PROGRESS REPORT FOR ARMY FUNDED ACTIVITIES AT ROCKY MOUNTAIN ARSENAL NATIONAL WILDLIFE REFUGE

Commerce City, Colorado

Fiscal Year 2012

U.S. Department of the Interior
U.S. Fish and Wildlife Service
NATIONAL WILDLIFE REFUGE SYSTEM

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Introduction

The Rocky Mountain Arsenal (RMA) was established by the U.S. Army (Army) in 1942 as a chemical and incendiary weapons manufacturing facility in support of U.S. military efforts during World War II. Following the war, the Army leased some facilities to the Shell Chemical Company (Shell) for production of pesticides and other chemicals. Weapons production ended in 1969, but the Army continued to use RMA for demilitarization of chemical munitions and other defense uses until 1984. Pesticide production by Shell Chemical Company ceased at the Arsenal in 1982.

During the military/industrial production years, waste handling practices resulted in contamination of soils, structures and groundwater at this site. RMA was added to the National Priorities List (Superfund) in 1987. In 1992, Congress passed the Rocky Mountain Arsenal National Wildlife Refuge Act (P. L. 102-402), designating the future use of the site as a National Wildlife Refuge (NWR), mandating the Fish and Wildlife Service (Service) manage RMA "as if it were" a unit of the National Wildlife Refuge System (NWRS) during the environmental cleanup. All RMA lands were brought into the Refuge System under a "secondary jurisdiction/overlay" Memorandum of Understanding in 1993.

The Record of Decision (ROD) for the On-Post Operable Unit of RMA was signed in 1996. Shortly thereafter, the Service joined the Army and Shell in forming the Remediation Venture Office (RVO), a unique partnership with the dual missions of implementing a safe, cost effective cleanup of RMA and converting the site to its current status as a National Wildlife Refuge.

Just 10 miles from downtown Denver, Colorado, within a rapidly developing urban interface in Commerce City, Adams County; Rocky Mountain Arsenal National Wildlife Refuge (RMANWR) is the largest wildlife habitat area in metropolitan Denver at 15,000 acres (the U.S. Army maintains jurisdiction over about 1,000 acres). Located in the heart of Region 6's largest urban area, and with more Americans living within a 1-hour drive than live in all of North and South Dakota, Wyoming, and Montana combined, RMANWR provides an outstanding opportunity for the Refuge System to expose the public, particularly urban youth, to the values that wildlife and refuges provide to our society.

Refuge wildlife include a significant wintering population of bald eagles (*Haliaeetus leucocephalus*), one of the largest breeding burrowing owl (*Athene cunicularia*) populations in Colorado, and a myriad of other migratory birds and resident wildlife. RMANWR is becoming well known for its herd of American bison (*Bison bison*), currently over 70 animals, which were reintroduced in 2007. Due to past land uses, including agricultural conversion, military/ industrial use, and the cleanup of these sites, most native habitats have been destroyed or degraded. An established weed seed bank has made management of invasive species a priority at the refuge. Habitat management is currently focused on restoring native shortgrass and midgrass (mixed grass) prairie plant communities (approximately 10,100 acres) and emulating natural ecological processes.

The Cooperative Agreement for Conservation and Management of Fish and Wildlife Resources at Rocky Mountain Arsenal (5th Revision) was signed by representatives of the Service and the Army in 2009. The annual schedule of operations for FY 2012 provides an outline for what is to

be done during the fiscal year (October 1st 2011 through September 30th, 2012). This report follows that outline, which documents Service support to the Army in the areas of Mitigation/Restoration, Remedy/Cleanup, and Access Control.

A. Mitigation and Restoration Work Related to Remediation of RMA

A.1 Restoration of Native Shortgrass and Mixed Grass Prairie

Two basic prairie types are seeded as part of the restoration effort at the Rocky Mountain Arsenal National Wildlife Refuge. Project sites with heavier textured soils, such as Weld or Santana, are seeded to a shortgrass prairie mix. Project sites with sandier textured soils such as Ascalon or Bresser, are seeded to become mixed-grass prairie. Typically, all seeded project sites receive irrigation during the first growing season, but in FY 2012, only one site was irrigated by USFWS personnel.

A.1.a. Permanent Native Seeding

Approximately 904 acres were seeded with native seed:

Section	Project	Seeded	Irrigated /non-irrigated	Acres
12	pipeline	05/25/2011	Non-irrigated	9
23	F48/49	06/25/2011	Irrigated	374
24	F21/57	06/29/2011	Non-irrigated	171
26	F32	08/16/2011	Non-irrigated	135
35	F32	06/27/2011	Non-irrigated	215
			Total	**904 ac.**

Table A.1.a.1. FY 2012 permanent native seeding date, type, irrigation and acreage, RMANWR

A.1.b. Cover Crop Seeding

Cover crop seeding is part of a two-year (sometimes longer) weed control period given to all new project seedbeds. Cover crops provide temporary food and cover for wildlife, prevent soil erosion, collect additional moisture in winter, preserve existing soil moisture, shade out weeds, and provide additional organic matter to the soil. Seeding directly into one- or two-year-old mowed cover crop stubble also saves the cost of having to use weed-free hay mulch. Cover crop seeding is part of a conservation tillage system the Service adopted to manage levels of plant residue on seedbeds. This technique helps provide the above benefits with as little mechanical cultivation as possible.

In FY 2012, approximately 348 acres were seeded with cover crops:

Section	Project Number	Crop Seeded	Acres
25	F28	Sorghum	36.8
31	F34/37	Sorghum	216.0
35	F14	Sorghum	25.5
N/A	Roads	Sorghum	70.0
		Total	**348.3 ac.**

Table A.1.b.1. FY 2012 cover crop seeding, RMANWR

A.1.c. Seedbed Preparation

Restoration seedbeds go through a two-year fallow period prior to permanent seeding, during which time all germinating weeds are controlled by a variety of mechanical (plowing, disking, mowing), and chemical means. Mowing is used to prevent unwanted plants from maturing and producing seed. Disking is used to break up the soil, the vegetation, and root system. Plowing also breaks up the soil and mixes the vegetation residue into the soil.

Seedbed preparation entails the above techniques to deplete the existing weed seedbank, minimizing weedy competitors and encouraging germination of newly seeded native vegetation. The following tables list the projects that received mechanical and chemical weed control as part of this fallow period prior to their scheduled permanent seeding:

Section	Project	Action	Site Acres
4	F60/62	Mowing	150.0
		**Subtotal	**150.0**
3	New V.C.	Disking	17.9
4	F60/62	Disking	42.0
12	pipeline	Disking	9.0
25	F28	Disking	36.8
31	F34/37	Disking	216.0
35	F14	Disking	25.5
35	86	Disking	33.0
		**Subtotal	**380.2**
3	New V.C.	Harrowing	17.9
12	Pipeline	Harrowing	9.0
		**Subtotal	**26.9**
12	Pipeline	Imprinter	9.0
24	F21/57	Imprinter	149.0
** Most project sites had 2 mechanical treatments		**Subtotal	**158.0**
		Mechanical Site Prep Total	**714.1 Acres**

Table A.1.c.1 FY 2012 mechanical site preparation and type of activity, RMANWR.

Section	Project	Action	Acres
3	Visitor Center	Spraying	48.16
3	F26	Spraying	12.90
4	F60	Spraying	119.00
25	F28	Spraying	72.95
26	F31	Spraying	202.30
26	F31 (2)	Spraying	116.48
31	F34/37	Spraying	404.44
35	Pasture	Spraying	50.04
35	F14	Spraying	60.69
		Chemical total	**1,086.96 ac.**
		Site prep. total	**1,801.06 ac.**

Table A.1.c.2 FY 2012 chemical site preparation by project and chemical applied, RMANWR.

A.1.d. Habitat Maintenance Performed on New Restoration Projects

New restoration projects that have been seeded typically do not receive herbicide treatments due to the risk of damaging sprouting vegetation. The most common treatment on new restoration projects is to mow germinating broad-leafed weeds to no more than one foot in height to prevent shading of emergent vegetation. By mowing the broadleaves, light is able to reach the understory so that native seeds can germinate and grow. Typically, new restoration projects need to be mowed two or three times during the first growing season depending on precipitation.

The following are projects in the first growing season that had to be mowed in FY 2012:

Section	Project	Action	Acres
2	82	Mowing	2.0
2	F54	Mowing	15.0
4	Fence	Mowing	8.5
6	79-03/F16	Mowing	72.5
23	F48/49	Mowing	474.0
24	F21/57	Mowing	269.0
24	N/A	Mowing	2.0
26	F32	Mowing	134.0
31	F34/37	Mowing	246.5
35	F32	Mowing	430.0
Refuge Roads		Mowing	70.0
Refuge Firebreaks		Mowing	165.0
		Total	**1,888.5 ac.**

Table A.1.d.1. First-year projects and acreage mowed in FY 2012, RMANWR.

A.2. Maintenance and Monitoring on Habitat Restored in Prior Years

A.2.a. Habitat Maintenance Performed on Prior Restoration Seedings

The following table shows chemical treatment performed on permanently seeded restoration projects. Staying on top of project maintenance is a crucial part of the restoration effort allowing staff to control weeds and prevent them from setting seed. The following areas were treated in FY 2012:

Section	Project	Action	Acres
1	N/A	Spraying	16.50
2	53, F46	Spraying	35.88
3	N/A	Spraying	0.02
5	F08,F56, 80, F01	Spraying	308.33
6	97, F18, F16, 68	Spraying	115.38
7	88	Spraying	8.00
8	F11, F20	Spraying	140.39
11	F19	Spraying	7.50
12	54-04	Spraying	13.34
19	27b	Spraying	63.47
23	F48/49	Spraying	463.85
24	54, 71, 57, 42, F21	Spraying	405.21
29	44, 64	Spraying	57.99
30	96	Spraying	8.57
31	F35	Spraying	32.91
35	N/A	Spraying	0.67
36	F29/30	Spraying	118.96
		Spray total	**1,886.98 ac.**

Table A.2.a.1. Habitat maintenance performed on permanently seeded projects in FY 2012, RMANWR.

A.2.b. Integrated Pest Management Program (IPM)

Introduction

The State of Colorado Noxious weed list includes 71 weed species, 26 of which occur or have occurred on the Refuge. Weed species pose a significant threat to habitat restoration efforts by outcompeting native vegetation. The Service therefore employs an Integrated Pest Management (IPM) approach to weed control which utilizes mechanical, biological, chemical, and cultural (prescribed burns) methods as appropriate throughout the Refuge.

Methods

The Service used nineteen Pesticide Use Proposals (PUP's), approved by the Refuge Project Leader, for treating the increasing acres and diversity of weeds in FY 2012. These PUP's have been submitted for re-approval for FY 2013. The existing Refuge IPM plan expired in October

of 2008 and a new plan is currently being reviewed. Once approved, it will be valid through 2015.

New restoration projects typically receive two years of weed control in an attempt to exhaust the existing weed seedbank. These areas are closely monitored to observe weed phenology and germination in order to determine the best chemical control.

The Service continues to utilize contract helicopters as a cost effective method to apply herbicides to large areas. A total of 3,896 acres were sprayed in FY 2012, most with glyphosate and some with dicamba. Depending on the proximity of spray sites to each other, the helicopter can spray up to 100 acres per hour. The speed at which this operation is completed allows for a more temporally relevant application window while the use of GPS technology prevents "striping", a phenomenon associated with ground-spraying rigs when not enough overlap occurs between spray passes.

Mechanical methods were also used to control a variety of weeds outside habitat restoration areas. These methods included mowing, digging, hand pulling and light disking. In FY 2012, Mile High Youth Corps crews removed 1,014 Russian olive (*Elaeagnus angustifolia*) trees and, along with other volunteer groups, surveyed and treated 32 acres of houndstongue (*Cynoglossum officinale*), musk thistle (*Carduus nutans*), scotch thistle (*Onopordum acanthium*), and common mullein (*Verbascum thapsus*), while Groundwork Denver treated approximately 100 acres of the same.

The following table shows chemical weed control that was completed in non-restoration project areas throughout the Refuge. Nearly all these areas are adjacent to existing restoration projects, with some being newly seeded while others are in remnant vegetation communities which require protection from degradation by weed species.

Section	Project	Action	Site Acres
Refuge-wide	Roadsides	Spraying	99.03
Refuge-wide	Contract Helicopter	Spraying	3,897.00
		Totals	**3,996.03 ac.**

Table A.2.b.1. Additional IPM weed control conducted on projects in FY 2012, RMANWR.

