaged or missing signs (no need to take picture of signs unless situation is quite unique
- Damage or imminent damage to cultural and historical sites/areas ******
- Documenting all cultural and historical sites (includes corrals, mines, etc.) is a good idea
- Disturbance or imminent disturbance to tortoises or occupied tortoise burrows ******
- Vandalism, graffiti, including vandalism to barriers ******
- Abandoned vehicles ******
- Road Kill, all sightings of wildlife (if you can take a photo, that's great!)
- Water sources, springs, guzzlers, dam, stock ponds, troughs, etc. ******
- Fire pits ****** (it is important to document camp fires, etc as this is traditional use)
- Burned area (bigger than a campfire) ******
- Observed use; count people/vehicles on road and note what they are driving—but don't stop and GPS; DO NOT TAKE PICTURES OF PEOPLE ENJOYING THEMSELVES
- Observed use; count people parked/camped/staging/etc. and note use. You may/should observe discretely from a distance unless you want to visit with them. (again, it is so important to document traditional, responsible use)

Besides GPSing and collecting data, you can—if you want—

Perform basic maintenance tasks such as pick up trash, pick up stuff in road, repair signs, rake or sweep over illegal tracks (to eliminate track marks)—please take pictures and document your extra work.

Visit with users; discuss project, give them card, phone numbers, ask for their ideas, suggestions, Always introduce yourself first and explain project, after visiting (not in their presence) please summarize visit.

APPENDIX #8:

<u>Step-by-Step Instructions for Illegal Activity Incidents</u>

Illegal Activity: 1st Priority Incidents: First Priority Incidents need to be reported directly to the BLM as quickly as possible. Cell phone service is not available in most field locations, therefore any team encountering any of the items bulleted below must document (with GPS data, photographs, and observations, and by filling out an Individual Incident Form included in the Monitoring Protocols and Procedures Plan) the situation if that is possible without their safety being impeded; then they must retreat to an area where cell service is available and report the incident to the BLM by contacting Jimmy Linares at 702-515-5056 or 818-427-6179. Immediately upon returning from the field, the Team Leader will contact PIC, report the same info, and submit the Individual Incident Form electronically to Jimmy Linares and to PIC.

A. Illegal Activity:
  1. 1st Priority Incidents:
    a. Incident Items
      - Damage or imminent damage to cultural sites and areas
      - Disturbance or imminent disturbance to tortoises or occupied tortoise burrows
      - Large, fresh vegetation disturbances/ road incursions
      - Vandalism to barriers
      - Abandoned vehicles
      - Witness of someone dumping with evidence (photographs and description)
    b. Procedure to Follow for First Priority Incident Items:
      - Document incident if safety isn't impeded
      - Documenting involves collecting GPS information, digital photographs, and detailed observational data including license plate numbers, vehicle descriptions, and all other identifying characteristics of the situation in your field notes; general information collected at this time may also be helpful such as time of day, weather conditions, road conditions, etc.
      - Fill out Individual Incident Report form
      - Find a location where cell service is available
      - Call the incident in to Jimmy Linares 702-515-5056 or 818-427-6179
      - Continue with the field work assignments for the day, avoiding the area of the First Priority Incident if safety is an issue
      - Immediately upon returning home, electronically transmit Individual Incident Form with accompanying photographs to Jimmy Linares and PIC
      - Include information in regular daily reports and summary reports

APPENDIX #9:

Items to remember while GPSing:

Leave a map and information of where you will be, the vehicle you will be using, who you will be with, the approximate route you will be taking, the approximate time you left, and the approximate time you will return, with someone EACH TIME you go out.

Every time you GPS, you fill out an Incident Form; multiple items at one site can be one Incident Form, i.e. campsite, trash, damage sign, etc. Each incident (each time you GPS) record the incident # on the GPS unit and on the Incident Form; the Incident # is the complete GPS file name (starting w/ A, B, C, or R) and then 01, 02, 03, etc. The photo number is the same number as above, i.e. the complete GPS file name, then 01, 02, 03 which is followed by A (& B, C if 2 or 3 pictures are taken)

Write down coordinates on Incident Forms WHILE PAPERWORK IS BEING FILLED OUT; it is easiest for the person operating the GPS unit to read the coordinates to whoever is taking notes/pictures

Only take pictures of major items or incidents that have occurred recently. There is no need to take a picture of every old track, small piles of trash, etc. Take pictures when the picture will provide additional information that will be helpful.

Mark on map approximate location (with X) of each incident and include that incident #, X1, X2, etc.; mark on map approximate location (with U) of users on roads or parked—if you can observe the number of users, mark that, U2, U3, etc

Always do Summary Form per WORK ZONE per Day

For areas, (use Incident Area GPS feature) and walk around the area at the outermost edge of disturbance, i.e. campsite/parking area (disturbances can be good things). If you want, mark on ground where you start, so you can end right before that spot.