Results and Discussion

In FY 2012, a total of 6,969.97 acres received chemical control for exotic or invasive species, 564.1 acres were mechanically tilled, and 2,038.5 acres were mowed. In addition, 952.3 acres were seeded to either permanent or cover crops.

A.2.c. Vegetation Monitoring

Introduction

The objectives of the vegetation monitoring program are to:

1. Objectively assess the overall success of habitat restoration efforts by comparing baseline vegetation data with post-implementation data.

2. Determine if seeded species are represented in the vegetative community in the same proportion as they were seeded.
3. Reveal which species have established the most and least successfully from the overall seed mix on the restoration site.
4. Determine the actual composition, density, and diversity of seeded sites over time to determine range trend and condition.

Methods

Data is collected from randomly placed 50-meter fixed point-line transects. Points along the transects are placed at one meter intervals, a half-meter on each side of the transect and observed using an Optical Sighting Device (OSD) placed directly overhead and perpendicular to it. The general rule is a minimum of one transect for every six acres, and a maximum of 20 transects per site. Baseline data are ideally taken prior to restoration fieldwork commencing on a project. Once an area is seeded, vegetation monitoring takes place in the third and fifth growing season and then every five years thereafter until restoration sites become successful according to the established criteria.

Results and Discussions

A total of 106 transects were sampled in nine projects in FY 2012. Success status and data analysis for the following projects are not stated in this report due to an inability to access the vegetation monitoring database that has been used in previous years to calculate success of restoration stands and track changes in vegetation trends.

Project	Transects	Section	Acres	Growing Season
80	15	5	84.8	8th
F01 redo of 80, 80-04	17	5	98.5	5th
F08 redo of 80, 80-04	19	5	111.2	5th
F15	5	1 & 36	30.4	3rd
F16	10	1 & 2	142.3	3rd
F17 redo of 56	4	4	21.5	3rd
F21 redo of 71	20	24	259.4	3rd
F24 redo of 85	9	30	50.7	3rd
F26	7	3	38.0	3rd
Totals	**106**		**836.8**	

Table A.2.c.1. Summary of vegetation monitoring efforts in FY 2012, RMANWR.

B. Remedy and Cleanup Activities and Support to Army and Remediation Venture Office

B.1. Wildlife Health Monitoring Studies and Designated Species Collections per the Contaminant Biomonitoring Plan

B.1.a. American Kestrel Population Monitoring FY 2010

Background

The American kestrel (*Falco sparverius*) was selected as one of the sentinel species for the refuge biomonitoring program because its foraging activities result in bioaccumulation of Persistent Organic Pollutants (POPs) from insects and small mammals, aldrin and dieldrin being the chief chemicals of concern at RMANWR (see the BMP for a complete description).

Introduction

Collecting eggs for contaminant analysis under the BMP began in FY 2010 with the directive to collect three years of egg samples from each designated nest box. Sample collection proceeds as a 2-phase process: Phase 1 – Detection of Dieldrin Levels in Eggs, and Phase 2 – Detection of Dieldrin in Brains (only if needed). Phase 1 evaluates dieldrin concentration in eggs at both the individual nest box site and by groups of nest boxes for exceedance of detection limits above No Observable Adverse Effect Concentrations (NOAEC, 0.5µg/g) and the Maximum Allowable Total Concentration (MATC, 1.0µg/g). If dieldrin concentrations at one or more sites exceed the MATC, the BMP directs implementation of Phase 2 requiring the collection of a chick and evaluation of dieldrin concentrations in brain tissue. Monitoring activities in FY 2012 only relate to Phase 1 – Detection of Dieldrin Levels in Eggs.

There are 37 nest boxes situated within the boundaries of RMANWR, each located approximately one mile apart in each direction at or near the intersection of primary and secondary roads and along perimeter fences. The locations are categorized as "core" and "periphery" with 12 core and 15 periphery nest boxes. This accommodates biomonitoring of the forage and reproductive range of nesting kestrels utilizing the nest boxes throughout the Arsenal, although periphery nest boxes accommodate birds potentially foraging both within and outside of the Arsenal boundaries.

Personnel

RVO toxicologist Scott Klingensmith provided oversight of biomonitoring activities throughout FY 2012. Field activities were coordinated and supervised by Brian Fairchild, USFWS biological science technician (STEP) with assistance from biological science technician (STEP) Abby Wright. In addition, intermittent assistance was provided throughout the summer by other Biological Science Technicians (SCEP/STEP students), and volunteers.

Pre-season Activities

Thirty-seven nest boxes were prepared for monitoring in FY 2012. Sites were in good condition and required only minor preparation such as clean-out, addition of aspen chips, and repainting of numbers.

Biomonitoring Field Activities

Nest boxes were visited approximately twice weekly during the monitoring season; reproductive activities were observed and recorded, including competition from European starlings (*Sturnus vulgaris*) and northern flickers (*Colaptes auratus*) precluding kestrel utilization (competitor nesting attempts were removed when observed). Eggs in developing kestrel clutches were sequentially marked with a pencil as each new egg was observed. A total of 1,059 nest box visits were carried out at the 37 kestrel sites, averaging 28.6 checks per box throughout the reproductive season.

Protocol required collection of a random egg when the clutch reaches five eggs. Review of the FY 2010 egg collections revealed opportunities to collect eggs that were lost to progressive decline of nests with fewer than five eggs. To prevent lost sampling opportunities, the protocol was slightly modified prior to the FY 2011 season to allow collection from these sites (per discussion between Scott Klingensmith and Brian Fairchild).

When clutches reached five eggs, or when a clutch was observed in decline, a random egg was collected from each clutch. Eggs were placed in a certified-clean two-ounce glass jar and insulated with VWR light-duty tissue wipes to prevent breaking during handling and transport. Jars containing eggs were placed in a cooler containing H_2O ice to halt development, and then stored in a freezer at -10^{o}C upon completion of daily biomonitoring activities.

Nesting Activity

Table B.1.a.1 shows the proportional use of available nest boxes. Single clutches were observed in most nest boxes used for reproduction, however two boxes had two each. In the 23 nest boxes used for reproduction, 28 nest attempts were observed; 13 in core sites and 15 in the periphery. 64.3% of all the nest attempts failed (18/28), 9/13 in the core (69.2%), and 9/15 in the periphery (60.0%) (See Table B.1.a.2). European starlings attempted to nest 400 times in the nest boxes and one northern flicker made an attempt in another box. All non-kestrel nest attempts were removed to promote nesting of the target species.

Nest Box Usage	Core (22)	Periphery (15)	Total (37)
# of boxes used for reproduction	11	12	23
% Nest box used	91.7	48.0	62.2

Table B.1.a.1 FY 2012 American Kestrel nest box usage, RMANWR.

AK Nesting Activity	Core (n=12)	Periphery (n=25)	Total (n=37)
Nest Attempts	13	15	28
Abrupt Ends	9	9	18
% Nest Failures	69.2	60.0	64.3

Table B.1.a.2 FY 2012 American Kestrel nesting activity, RMANWR

Eggs Collected

The egg collection protocol changed slightly in FY 2011. Scott Klingensmith rescinded the changes (collection of the 1st egg laid in each clutch) directed by Sherry Skipper because it was not in compliance with the Biological Monitoring Plan (BMP) requirement to collect one random egg from the clutch. Collection in FY 2012 followed BMP protocols. In addition, review of the FY 2010 egg collections revealed opportunities to collect eggs lost due to clutch decline. To preclude lost opportunities to collect samples, standards were slightly modified to allow collection of a random egg from declining clutches with less than 5 eggs (per discussion between Scott Klingensmith and Brian Fairchild).

Twenty-two of 106 eggs laid were collected, 11 from core and 11 from periphery nest boxes. Collected eggs were placed in a certified-clean two-ounce glass jar lined with VWR light-duty tissue wipes to prevent breaking during handling and transportation. Jars containing eggs were placed in a cooler containing H_2O ice to halt development and then stored in a freezer at -10°C upon return from the field.

Lab Activities

Collected samples were prepared in the RMANWR lab and submitted for contaminant analysis following the reproductive season. Eggs were allowed to partially thaw at room temperature for approximately 30 – 45 minutes to allow removal of the shell. Egg content was transferred to certified-clean 2 oz. jars, labeled, chains of custody generated, and packaged for submission to the NWRC lab for contaminant analysis. Of the 47 eggs collected, 42 were kestrel eggs and 5 were European starling eggs collected fortuitously.

Activity	Refuge-wide	Core	Periphery
Nest boxes Available	37	12	25
Nests initiated	28	13	15
Single Clutch	23	11	12
Second Clutch	5	2	3
# Successful Nests (clutches with ≥ 1 fledgling)	4	1	3
Total # Eggs Laid	106	54	52
Average Clutch Size per Nest	3.8	4.2	3.5
Total # Hatchlings	17	4	13
Hatching Success (#nestlings/ # eggs)	16.0%	25.0%	7.4%
Total # Fledglings	17	4	13
Reproductive Success (clutches with ≥ 1 fledgling/ #clutches)	14.3%	7.7%	20.0%

Table B.1.a.5 FY 2012 American kestrel summary activity data, RMANWR.

Summary Contaminant Data Analysis

Twenty-two samples were submitted to SWRI, 11 from core nests and 11 from the periphery. Because of duplicate samples being sent from some nests, this represents samples from nine core and nine periphery sites. Two sample results were over the No Observable Adverse Effect Concentrations (NOAEC) of 0.05 µg/g (one each from 26NW and 34NW), and one sample from 23NW was equal to the NOAEC. None of these were greater than the Maximum Allowable Total Concentration (MATC) value of 1.0 µg/g.

B.1.b. European Starling FY 2010

Sample Locations

The BMP identified 24 sites for placement of starling nest box arrays. These sites provided a representative number of arrays from each of the five Soil Remediation Types, described in the BMP as: None (No Remediation), Excavation (Priority 1 borrow area), Excavation and backfilled remediation sites, Tilled TRER Sites, and Engineered caps and covers. An additional site (35A), located west of Building 111, was included due to USFWS interest when samples collected from this array in previous years continued to have measurable levels of organochlorine pesticides despite several local clean up projects (excavation and backfill). This addition brings the total potential sites to be monitored to 25. An evaluation of the suitability of these 25 sites for placement of nest boxes for the FY 2007- 2010 field seasons included identifying areas of current construction and restoration activities as these activities can negatively affect habitat in the starling's foraging area.

In addition, an evaluation of the habitat within the estimated forage area was performed. Evaluation of nest box sites for suitable habitat is very important as starlings are omnivores and primarily feed insects to their young. Starlings are essentially grassland feeders and take invertebrates from foliage, the surface of the ground, and the upper few centimeters of the soil. During breeding season and while feeding young, their diet consists almost entirely of invertebrates obtained from the surface or from the upper few centimeters of the soil of grass fields. Sparse habitat in the feeding range around the nest box arrays may result in a lower density of invertebrates and an increase in forage area which in turn may adversely impact nest box occupancy and nest success.

Nine sites were monitored in FY 2012. The remediation strategy in the foraging range for each nest box array is listed in Table B.1.b.1, and a description of each remediation strategy can be found in the BMP. Each nest box array contains ten boxes. The two cap and cover arrays (1NC, 36SC), two of the tilled Terrestrial Residual Ecological Risk (TRER) arrays (25CC, 26NW), and three of the Priority 1 borrow area (excavation with no backfilling) arrays (23SC, 24SW, 26WC) were not monitored in FY's 2007, 2008, and 2009 because of remediation and restoration activities. In FY 2010, array 25CC (TRER) was the only one not monitored for the same reasons. Following the FY 2010 monitoring season, several arrays met BMP monitoring requirements (minimum three years) and nest-boxes were progressively closed (2SW, 4NC, 4SW, 6NC, 6NW, 7, 20NW, 20SE, 24NW, 26CC, 27, 30SW, 31SW, 35A, 35WC, 36NW), but not dismantled pending analytical results and guidance from regulatory agencies. Following FY 2011, an additional five arrays 1WC, 25NE, 4NC, 4SW, 24NW met BMP monitoring

requirements and were closed but not dismantled. Additionally, during FY 2010, development of adequate habitat supporting nesting/ reproductive activity in Section 25 allowed installation of the array at site 25CC prior to the FY 2011 reproductive season.

Site ID	Remediation Strategy	Site ID	Remediation Strategy
1NC	Caps and Covers	24SW	Excavation (Priority 1 Borrow Area)
1WC	TRER	25NE	No Remediation Activity
2SW	No Remediation Activity	26CC	Excavated and Backfilled
4NC	Excavated and Backfilled	26NW	TRER
4SW	TRER	26WC	Excavation (Priority 1 Borrow Area)
6NC	TRER	27	No Remediation Activity
6NW	Excavation (Priority 1 Borrow Area)	30SW	TRER
7	No Remediation Activity	31SW	Excavation (Priority 1 Borrow Area)
20NW	No Remediation Activity	35A	Excavated and Backfilled
20SE	Excavated and Backfilled	35WC	TRER
23SC	Excavation (Priority 1 Borrow Area)	36NW	Excavated and Backfilled
24NC	Excavated and Backfilled	36SC	Caps and Covers

Table B.1.b.1. FY 2010 nest box arrays monitored in with remediation strategy for each array, RMANWR.

Nest Box Monitoring

An effort was made to monitor all nest boxes at least twice each week during the monitoring season. Information from each site was recorded on a nest box monitoring sheet, one of which was used for each monitoring date. Nest condition was rated 1-4 using the following criteria:

1 -no nesting material present
2 -some nesting material present but no nest cup formed
3 -partially formed nest cup present
4 -completely formed nest cup present

Other information recorded on the monitoring data sheet included the number of eggs present, number of chicks present, and the presence of any unhatched eggs or dead chicks. Abnormalities found during monitoring were recorded in the comments section of the nest box monitoring form. Results from nest visits and reproductive success endpoints derived from these data are summarized in the raw data files for this project. For further details on the procedures used for nest box monitoring and analysis of reproductive endpoints, refer to the *U.S. Fish and Wildlife Service Rocky Mountain Arsenal National Wildlife Refuge Fiscal Year 1994 Annual Progress Report*, Appendix A.

Sample Collection

Starling nestlings were collected as close to 15 days post-hatch as possible, allowing for maximum potential exposure. At day 21, fledging occurs, and the starling young are independent of their parents. Some variability occurred in the collection of chicks due to

holidays, weekends and workload, but chicks were at least 15 days of age at time of collection. Nestlings were euthanized in a pre-charged CO_2 saturated chamber and given a unique identification number according to the site, nest box and date collected. Whole birds were frozen at -20^o C until ready for dissection. Brains were removed and stored in a chemically cleaned jar at -20^o C until they were transported for chemical analyses at the Southwest Research Institute (SWRI) in San Antonio, Texas. Samples were tracked with chain of custody information submitted electronically through the Army laboratory and hard copies were delivered to SWRI with the samples.

Nesting Data

During FY 2012, all sites showed evidence of starling activity with various stages of nest building observed in most nest boxes (Table B.1.b.2). Individual nest boxes can be occupied for up to two complete cycles of nesting during the reproductive season (March-July). Occupation of nest boxes varied between the different sites and ranged from 1 to 22 nests initiated (a full clutch was laid) per site.

Site ID	Nests Initiated	Nests w/at Least One 15-day-old Chick	% Nests Initiated w/at Least One 15-day-old Chick
1NC	6	4	67
23SC	7	5	71
24SW	13	9	69
25CC	22	19	86
26CC	2	1	50
26NW	8	6	75
26WC	15	15	100
36NW	1	1	100
36SC	13	9	69
Totals	**87**	**69**	**79**

Table B.1.b.2. FY 2012 nesting activity in monitored arrays, RMANWR.

Summary Contaminant Data Analysis

Seventy-one samples were submitted to SWRI in FY 2012. The target sample weight for a method detection limit of 0.05 µg/g is 1.0 gram. If a sample weight was less than 1.0 gram, the sample was analyzed with a resulting Detection Limit (DL) greater than 0.05 µg/g. The detection limit varies according to the sample weight with an increasing detection limit associated with a decreasing sample weight. Seventy-one samples had weights that were equal to or greater than 1.0 gram. Sample weights were variable as brain weight is dependent on the size of the nestling. No sample results were equal to or greater than the MATC value of 1.0 µg/g.

B.2. Management of Black-tailed Prairie Dog Populations

Black-tailed prairie dog management was a high priority in FY 2012. Two STEP students worked full time trapping and flushing prairie dogs from June through mid-August under the direction of the wildlife biologist. Throughout the summer and early fall staff from the bio-monitoring section and several volunteers baited and set traps. Two seasonal employees took over for the students who returned to college, and trapped through October. No onsite relocation of prairie dogs occurred in FY 2012 as had been done in previous years, instead, arrangements were made to permanently remove them from the site. In addition to the Black-footed Ferret Center (FC) and the Birds of Prey Foundation (BP) using trapped prairie dogs as food sources, dispatching in pre-determined culling zones was accomplished by one permanent employee and one STEP student. Mapping prairie dog towns was not completed in FY 2012 and the FY 2010 acreage of 3,863 acres of prairie dog towns is represented in this report. The majority of the crew's efforts for the summer were focused on decreasing prairie dog numbers surrounding army retained areas, particularly where restoration had been performed and dogs were crossing visual barriers. Additionally, a USGS research project that required trapped prairie dogs allowed for the removal of animals at the study's conclusion. This report documents removal from RMANWR by trapping, flushing, and dispatching efforts from June through October 2012.

B.2.a. Population and Health Surveys

In FY 2012, prairie dog density surveys were not conducted and no mapping was attempted. Plague was not detected at RMA and all transported individuals appeared healthy and no prairie dogs quarantined for 21 days at the FC succumbed to any illnesses. However, some areas of the Refuge, including the boundary systems, were inhabited with mange-infested animals that were not targeted for transport. Furthermore, the boundary system had been sprayed to control bindweed and the remaining individuals did not grow rapidly enough to meet the 500-gram minimum weight necessary for transport to the FC.

B.2.b. Trapping and Colony Control Efforts

Trapping was a highly orchestrated operation that was enhanced by flushing. Typically, 100 traps were set daily before sunrise and were left open until the temperature reached 85^{o} F, or no later than 1300 hours, whichever occurred first. This allowed animals to be processed before the 1430 departure to the Black-footed FC north of Ft Collins. Prairie dogs were treated for fleas, aged and sexed before transport. The goal was to send at least 100 prairie dogs per week, and a total of 1500 for the season. Trapped animals weighing less than 500 grams (a size restriction imposed by the FC) were unsprayed, euthanized in a CO_2 chamber, and frozen for transfer to the BP. This combination of removal efforts accomplished the goal, but was labor intensive.

A total of 1,766 prairie dogs were captured by trapping and/or flushing and transported offsite, 310 were sent to BP, and 1456 went to FC. The efficacy of each method was identical with a mean of 17.1 caught/day (n=66) and 17.3 flushed/day (n=19). Flushing supplemented trapping, sometimes overlapped trapping zones, but was used more often in late summer. A breakdown of destination and effort by month is in Figure B.2.b.1. The location of areas on RMA from which prairie dogs were removed is broadly depicted in Figure B.2.b.2.

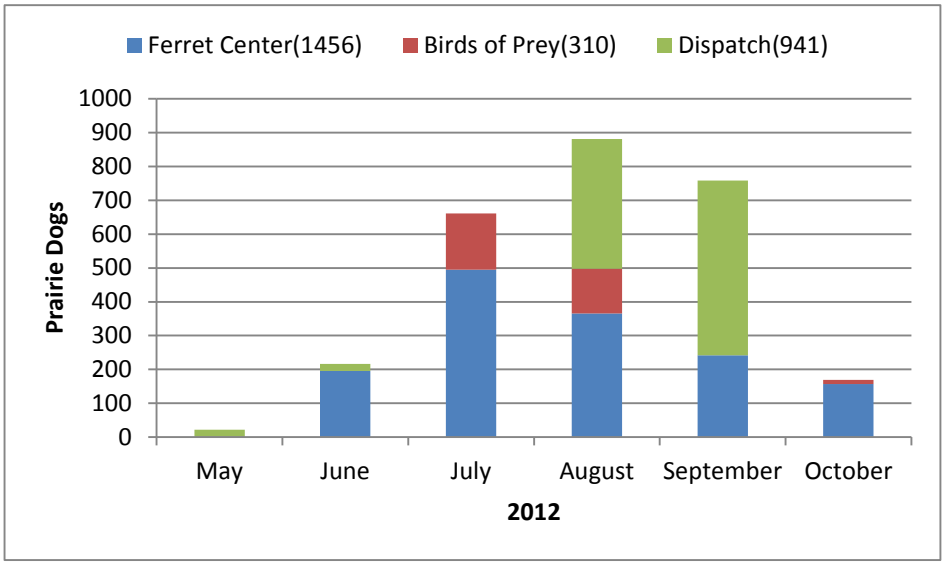

Figure B.2.b.1. FY 2012 Monthly removal of prairie dogs from RMANWR by trapping, flushing and dispatching, RMANWR.

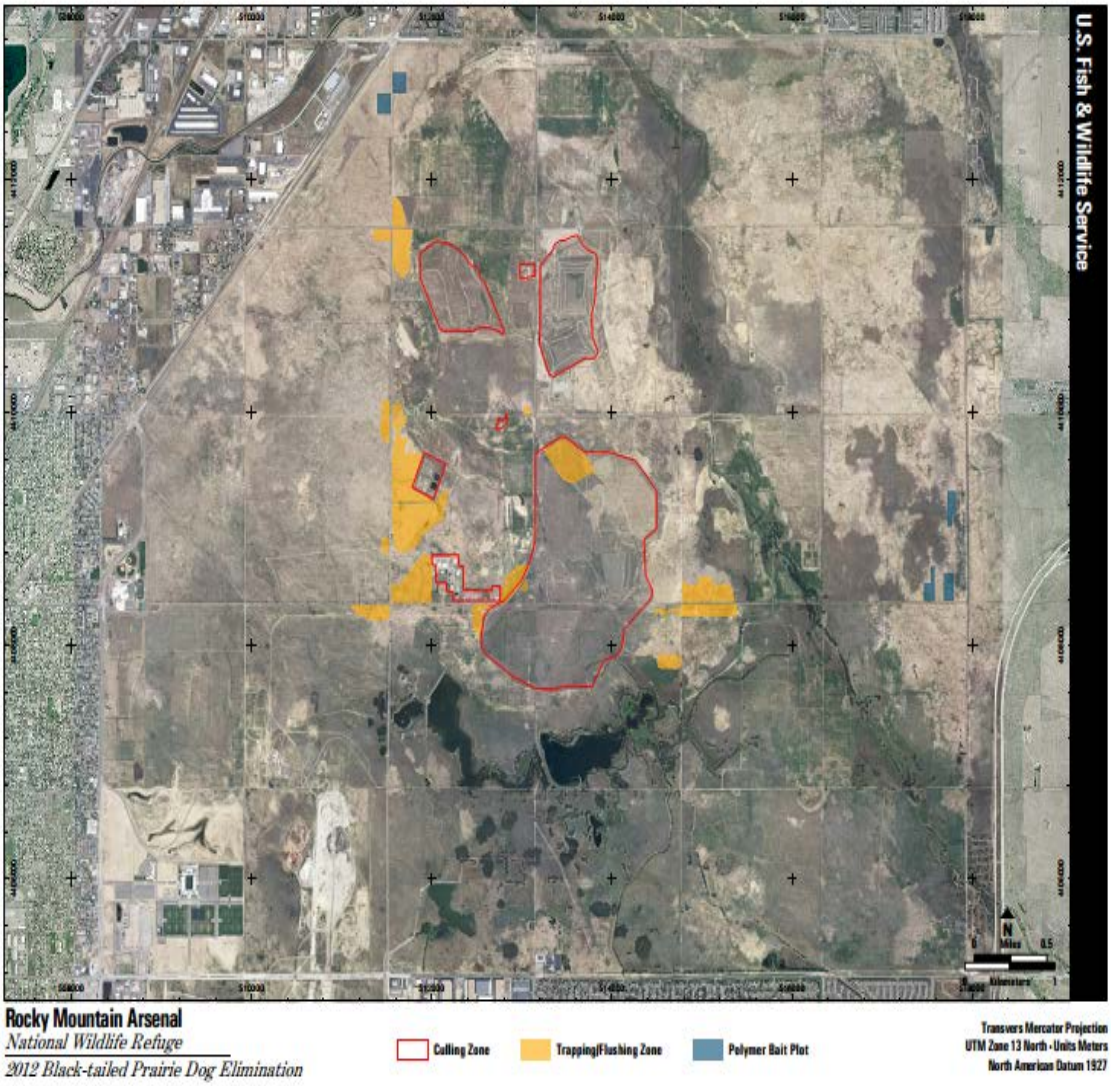

Figure B.2.b.2. FY 2012 Prairie dog removal areas, RMANWR.