Best guess what people are driving; 4WD, 4WD modified, etc.

If you see illegal activity (someone dumping, defacing petroglyphs, etc) YOUR SAFETY is the most important thing; the best thing to do is leave the area and report what you observed by calling the BLM ranger , 911, or PIC . Do not confront anyone; do not take down license plate or other 'close proximity' activity unless you are very comfortable doing so

Do not drive or walk anywhere that you aren't personally comfortable, like a very steep angle of a road or climbing a steep hill

Fill in every entry blank with either a short answer or -,/,0,N/A--(you won't be able to finish a feature unless every field is entered); Refer to Data Dictionary with any questions.

For Observed Use, you may want to go up the road approx. ½ mile to document the use so you don't intrude on a visitor's privacy, etc.

Mark on the map each Incident as an 'X' and the number of the incident and each Observed Use as a 'U' w/ number.

Note the GPS File Number (found on main Feature Screen and begins w/ A, B, C, or R; write this number on each Incident Form; also note date and time and write on each Incident Form; write date on each map

---

Need to fill out all Paper work for each Incident; mark on map each incident and observed use

Need to also fill in the Northerly and Easterly coordinates on each <u>Incident Form</u>; (tap status, underneath satellite display are Northerly and Easterly coordinates) Then tap Data to get back to the collecting screen.

APPENDIX #10:

<u>In-Field Safety Protocols</u>

1. While in the field, if something happens:
   a. Remain calm; take several deep breaths. Be aware of your surroundings
   b. Review and reference this section and/or the First Aid Instructions with the First Aid Kit, also in the Duffle Bag for specific instructions
   c. Determine if the situation is Life-Threatening, Major Non-Life Threatening, or Minor Non-Life Threatening and follow the protocols in the Emergency Situations handout
   d. The most important rule in administering first aid is to NOT to put yourself or others at risk; additional injuries only compound the existing problem
   e. Rendering first aid is a personal decision; use your own best judgment given the situation at hand
   f. The second most important rule in administering first aid is NOT to perform any treatment you have not been trained/certified to perform

2. Specific Instructions for certain situations: (refer to the first aid instructions also)
   a. Resuscitation:
      1. Only perform CPR if you have been trained through a certified provider
      2. If you are CPR certified, have a team member dial 911 or 702-293-8998 as you are preparing to administer CPR; if you are alone, call for help BEFORE attempting to administer CPR; the purpose of CPR is to keep the victim alive until emergency help arrives, so first call for help
   b. Heat Issues; refer to first aid instructions also
      1. To avoid becoming over-heated
         a. Keep water on hand and drink small amounts at regular intervals
         b. Wear loose-fitting, lightweight clothing
         c. Avoid extra exertion during the heat of the day
         d. Wear a hat
         e. Wear long sleeved shirts and long pants; keeping the body covered helps to decrease heat transfer from the surrounding air
         f. Supplement water intake by drinking an electrolyte-containing sports drink occasionally; it is recommended to dilute the sports drink with water
      2. Heat Cramps: Heat cramps are involuntary, painful spasms---primarily, but not exclusively, in the arms, legs, abdomen, and back and they can occur during heavy exertion in hot environments; how to respond:
         a. Rest and cool down; loosen clothing
         b. Drink cool water, clear juice, or diluted portions of an electrolyte containing sports drink; avoid caffeinated beverages
         c. Gently stretch and massage the affected muscle group
         d. Seek medical treatment if cramps do not subside within an hour, or if vomiting or fainting ensues
      3. Heat Exhaustion: Heat exhaustion is the next level of heat stress; symptoms include faintness, nausea, heavy sweating, fatigue, clumsiness or confusion, rapid/weak

heartbeat, low blood pressure, cool and moist skin, low-grade fever; how to respond:
  a. If this pertains to you, tell someone nearby to call for medical help; pay attention to those around you and if they exhibit the above symptoms, call for medical help
  b. Move to a shady, cool location, one that is air-conditioned if possible, i.e. a vehicle
  c. Lie down, elevate the legs and feet slightly
  d. Loosen clothing or remove if necessary
  e. Drink cool (not ice-cold) water or diluted portions of an electrolyte-containing sports drink
  f. Soak skin and clothes in cool water, and fan as vigorously as possible