In FY 2012, USFWS was again approved to dispatch (via shooting) prairie dogs that were within 100 yards of sites where their presence could be a potential health or safety concern. These areas included the caps and covers, landfills, buildings, and sewage lagoons and are outlined in red on the map in Figure B.2.b.2. A total of 941 prairie dogs were dispatched with a mean of 32.4 per day of effort (n=29), almost twice that of flushing and trapping.

The ability to transport prairie dogs from RMA rather than relocate them on site coupled with the approval to dispatch them in specific zones allowed accomplishment of the habitat management plan goals set by USFWS. By reducing prairie dogs in restored areas, pressure on native plantings decreased. From FY 2007 through FY 2010, only relocation of captured animals on

site was available as a management tool. In FY 2011, dispatching was added, and in 2012, removal from the site replaced relocation (Figure B.2.b.3).

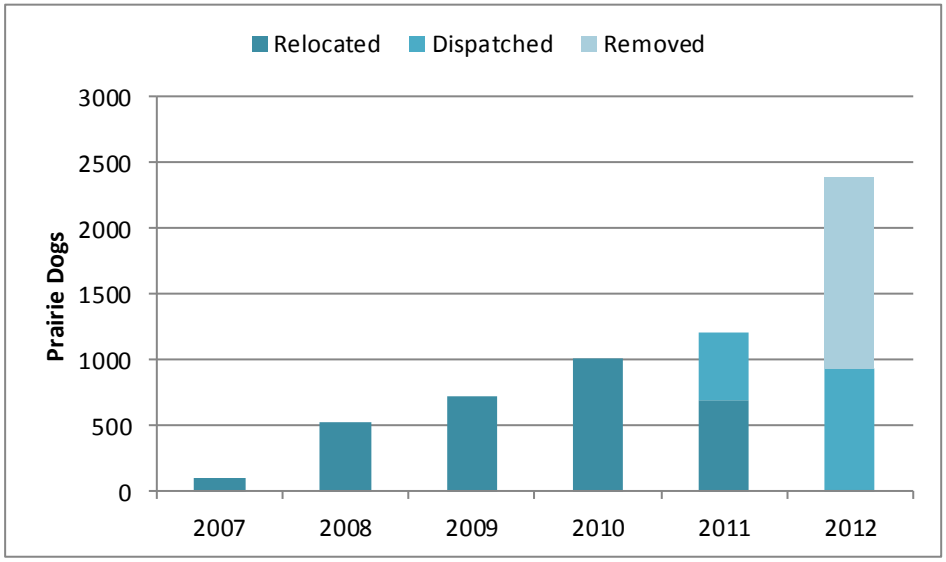

Figure B.2.b.3. Prairie dog management methods 2007-2012, RMANWR.

B.4. Monitoring of Wildlife Populations Impacted by Cleanup Projects

The objectives of Service wildlife population monitoring on the refuge and Army maintained lands during FY 2012 were to maintain reproductive success of raptors, and avoid impacts of restoration/cleanup projects to any wildlife species, by providing technical assistance to field personnel. Vegetation restoration coordination meetings were attended regularly to provide technical assistance on wildlife issues. Jeff Krause left in mid-Dec 2011 and Carl Mackey began attending USFWS weekly meetings to announce field work done by PMC and weekly projected field activity requests were continued via email by Nate Spencer. Wildlife ZIP bulletins were edited for Cheryl Medford and field projects were reviewed for wildlife conflicts.

Birds of prey exhibit strong nest site fidelity, meaning they return to the same nest territory, so their presence in an area can be reliably predicted. Therefore, reduction of impacts on raptors involves ascertaining when each species arrives on site and then determining the nesting chronology for each pair. Raptor nest monitoring begins in February with great horned owls (*Bubo virginianus*) and ends in September with the out-migration of Swainson's hawks (*Buteo swainsoni*) and burrowing owls. In FY 2012, nine great horned owl, 29 burrowing owl, eight red-tailed hawk (*Buteo jamaicensis*), and 16 Swainson's hawk nests were monitored (see Figures B.4.1 and B.4.2). No long-eared owl roosts or nests were found.

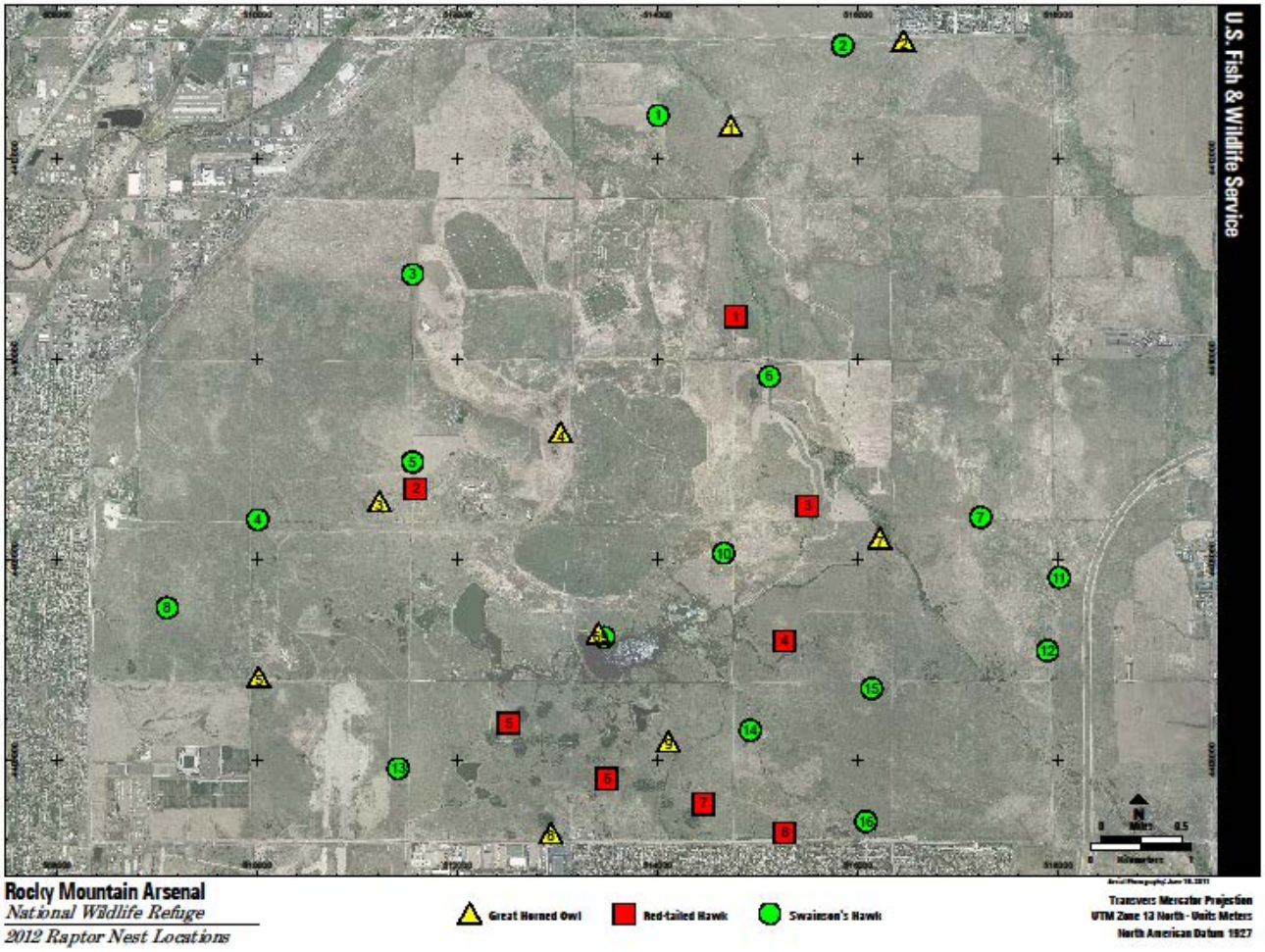

Figure B.4.1. FY 2012 RMA raptor nest locations, RMANWR.

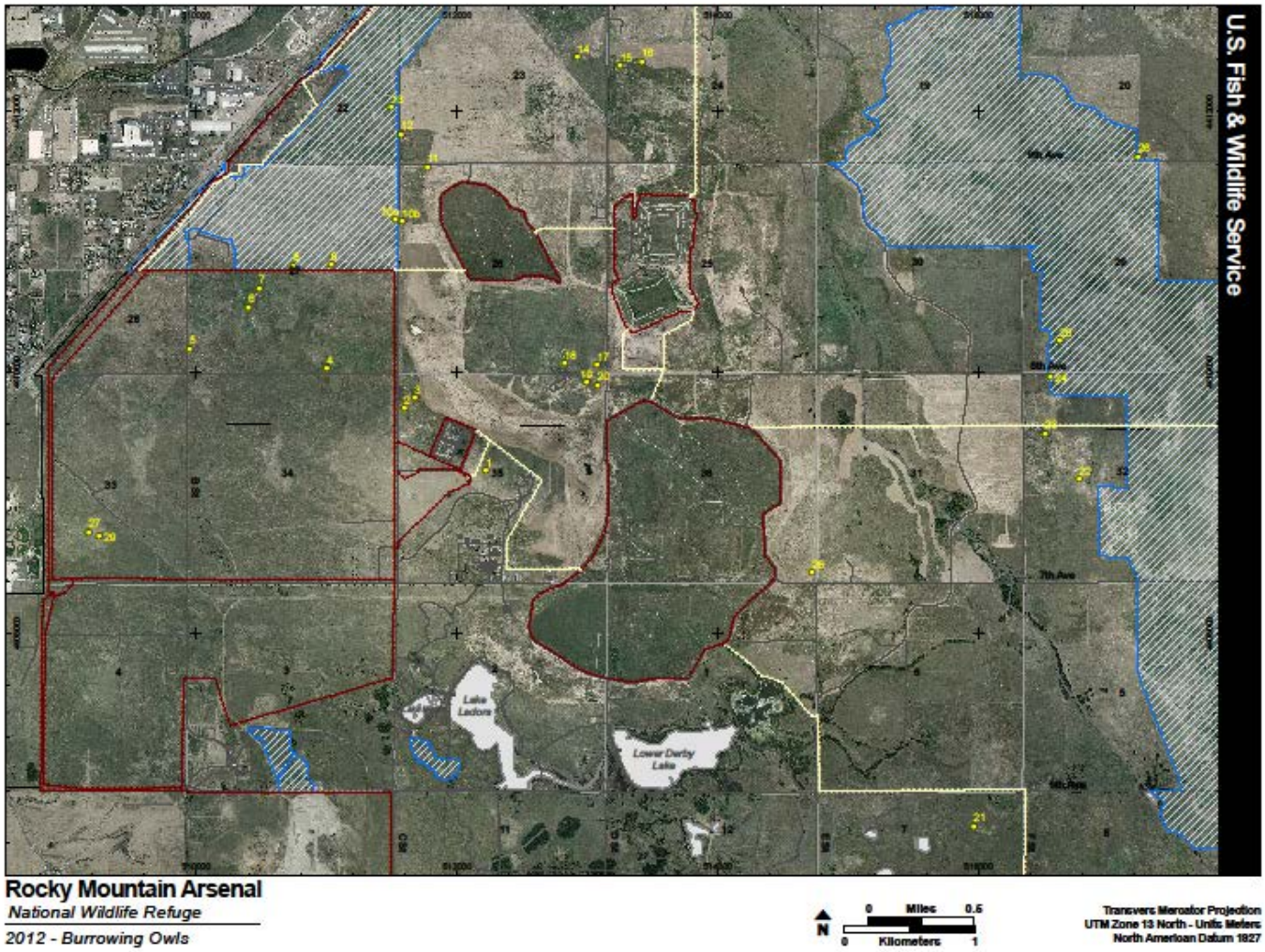

Figure B.4.2. FY 2012 RMA raptor nest locations, RMANWR.

No contracted cleanup projects significantly impacted raptors during the breeding season. An osprey was seen around the lakes in April and a new Swainson's hawk nest site at B Street and 7th Avenue fledged young that were occasionally in the intersection. A dead great horned owl was reported west of D Street in Section 26 on June 29th. It was a fledgling that appeared to have hit the telephone wire (Figure B.4.3).

After raptors, other nesting bird species were the most frequently impacted by cleanup and restoration activities. The only ground nesting bird reported was a killdeer (*Charadrius vociferus*) on the ICS road, which did not complete its clutch despite the flagging placed around the nest site. Bird nests found in or on equipment were primarily American robins, and a Northern flicker started a nest in the side of trailer Z-87 but moved to Z-92 when metal flashing was placed over the first. (Figure B.4.4).

Incidents involving mammals varied, but were not numerous in FY 2012. A mule deer fawn with a broken leg was reported near irrigation pipes in July, and a dead coyote, cause of death unknown, was reported on the ice near the Lake Ladora pump house in March. USFWS did a health sampling of deer in November 2011, but did not dispatch any animals on the ICS or Basin F.

Table B.4.1 summarizes wildlife vehicle encounters in August and September, when RMANWR was closed to the public for completion of a Phase II Cleanup Operation/Lime Basin Remediation Project. During this time, routes traveled by contractors in the southwest corner of the ICS were checked each weekday morning for any wildlife impacts. The routes observed included 7th Avenue between the west gate and the ICS entrance, and C Street between the south gate and 7th Avenue. It is not certain that vehicles driven along the route traversed by contractors would have a negative or significant impact on wildlife, however due to the cleanup work occurring primarily at night, during periods of limited visibility, the chances of vehicle-wildlife impacts could have increased. Three animal carcasses were observed and removed from routes at the following locations:

Date	Species	Location	Cause	Disposition
8/22/12	Cotton-tailed Rabbit	7th Ave by West Gate	Vehicle Impact	Removed from road surface into adjacent habitat
8/24/12	Juvenile Rattle snake	7th Ave near Admin Area (35SC east of the west parking lot entrance)	Vehicle Impact	Removed from road surface into adjacent habitat
8/27/12	Western Hog-nosed Snake	7th Ave and C St intersection	Vehicle Impact	Removed from road surface into adjacent habitat

Table B.4.1. Wildlife-vehicle encounters during August and September FY 2012 Phase II cleanup operations, RMANWR.

The final wildlife conflict involved an inanimate object, a balloon caught in a tree on the north side of Lower Derby (Figure B.4.5) in October 2011. It was not impacting nesting birds, but could have been a hazard for migrating waterfowl and roosting eagles. It eventually broke free.

Figure B.4.3. Dead Great Horned Owl. FY 2012, RMANWR

Figure B.4.4. Northern Flicker Nest. FY 2012, RMANWR.

Figure B.4.5. Balloon in trees. FY 2012, RMANWR.

B.5. Implementation of Bald Eagle Management Area Provisions to Ensure Protection of Federally Listed Species during Remediation Activities

Bald eagles have utilized parts of the Rocky Mountain Arsenal as a winter communal roost since at least 1986. The Bald Eagle Management Area (BEMA) was established by USFWS for the Army in the early 1990's to allow clean up to continue while minimizing disturbance to loafing, feeding and roosting eagles. In FY 2008, the boundaries of the BEMA were reduced to the winter roost itself in southeast Section 1 (Figure B.5.a.1). Eagle roosting was not affected, so the restricted area remained the same in FY 2012. Survey results are summarized in B.5.a.2.

In addition to the protection provided to wintering bald eagles by BEMA, a second exclusion zone was established to create a half mile buffer surrounding the Bald Eagle Nest Area (BENA) located in northwest Section 5. Restricted access is enforced from November 15 through July 31, adhering to federal and state guidelines. In FY 2012, the adult pair fledged two eaglets. Nesting activity is summarized in table B.5.b.1.

B.5.a. Bald Eagle Roost Counts

BEMA is implemented annually from October 15 to April 15. Roost counts from 1986 through 1999 were conducted every other night but were reduced to three times a week in 2000. Since 2002, roost counts have been done once a week in October and November and twice a week from December through April.

Specific single night roost count data from RMA have been incorporated into two inclusive cooperative surveys, the Urban Denver Christmas bird count (January 1) coordinated by the Audubon Society and the Bald Eagle Midwinter Survey (the second Friday or Saturday of January) organized by the state natural resource agency, Colorado Parks and Wildlife (CPW). In FY12, total eagles on Jan 1 (38), was the fourth highest since peaks have been recorded. The CPW did not conduct the midwinter-survey in FY 2012. The patterns of eagle use at the refuge roost for these two specific count dates compared to the annual peaks for 1998-2010 are depicted in Figure B.5.a.1.

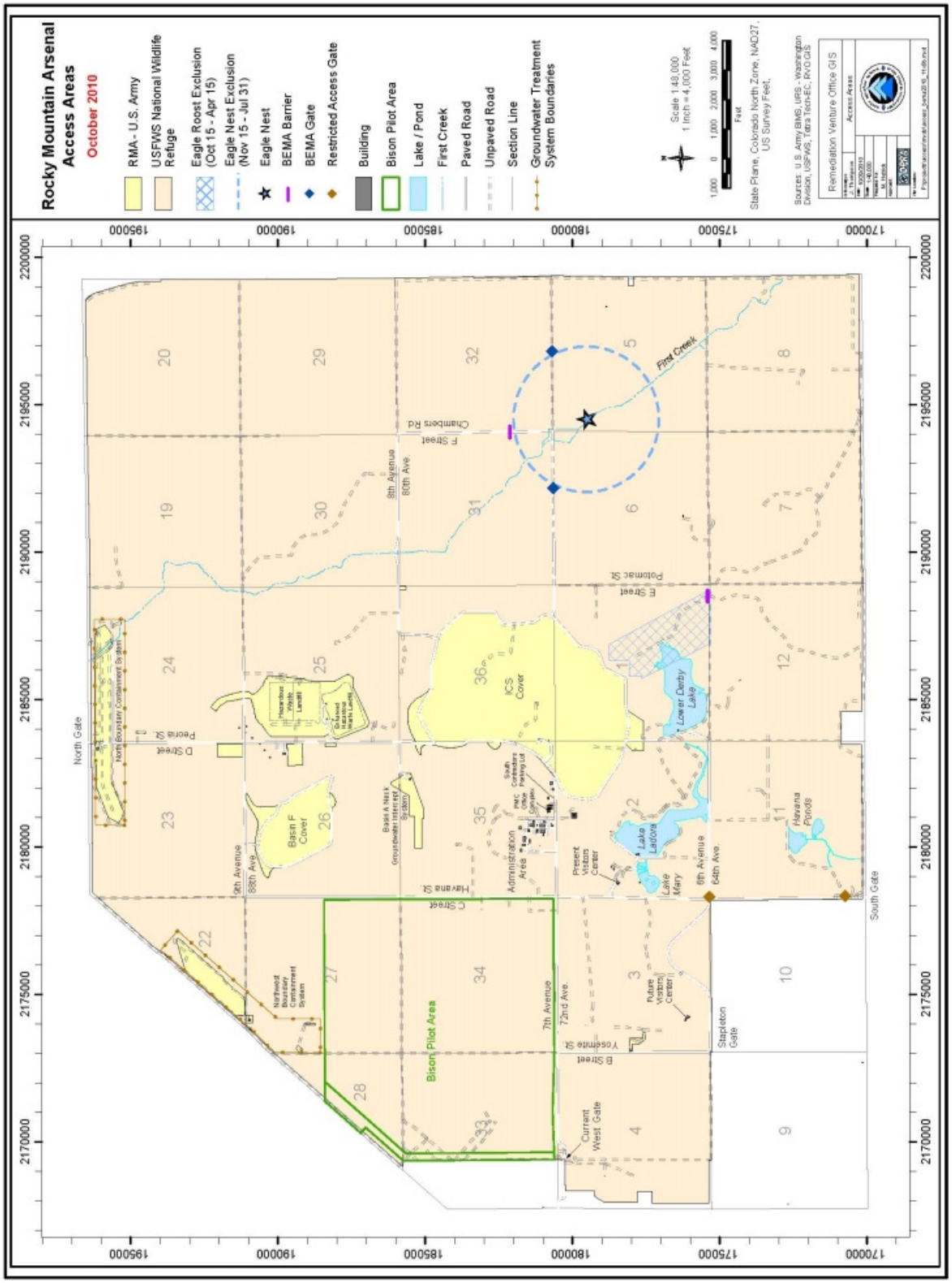

Figure B.5.a.1. Location of management zones for nesting and wintering bald eagles in FY 2012, RMANWR.

The highest number of eagles observed on a single roost count occurred in 1998 (82) with a progressive decline through 2003, followed by a small peak in 2005 and the lowest count in the series occurring in 2008 (12). The highest count of the FY 2012 season for a single night (50) occurred on January 23, with the second highest count (43) occurring on Feb 14. The highest average roost occupation over a two-week period (37.8, n=5) occurred in the second part of January, with the second highest average (34.6, n=5) in the first half of January (Figure B.5.a.2). This was comparable to FY 2011. Furthermore, roost numbers averaged above 30 from the first of December through mid-February. No noticeable pattern occurred among adults and subadults throughout the survey and no banded eagles were observed either at the nighttime roost or on the refuge during daylight hours (Figure B.5.a.3). Roost count data was not requested from local state biologists in FY 2012.

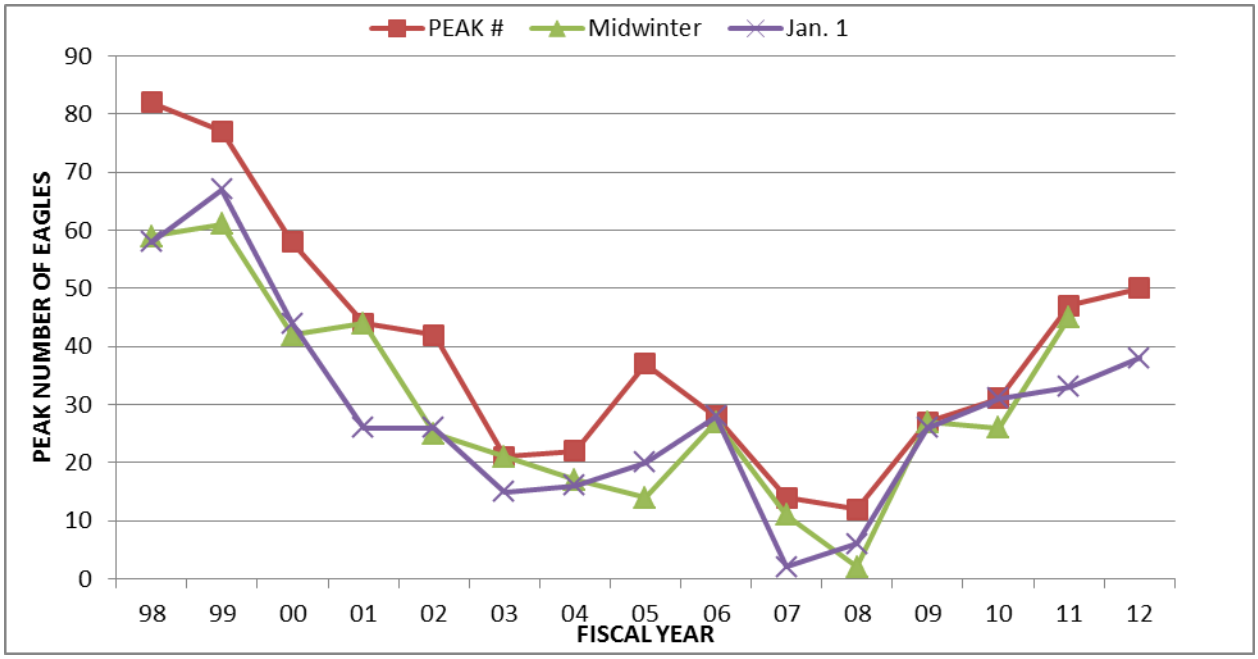

Figure B.5.a.2 Bald eagle roost counts on the Rocky Mountain Arsenal representing peak numbers and two counts in January, for the period, 1998-2012, RMANWR.