4. Heat Stroke: Heat stroke is the most serious level of heat stress and can lead to death. Symptoms include elevated body temperature, delirium, hot and dry skin that is mottled or bright red, cessation of sweating, rapid heart rate, convulsions, high blood pressure, and loss of consciousness; how to respond:
  a. If this pertains to you, tell someone nearby, to call for medical help; pay attention to those around you and if they exhibit the above symptoms, call for medical help
  b. Call 911 or 702-293-8998 immediately
  c. Move to a shady, cool location, one that is air-conditioned if possible, i.e., a vehicle
  d. Loosen clothing
  e. Soak skin and remaining clothes with cool water, wrap in wet towels, or place ice packs on the neck and armpit areas; fan as vigorously as possible

3. Weather related issues:
  a. Drive with headlights on if raining, overcast, or very windy
  b. Slow down if weather conditions deteriorate or stop if you are not comfortable driving in such conditions; waiting out weather related events can be the safest way to handle the situation, but doing so may make you late; if cell service is available, notify a family member and PIC
  c. If raining, do not park in low-lying areas or washes
  d. Avoid high, exposed areas when an electrical storm is in the area
  e. Do not cross flooded areas; wait until the water subsides and you can visually see the road conditions before attempting to continue on
  f. If the road is washed out, stay put or back track if there is another route home or if there is a location where cell service is available; call and notify family members and PIC if possible, otherwise wait for help
  g. If windy, reduce your speed and maintain a firm grasp of the steering wheel
  h. Stay alert for blowing objects and debris
  i. Slow down even further in gusty winds

APPENDIX #11:

Step-by-Step Instructions for Emergency Situations

Emergency Situations range from a flat tire, to observing someone else with vehicle trouble, to a twisted ankle. In fact, emergency situations will probably not occur based on past PIC projects and personal experiences. The vast majority of the time, nothing happens; however when it does, you are in charge and will make the decisions necessary for that situation. Every person that participates in this project is experienced with being in the remote areas of Clark County and has been in those areas many times. No novice will ever be a participant as one of the qualifications is that each volunteer must be a regular visitor to our public lands. As such, this pool of volunteers has a collective knowledge of what to do in emergency situations; however, to assist volunteers with making the best decisions, the following actions are suggested for each type of emergency.

A. **Life Threatening:**
   1. Remain calm; Notify law enforcement/emergency services immediately by calling 702-293-8998 and/or 911—this will probably mean that someone must leave the scene to find cell service.
   2. Follow the exact instructions given by law enforcement/emergency services.
   3. Reference the safety protocols handout, which contains safety instructions for easy reference; per personal abilities, first aid can be administered but this is strictly a personal decision.
   4. When it is safe, appropriate, and the life-threatening situation has been addressed, report the situation, fill out an Individual Incident Report form and follow the procedures detailed in the First Priority Incidents handout.
   5. Include all relevant information in all reports and discuss with PIC staff if work needs to be completed at a later date.

B. **Major Non-Life Threatening:**
   1. Remain calm; decide if a major non-life threatening event needs to be called in to the emergency federal land number, 702-293-8998 or not. These events may be vehicle breakdown that is not repairable in the field or a broken arm wherein the person may just want to be driven to the nearest doctor/medical facility instead of calling emergency services to come to them. Decisions will be made in the field as to how to handle this situation, such as calling a tow truck, calling someone in their organization with a trailer to come get the vehicle, etc.
   2. Reference the safety protocols handout which contains safety instructions for easy reference; per personal abilities, first aid can be administered but this is strictly a personal decision.
   3. When the situation has been handled, report the situation, fill out an Individual Incident Report form and follow the procedures detailed in the First Priority Incidents handout.
   4. Finally, the team may have to postpone the rest of that day's scheduled monitoring and data collection activities, or they may choose to postpone, or they may choose to finish the day's scheduled work; that decision is theirs and that work can be rescheduled later.
   5. Include all relevant information in all regular reports and discuss with PIC staff if work needs to be completed later.

C. **Minor Non-Life Threatening:**
   1. Remain calm; make the decision as to how to handle a minor non-life threatening event; such events can be a flat tire, a volunteer feels ill, a vehicle is not running properly, the weather is so cold/so hot/so windy/so rainy that everyone decides it is safer/smarter to return another day.
   2. Reference the safety protocols handout, which contains safety instructions for easy reference; per personal abilities, first aid can be administered but this is strictly a personal decision.
   3. When the situation has been handled, report the situation, fill out an Individual Incident Report form and follow the procedures detailed in the First Priority Incidents handout.

4. Finally, the team may have to postpone the rest of that day's scheduled monitoring and data collection activities, or they may choose to postpone, or they may choose to finish the day's scheduled work; that decision is theirs and that work can be rescheduled later.
5. Include all relevant information in all regular reports and discuss with PIC staff if work needs to be completed later.