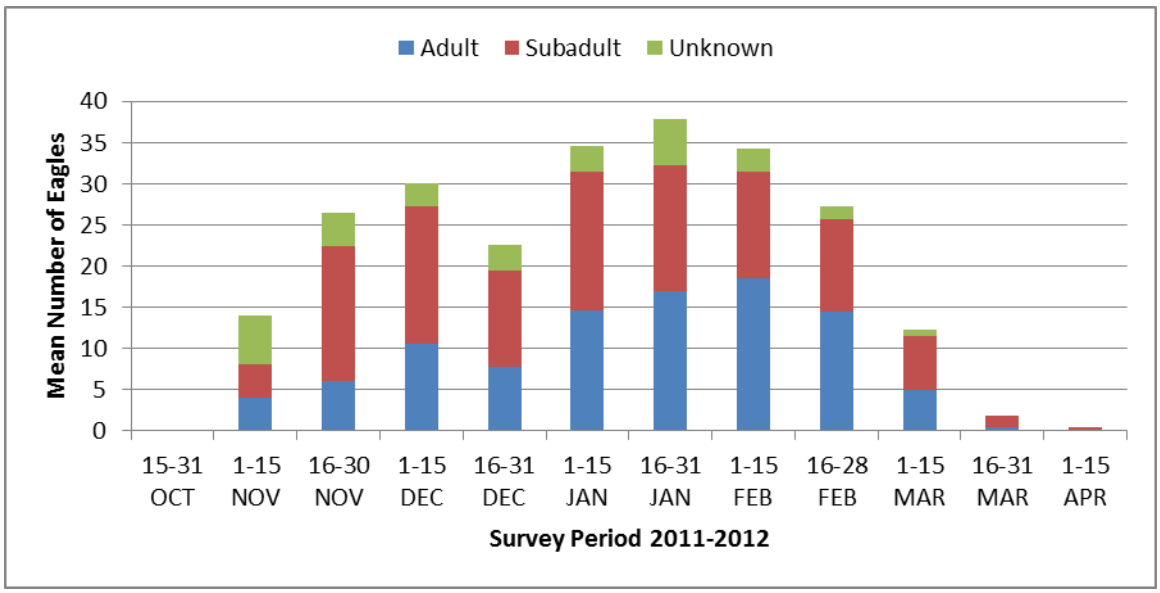

Figure B.5.a.3. Mean numbers of adult and sub adult bald eagles at the communal roost on the Rocky Mountain Arsenal NWR from October 2011 through April 2012, RMANWR.

B.5.b. Bald Eagle Nesting Activity

The adult eagle pair periodically visited their nesting territory in November and December 2011, but typically joined other bald eagles at the nighttime roost through mid-January. On January 20th and 31st, the pair was seen during the day at the nest adding material, with incubation recorded February 21st. Brooding was indicated on March 29th and feeding of one chick was observed on April 2nd with a second chick becoming visible on April 4th. Both nestlings, a male and a female, had fledged by June 23rd. By the end of July, the male was observed around First Creek in southeast Section 31, while the female was seen on the east perimeter and western Section 20 perched on the telephone poles. On August 1st, the male was captured, unable to fly, on the bridge guardrail of First Creek. He was taken to the Birds of Prey rehabilitation facility where he died on August 8th due to West Nile virus. First Creek had been reduced to a few stagnant pools, ideal breeding areas for the mosquitoes which are the vector for this virus.

The refuge eagle pair has successfully hatched 18 eggs (M=1.6 per attempt), and fledged fifteen eaglets (M=1.3) in eleven years (Table B.5.1). Typically, a new pair will only lay one egg the first year (2002 for this pair) and then produce two or possibly three, each year thereafter. In 2005, the two adults did not appear to be the original (i.e. new to each other as mates), and appeared to hatch only one egg. The cause of the single hatch/fledge in 2008 was not apparent, as it was for the weather-related single fledges in 2003, 2007 and 2009. The single hatch/fledge in 2011 may have resulted from nearby human disturbance (road building and heavy traffic), or natural disruptions (chasing other eagles from the nest). Known deaths after fledging occurred in 2005 from electrocution, and 2012 from West Nile virus.

Year	Nest Attention	Incubation Observed	Hatch Date	Hatch Total	Fledge Date	Fledge Total	Color Bands	Comments
2002	Unknown	Feb 23	Apr 6	1	Jun 24 – Jul 11	1		
2003	Unknown	Mar 3	Apr 7	2	Jul 2 – 7	1		Only 1 chick after May 10 storm
2004	Feb 9 – Feb 23	Feb 23	Mar 30	2	Jun 22	2	Red BM, BO	
2005	Jan 25 – Feb	Feb 19	Mar 27	1	Jun 20 – 27	1*	Red CP	*Found dead Jul 7
2006	Nov 2005 – Feb 13	Feb 15	Mar 20	2	Jun 15 – 26	2		
2007	Feb 9 – 14	Feb 20	Mar 27	2	Jun 18	1		Only 1 chick after Apr 24 storm
2008	Jan – Feb 19	Feb 21	Mar 28	1	Jun 12	1		
2009	Jan 15– Feb 18	Feb 19	Mar 30	2	Jun 24	1		Only 1 chick after Apr 21 storm
2010	Unknown	Feb 22	Mar 29	2	Jun	2		
2011	Feb 7 - 25	Mar 3	Apr 7	1	Jun 30	1		
2012	Jan 31 –Feb 17	Feb 21	Mar 28	2	Jun 16	2*		*Male chick died from WNV Aug 8
TOTAL				**18**		**15**		

Table B.5.b.1 Summary information for the bald eagle nest, 2002 -2012, RMANWR.

B.6. Program Management and Supervision and Service Input to RMA Committee and Council

B.6.a. Remedy Coordination Activities

RVO Support Activities/Water management

The Refuge Remedy Coordinator (RC) provided technical and program management support to the Remediation Venture Office (RVO) as a member of the RMA Management Team to help coordinate all ongoing activities at RMA. The RC also provided RVO support as the immediate supervisor for the Refuge Health and Safety Officer who functioned as a member of the RVO Health and Safety Office (See section B.7, below). In addition, the RC participated with RVO senior managers as a member of the Award Fee Board (AFB) to evaluate the performance of the PMC in executing the RMA Remedy while protecting the RMA Refuge, during semi-annual appraisal periods.

Another RVO support function tasked to the RC was contact and communication with the PMC's Refuge Protection Coordinator and RVO and PMC Project Engineers to review and resolve ongoing remedy activities with potential adverse effects on wildlife and habitats, Refuge operations, Refuge visitors, or nearby communities in neighboring jurisdictions (e.g. Commerce City, DIA, Stapleton Development Corporation, City and County of Denver). A majority of these contacts during FY 2012 were related to issues affecting the Integrated Cover System (ICS), Basin F Cover System (BFCS), Hazardous Waste Landfill (HWL), and the Enhanced Landfill (ELF) as well as energy and water issues affecting the refuge.

The ***2009 RMA Surface Water Management Plan*** continued to be implemented by refuge personnel. By executing this plan, fully adequate water supplies to meet all water demands for construction needs plus irrigation water to support restoration of native short-grass and mixed-grass prairie on the refuge were achieved. In addition, Denver Water began to deliver Recycled Water to RMA under the Permanent Water provisions of the *2008 Nonpotable Water Lease Agreement for RMA* (2008 Agreement). The U.S. (Army and the Service) has a perpetual contract right with the Denver Water Board (DWB) for up to 700 acre-feet per year of Recycled Water beginning in October of 2011 when recycled water delivery to RMA became available from a Denver Water main pipeline (Conduit 302) that was constructed along 56th Avenue. This replaced the availability of up to 800 acre-feet of Denver Treated Water (tapwater) for dechlorination and discharge into Lake Ladora that was terminated under the 2008 Agreement. There were 2 taps completed by the end of October 2011 (FY 2012).

The RC also provided coordination between the RVO and the PMC on operation of the Section 4 Groundwater Production Wells, the operation of inflows and outflows to and from the RMA lakes (Ladora, Lower Derby and Mary), and monthly water accounting reports to the Colorado State Engineer required by the Substitute Water Supply Plan for the Section 4 wells. Proper augmentation water delivery to the South Platte River to make up for depletion of the river caused by pumping tributary groundwater from the wells was also coordinated. In addition, monthly reports were sent to the Denver Water Billing Department on volumes of Denver Treated Water (potable water) used at RMA for nonpotable purposes, to ensure accurate billing by Denver Water to the U.S. Army for Treated Water consumed at RMA.

The Highline Canal Lateral was also an important project in FY 2012. The right of way for the canal was transferred from the Army to the USFWS, and it was later decided that the USFWS would relinquish the right of way.

Another RVO support function provided by the RC was RVO coordination on final transfer of administrative jurisdiction for the dams at RMA from the U.S. Army to the U.S. Fish and Wildlife Service. An issue that was discussed was the potential breaching of Upper Derby dam where a portion of that structure would remain. The engineering details of this are still being discussed so no timetable has been established. The RC also continued coordination with the Urban Drainage and Flood Control District (UDFCD) and the City and County of Denver (CCD)

on their plans to rehabilitate the embankment of the Havana Ponds Dam. Jurisdiction for this dam was transferred to the Service by the Army in 2004. UDFCD and CCD have joint responsibility for perpetual maintenance of this dam to meet Colorado Safety of Existing Dams standards under provisions of a 2007 Inter-Governmental Agreement for Irondale Gulch Stormwater Management between these entities and the Service.

A final RC support function for the RVO was coordinating the transition of RMA infrastructure currently owned and operated by the U.S. Army, to its' "final" state under an RMA future with limited operation and maintenance funding. During FY 2012, this transition continued to focus on assisting the RVO and the PMC to flesh out details of an RMA Utilities and Infrastructure Improvement Plan (UIIP) tasked to the PMC in spring 2009. The UIIP addresses RMA utilities and related infrastructure including potable water, electrical distribution, sewerage, natural gas supply, communications and buildings and grounds.

The potential for Xcel Energy to remove the substation at the south end of the Arsenal and replace it with underground electrical lines was discussed in detail in FY 2012. This is currently under review in the U.S. Fish and Wildlife Service Region 6 office and no further details have been released.

B.7. Management RMA Health and Safety Program Support

B.7.a RVO Health and Safety Office Participation

In FY 2012, the U.S. Army continued funding to the RMANWR for a full-time Refuge Safety Officer (RSO) position to participate as a partner in support of the RVO Health and Safety Office (HSO) with counterparts from the Army and Shell Oil Company (represented by URS). The HSO is a team tasked with leading and promoting a safety culture at RMA where safety is everyone's responsibility. The HSO team provided continued support in 2011 for the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program (VPP) Star status recognition of RMA safety programs of the U.S. Army, URS, and Tetra Tech EC, Inc. (PMC). Participation by the RSO in the HSO partnership contributed directly to the VPP achievements by all RMA organizations in 2012 by promoting worker commitment to increased Zero Incident Performance site wide.

As part of HSO responsibilities, the RSO participated in organizing and leading a number of activities including RVO Safety Steering Committee Meetings, RVO Senior Management Team Safety Walks, RMA Safety Incident Review Committee Meetings, periodic RVO health and safety inspections of RMA facilities and operations, and HSO preparations for periodic RCRA inspections of RMA by the State of Colorado. The RSO also participated in quarterly meetings with the Army Program Management Contractor on safety programs sponsored by the PMC and in weekly RMA Management Team Meetings sponsored by the RVO Senior Management Group. The RSO effectively performed daily coordination and communication among all HSO counterparts and safety professionals site-wide. The RSO also assisted HSO counterparts in

preparing monthly and semi-annual safety performance evaluations as a safety technical representative for the PMC and related monthly and semi-annual reports for each Award Fee Appraisal Period in FY 2012.

B.7.b Specific Safety Program Activities

To promote a safety culture among RMA Refuge staff, the RSO coordinated the distribution and periodic updates for health and safety information provided to Refuge staff electronically (email) or with hardcopy, as well as health and safety information posted on Refuge bulletin boards. The RSO also provided daily safety topics to staff members as part of safety awareness and also assisted Refuge supervisors and Refuge staff in updating Job Hazard Analyses (JHA's) when needed for common and recurring jobs or tasks performed on the Refuge. All JHA's were consistent with the format and content requirements contained in the Service Manual. JHA's provide an important basis for job hazard review during Tailgate Safety Meetings required at the beginning of each work day for all Refuge activities and operations. The RSO also participated in numerous PMC and Refuge Tailgate Safety Meetings during FY 2012.

Occupational Safety and Health training for Refuge staff was critical in maintaining an effective safety culture. As a result, the RSO, with other site-wide agencies, organized a wide range of safety training for Refuge staff during FY 2012. The Refuge had certification or recertification training requirements for refuge personnel in CPR, First Aid, AED, and hazard Communications and RCRA Waste Management training for Refuge personnel handling or managing hazardous wastes. The RSO coordinated annual fire extinguisher refresher training, and coordinated with supervisors and Region 6 trainers on refresher training for Refuge staff operating heavy equipment, small motorized vehicles (four wheelers) and power tools (e.g. chainsaws).

The RSO contracted with an outside medical agency to administer annual influenza vaccinations for Refuge and Army personnel at no cost to interested employees. The RSO was also prepared to coordinate appropriate diagnostic and medical treatment for any Refuge personnel injured on the job or exposed to hazardous materials or environmental hazards such as blood borne or vector borne pathogens, including disease agents transmissible from wildlife to humans. The RSO was also prepared to assist Refuge personnel in filing and processing valid Workman's Compensation Claims with the U.S. Department of Labor in coordination with the U.S. Department of the Interior.

During Calendar Year 2012, Refuge staff logged 33,530 RMA Remedy-related work hours with **zero** recordable injury cases and **zero** days away from work cases. These results were incorporated into the overall safety and occupational health statistics reported by the RVO for the entire RMA Remedy workforce.

B.7.c Other RSO Responsibilities/Activities

The RSO served as a Refuge point of contact and approval and had the responsibility for overall coordination of and safety compliance by third parties proposing work on RMA. This includes work for the Refuge, the National Wildlife and Eagle Repository, utilities operation and maintenance on Refuge facilities or lands, and work proposed on RMA within an easement granted to outside organizations for utilities, transportation, drainage or other purposes.

The RSO served as a member of the RVO Site-wide Infrastructure Transition Team to help coordinate ongoing and future management of all RMA infrastructure assets such as structures, roads, utilities, dams, etc. The Refuge Safety Officer's institutional knowledge and diverse experience with RMA infrastructure has been invaluable to the Infrastructure Transition Team in resolving the transition of RMA infrastructure from an Army owned site to a National Wildlife Refuge. In FY 2012, the number and complexity of infrastructure and utility-related transition issues handled by the Infrastructure Team increased significantly because the RMA Remedy projects were nearing completion and RMA Refuge jurisdiction and responsibilities were increasing.

The RSO was also responsible for the overall management and staffing of the south gate entrance point with personnel from the Service and Army to RMA during normal workdays and special events. The purpose was to maintain a secure access control point for authorized visitors during the final stages of Army remedy related projects.

A final responsibility of the RSO is to provide technical and program evaluation of the PMC's performance under Category 8 Refuge Protection of the Incentive Award Fee Plan, serving as a Contracting Officer's Technical Representative (TR) to the U.S. Army's Contracting Officer. In this role, the RSO prepares monthly and semi-annual reports of the PMC's performance under three subcategories of Refuge Protection including Natural Resource Sensitivity, Activities Coordination/Environmental Protection, and Public Access Coordination. The RSO also attends monthly RVO TR Meetings to review PMC progress in achieving overall award fee objectives jointly developed with the RVO. During FY 2012, the RSO completed all monthly and semi-annual TR reports on time and participated in all TR meetings.

B.8. Participation in RVO Teams Working on Issues of Mutual Concern

B.8.b. Rocky Mountain Arsenal Cultural Resources Management Team

The Rocky Mountain Arsenal National Wildlife Refuge (Refuge) actively participated in periodic meetings and related actions of the Cultural Resources Management Team (CRMT) to assure site-wide Remediation Venture Office compliance with provisions of the National Historic Preservation Act (NHPA), the Antiquities Act, the Native American Graves Protection and Repatriation Act, and related Federal regulations. U.S. Fish and Wildlife Service (Service) representation on the CRMT included a regular team of members from the Habitat section and the Deputy Refuge Manager. CRMT activities during FY 2012 focused on continued

implementation of the RMA Integrated Cultural Resources Management Plan (ICRMP) developed in 1994 and subsequently approved by the Colorado State Historic Preservation Officer (SHPO). The CRMT continued to manage curation of significant cultural resources recovered from South Plants, North Plants, Building 111 and other Refuge sites.

In 2012, the CRMT continued work started in 2008 on a plan to stabilize and restore the historic Egli house, which will ultimately be used to provide historical interpretation of the Egli family farm for Refuge visitors. Friends of the Front Range Refuges received funds from Shell and submitted a grant proposal for additional support to the Colorado State Historical Fund for repair and restoration of the roof (the grant application is currently under review).

Due to conscientious attention to detail and solid follow-through by the CRMT in regular reporting to the SHPO of cultural resource finds at the Refuge, the Refuge remedy experienced a record-setting **zero work delays** related to cultural resource finds at remedy work sites. Based on the scale and distribution (horizontal and vertical) of Refuge sites necessarily disturbed by the remedy project, this track record of zero work stoppage has set a record for others to follow at other construction projects.

Cultural Resource Activities – U.S. Fish and Wildlife Service

During the period of 1 October 2011 – 30 September 2012, compliance with the *National Historic Preservation Act of 1966* (NHPA) was achieved primarily by management of the Refuge under the provisions of a Programmatic Agreement (PA) with the Advisory Council on Historic Preservation (ACHP), which was originally signed in November 1998. During FY 2012, the U.S. Army terminated the PA, reflecting completion of the environmental cleanup of RMA and the transfer of lands to the U.S. Department of Interior. Beginning in FY 2013, the U.S. Fish and Wildlife Service will comply directly with the NHPA without the PA, which is no longer necessary for efficient compliance and management of cultural resources.

In May 2012, the final annual report was prepared for the ACHP and the Colorado SHPO on implementation of the terms of the existing PA during the preceding 12-month period, as required by the PA. The terms of the PA were implemented in accordance with an ICRMP, which was originally prepared in October 1999. Throughout FY 2012, a revised ICRMP (approved during FY 2007) was consulted for cultural resources management at the Refuge.

Annual monitoring of historic properties found on the Refuge is in accordance with a stipulation in the PA (in the case of the prehistoric sites) and a separate Memoranda of Agreement (MOA) with the Colorado SHPO (in the case of the other properties) by a person or persons meeting at a minimum the *Secretary of the Interior's Professional Qualifications Standards* for archaeologists. The May 2012 field monitoring included:

5AM.185 (T2S R66W, Section 19 NW ¼): This site is located on the crest of Henderson Hill and contains at least two buried prehistoric components (Middle Archaic and Middle Ceramic periods).

5AM.185 occupies an estimated area of 7.45 acres. In 1997, impacts to 5AM.185 caused by past gravel quarrying, road construction, vehicle operation, and unauthorized collection of artifacts were reported to the Colorado SHPO. However, restriction of access and activities at the site since 1998 has eliminated these impacts, and permitted revegetation of most formerly exposed surfaces. During the FY 2012 monitoring visit, it was observed that the site remains in improved and stable condition.

5AM.718 (T2S R66W, Section 20 NE ¼): This site is located on an unnamed hill over-looking Second Creek, and contains at least two buried prehistoric components (Archaic and Ceramic periods). The site occupies an estimated area of more than 8 acres (new areas of the site were mapped in 2003 and reported to the Colorado SHPO). In 1997, impacts caused by road construction on the eastern margin of the site were reported to the Colorado SHPO. The scarcity of artifacts observed here during monitoring visits conducted over the years since 2000 indicate that the 1997 assessment that the site had been subject to significant damage may have been incorrect. During the FY 2012 monitoring visit, no artifacts were observed eroding out of the slope on the east margin of the site, which is in good and stable condition.

5AM.1463 (T2S, R66W, Section 19 SE ¼): This site contains three buried concrete vaults constructed by the U.S. Air Force during the 1960s, reportedly for monitoring of foreign nuclear tests. The vaults are arranged in an extended triangle that occupies an area of roughly 0.2 acres. Each vault is cylindrical in form and measures approximately 5 ft. in diameter and 5 ½ feet in depth from the surface. In 2000, the vault complex was determined eligible for the NRHP in consultation with the Colorado SHPO, and a MOA was established for their treatment. The PMRMA placed a protective cover over the entrance of each vault in 2004.

5AM.1145 (T3S, R67W, Section 2 NW ¼,): This site contains the Egli house and garage. The site was re-evaluated for NRHP eligibility by the PMRMA in January 2001. The Colorado SHPO concurred with the determination that the site was eligible for inclusion in the NRHP on the basis of criterion A of 36 CFR 60.4. In August 2002, the site was listed on the *Colorado State Register of Historic Properties*. The Egli house and garage are the only remaining pre-World War II buildings on RMA; they were constructed in 1910-1911 and inhabited by the Egli family until acquisition of property by the U.S. Army in 1942. In 2003, the Rocky Mountain Arsenal Wildlife Society undertook a historic structure assessment of the property with assistance from the PMRMA. The PMRMA signed an MOA in November 2005 for treatment of the Egli house and garage, which will be part of the Rocky Mountain Arsenal National Wildlife Refuge by the U.S. Fish and Wildlife Service.

5AM.1208 (T3S R66W, Section 6 SW ¼): This site contains the only remaining structure of the Munitions Storage Historic District, bunker Building 884. The roof was replaced in October 2010 with Army funds.

5AM.261 (T3S R66W, Section 7): This feature represents Lateral A of the High Line Canal, which has been determined eligible for the NRHP.

B.9. Direct Administrative Support of Service Staff

B.9.a. Narrative of Activities

Implementation of Business Team Units for Refuges in Region 6 began October 1, 2009 and continued through FY 2012. As in FY 2011, Ruby Rodriguez was assigned as a Time Keeper and HR Specialist and Annette Ursini was assigned as a Budget Specialist. Ruby assisted Rocky Mountain Arsenal, Arapaho, Browns Park, Flint Hills, Kirwin, Marais des Cygnes, and San Luis Valley. Annette Ursini was assigned budget duties for Rocky Mountain Arsenal and Arapaho NWR.

Administration:

- A planning team meeting was held in November 2011 to discuss priorities for the upcoming year.
- The HVAC system in the new Visitor Center is still not working; the warranty does not begin until the nsystem is working properly.
- A Property review was completed in August 2012.
- Fire employees assisted in burning the caps and covers for the U.S. Army
- The temporary 2%, decrease in the Social Security Employee Tax Rate that started in Calendar Year 2011 continued.
- The Federal Employee pay freeze continued for a second year. It was initially approved and implemented in January 2011.
- All employees received access to EOPF's
- STEP/SCEP students were converted to the new Pathways Program.

Training and Travel:

Scott Whiteaker and William Kutosky attended IPM training in Florida.
Jamie Port and Tom Ronning assisted with a bison roundup
Skip Palmer came to RMA to conduct ATV training
Sherry James went to NCTC
Mia Hannan attended a vegetation workshop
Mia Hannon returned to RMA for a detail to complete vegetation monitoring
Steve Berendzen attended AGO in Washington, D.C.
Bruce Hastings attended a Project Leader meeting
Zach Kincaid attended forensics and LE in-service and requalification training
Kayla Cable was detailed to a wildlife research team for two weeks
Annette Ursini, Ruby Rodriguez, Edward Tagliente, and Joel Colvin attended FBMS training

Personnel:

Barboza, David; Biological Science Tech, STEP; GS-404-4

Berendzen, Steve; Project Leader, Perm, GS-485-14; Transferred to Yukon Flats NWR 8/11/2012
Beres, Seth; Outdoor Recreation Planner; Perm, GS-023-9
Bland, Cassandra; Park Ranger, Perm, GS-025-7; Resigned 6/21/12
Bunker, Michael; Tractor Operator, Seasonal, WG-5705-5; transferred to BLM 10/22/11
Cable, Kayla; Park Ranger, STEP, promotion 3/25/12 to GS-404-4
Chambers, Lisa; Park Ranger, perm, GS-025-9
Colvin, Joel; Biological Science Technician, Term, GS-404-7 (moved to Administration)
Davis, John; Biological Science Technician, STEP, GS-404-5
D'Oench, Holly, Biological Science Technician, STEP, GS-404-4; EOD 3/11/12
Dommermuth, Emily; Park Ranger VS; STEP, GS-025-4; EOD 7/9/12
Drobniak, Susan; Park Ranger, Perm, GS-025-9
Duffy, Mathew; Range technician, seasonal, GS-455-5-; Resigned 10/2011
Dutton, Larry, Tractor Operator; seasonal, WG-5705-5; EOD 4/22/12; Resigned 8/10/2012
Fairchild, Brian; Biological Science technician, STEP, GS-404-5
Fallon, Jason; Supervisory Range Technician, Perm, GS-455-7; Transfer to BLM 11/19/11
Fallon, Jared; Tractor Operator, seasonal, WG-5705-5
Fernandez, Benjamin; Maintenance Worker, term, WG-4749-7; promotion on 4/8/12
Fernandez, Jesse; Tractor Operator, seasonal, WG-5705-5; promotion 5/20/12
Garcia, Ralph; Tractor Operator, seasonal, WG-5705-5
Graff, Kendra; Range Technician Fire, seasonal, GS-455-4; appointment expired 4/12/12
Hannan, Mia; Biological Science Technician, Term, GS-404-7; transfer to Sand Lake NWR 4/2/12
Hastings, Bruce; Deputy Refuge Manager, Perm, GS-485-13
Hetrick, Mindy; Fish and Wildlife Biologist, Perm, GS-401-11
Jackson, Tom; Supervisory Fish and Wildlife Biologist, Perm, GM-401-13; retired 7/13/12
James, Sherry; Supervisory Park Ranger, Perm, GS-025-12
Kalitowki, Edward Mark; Emergency hire; GS-0150-09; EOD 05/17/12; app.expired 07/2012
Kincaid, Zach; Land Management LE Officer, Perm, GL-025-9 (Title change 1/15/12)
Kircher, Jaclyn; Range Technician, seasonal, GS-455-5; EOD 4/29/12
Kirkpatrick, Nickolas; Laborer, STEP, WG-3502-3; Resigned 10/21/11
Kutosky, William; Biological Science technician, Term, GS-404-7
Lindgren, Kevin; Telecommunication Specialist, Perm, GS-391-11
Logan, Scott; Tractor Operator, seasonal, WG-5705-5; Resigned 11/2011
Park, Michael; Park Ranger, STEP, GS-025-3
Port, Jamie; Biological Science technician, seasonal, GS-404-7;
Quayle, Scott; Biological Science technician, seasonal, GS-404-5
Rodriguez, Ruby; Administrative Support Assistant, Perm; GS-303-7, rewrote position description 6/7/12
Ronning, Tom; Wildlife Refuge Specialist, perm, GS-485-11
Rosebush, Shannon, Biological Science Technician, seasonal, GS-404-4; EOD 6/3/12
Schnaderbeck, Alex; Park Ranger, STEP, GS-025-4; appointment expired 5/2012
Smith, Stephen; Highway Engineer; Perm, GS-810-12
Svoboda, Matthew, Range Technician, seasonal, GS-455-5; EOD 4/22/12
Stone, Brianna; Park Ranger, STEP, GS-025-3; Resigned 2012
Tagliente, Edward; Park Ranger, Perm, GS-025-7

Taylor, Jennifer; Fish and Wildlife Biologist (GIS), Term, GS-404-9; Resigned 3/22/12
Timpleton, Tony, Tractor Operator, seasonal, WG-5705-5; EOD 4/22/12
Turner, Seanacie; Park Ranger, STEP, GS-025-5; GS-025-5; Transferred to Sand Lake NWR 5/4/12
Ursini, Annette; Budget Analyst, Perm, GS-560-9; rewrote position description 6/12/12
Van Dreese, Melissa; Education Specialist, Perm, GS-1701-11
Whiteaker, Scott; Wildlife Refuge Specialist, Term, GS-485-9; promotion on 10/23/11
Wright, Abby; Park Ranger, STEP, GS-025-4
Wright, Terry; Supervisory Rangeland Management Specialist, Perm, GS-454-12; leave share
Young, Chris; Safety and Occupational Health Manager, Perm, GS-018-12

Property Received

1. 2012 Polaris Ranger UTV, 6x6; $15,593, procured in FY11; Trade in 1994 John Deere Gator.
2. Mid-States Steel Land Imprinter, $37,770 procured FY11.
3. NEC Television, Cart, and Cisco Camera & Microphone System for VC; F699818.
4. Sights System for Bushmaster Rifle; $275, Law Enforcement.
5. Computers, four Dell Laptops and three dell desktops, $7,750.
6. Mini-Striker Portable Pumps - 2
7. Glock 22 Pistol Firearm; 693683; Transferred from Quivera NWR
8. Glock 27 Pistol Firearm; 100457; Transferred from Quivera NWR
9. Remington 12 Gauge Shotgun Firearm; Transferred from Quivera NWR
10. Bushmaster AR-15 Rifle Firearm; Transferred from Quivera NWR
11. John Deere 1026R Tractor, with mower deck, snow blower, and sweeper attachments; Traded in John Deere F1145 Lawn Mower (F673359) and Hesston Manure Spreader (F675127)
12. Lasershot Simulator, laptop, projector, and rifles; Transfer from Regional Office

Property Deleted

1. Destroyed/recycled 19 pieces of office, Laboratory, & Shop equipment.
2. Recycled 12 Refrigerators and Freezers.
3. John Deere 5520 Tractor; Transferred to Charles M. Russell NWR.
4. Transferred 353 Pieces of Field Equipment, to numerous USFWS Offices around the country.
5. 2007 Dodge 2500 Extra cab Pickup; 693951; Transferred to Browns Park NWR.
6. Sold 11 pieces of Equipment through GSA Auctions.
7. 1994 John Deere Gator; 673358- Trade in on 2012 Polaris Ranger UTV, 6x6; F698804.
8. Trimble GPS Units, quantity 5; traded in on new Trimble GPS units.
9. Cell Phones, quantity 4; Donated to Charity.
10. Gibson Cement Mixer; transferred to Lee Metcalf NWR.
11. Dell Latitude Computers, quantity 4; Transferred to Regional Office for destruction.
12. Transferred 8 pieces of laboratory equipment, to GSA Site Sale.
13. Traded in John Deere F1145 Lawn Mower (F673359) and Hesston Manure Spreader (F675127), for John Deere 1026R Tractor, with mower deck, snow blower, and sweeper attachments; F699828.

Real Property and Project Accomplishments

1. Service personnel completed the installation of fencing and gates in the new bison pasture in Sections 3 and 4. Final cost is yet to be determined.
2. Service personnel installed a total of eight cattle guards at the following locations on the Refuge: 7th Avenue (2), B Street (1), C Street (3), D Street (1), and the Basin A landfill road (1). Total cost $104,728.57.
3. Denver Water Board completed installation of 3.2 miles of pipeline and the erection of a de-chlorination building to deliver non-potable water to the refuge. Estimated cost to the Service is $750,000. Who will operate the de-chlorination building and what the annual operating costs will be have not been determined as of yet.
4. Completed installation of mezzanines in Buildings 180 and 181 as well as translucent panels in Building 180, both projects were procured in FY 2011.
5. Service personnel completed the construction of an Amphitheater at the New Visitor Center. Cost for this structure was approximately $80,000.
6. Denver Urban Drainage completed the rehabilitation of the Havana Ponds Dam. The project included a new outlet structure and new rock rip rap of the dam. This project was done at no cost to the Service. The completed improvements will allow the dam to meet State of Colorado safety standards.
7. The Navy Sea Bees contributed their labor in the construction of a new information kiosk for the Auto Tour Route. Material cost for this project $11,919.00.
8. Blower motors were replaced on heating units in the Seasonal Room of Building 120 & at the Contact Station (south HVAC unit) at a total cost of $1530.95.
9. The following Real Property deletions or changes were made in 2012:
    - P/N 10058161: A portion of B Street between the new refuge entrance and 7th Avenue was deleted.
    - P/N 10059467, 10059468 & 10065608: Dirt roads that were upgraded to asphalt and assigned new asset numbers.
    - P/N 10024562: Metal fish screens were removed and transferred to Alchesay National Fisheries.
    - P/N 10053265: Kiosk located at Angler's Parking Lot was removed. This is one of four kiosks listed under this property number.
10. RMA achieved a recycling rate of 57.82%.
11. The U.S. Army transferred trailer Z80 to Dan Hogan, USFWS, Region 9.
12. The bunkhouses were shut down by the regulators due to regulatory uncertainty on the validity of confirmatory sampling conducted earlier in FY12.
13. Individual meters were installed on all buildings by Xcel for the U.S. Army.
14. The Romtec restrooms were flushed out by a professional company.

Funding:

- A new Cooperative Agreement was written and approved between the U.S. Army and FWS.
- This was the first year of funding from the NRDA fund that was established for the restoration of RMANWR.
- Received funding to support prairie dog trapping by the black-footed ferret recovery program; $7,500 from FF06E16000 and $15,000 from RD deferred fund FF06G00000.

Ferret Funding (live trapped prairie dogs from RMA for the ferret center) Regional Director Funds.

- Joined PCS Pool – Vice Steve Berendzen
- First year of FBMS new financial system

Regional Director	FF06G00000	FXHC11220600000	123	$15,000
Region 9 Transportation and Connectivity Trail	FF09R81000	FRRS269009RMA0	XXX	$350,000
NRDA funding for Restoration	FF06RRKM00	FVHC98220607060	XXX	$1,000,000
Remedy fund (Army reimbursable)	FF06RRKM00	FRRS48710660120	XXX	$500,000
Wildlife and Habitat Management	FF06RRKM00	FXRS12610600000	123	$524,260
$536,692; decrease $13,432 for PCS Pool and increase $1,000 for AGO				
Wildlife Business Team *Business Team members (Ruby Rodriguez and Annette Ursini) are funded separately at exactly the amount of salary/benefits and 33% MC. Funding occurs in 1261 and 1263 with the 67/33 split.	FF06RRKM00	FXRS1261066RBT0	XXX	$150,332
Annual Maintenance	FF06RRKM00	FXRS126206ANNM0	123	$ 41,396
Small Equipment	FF06RRKM00	FXRS126206SMEQ0	123	$ 32,600
Maintenance (Base)	FF06RRKM00	FXRS126206MAIN0	123	$188,917
Visitor Services $854,543; less $6,616 for PCS Pool	FF06RRKM00	FXRS12630600000	123	$847,927
Visitor Services Business Team	FF06RRKM00	FXRS1263066RBT0	123	$74,044
Law Enforcement	FF06RRKM00	FXRS12640600000	123	$119,526
Inventory and monitoring (RTND)	FF06RRKM00	FXRS1261066RIM0	123	$0
Invasive w/Volunteer Herbicide Tng	FF06RRKM00	FXRS1261066IWV0	123	$400
Invasive w/Vol. Rky. Flats EDRR /mapping	FF06RRKM00	FXRS1261066IWV0	123	$8,400
Small Equipment	FF06RRKM00	FXRS126206SMEQ0	123	$32,600
Youth-Groundwork Denver	FF06RRKM00	FXRS1263606YUTH0	123	$30,723
Youth-Mile Hgh Youth Corp	FF06RRKM00	FXRS1263066YUTH0	123	$24,800
Jr. Duck Stamp (CO)	FF06RRKM00	FXRS1263066JDK0	123	$3,750
Jr. Duck Stamp Migratory Bird (CO)	FF06RRKM00	FXMB4524066JDK0	XXX	$1,286
Floating Boardwalk Lake Ladora (carryover)	FF06RRKM00	FXRS262106EH300	XXX	$2,987
Revenue Sharing Special Use Permits	FF06RRKM00	FVRS686000C31P0	XXX	$900
Quarters	FF06RRKM00	FVRS86100600000	XXX	$1,328

Recycle Funds Monthly energy credit	FF06RRKM00	FXRS45570600000	XXX	$13,802
Renewable Energy Solar Energy Rebate	FF06RRKM00	FXRS45610600000	XXX	$116,480
Recycle Fund Monthly energy credit	FF06RRKM00	FXRS45620600000	XXX	$1,274
Contributed Funds FY 2001 (Land Title Guaranty Co)	FF06RRKM00	FVRS72010605060	XXX	$2,688
Contributed Funds FY 2007 (Egli House)	FF06RRKM00	FVRS72010606770	XXX	$2,280
Contributed Funds FY 2005 (Commerce City)	FF06RRKM00	FVRS72010660000	XXX	$15,730
Contributed Funds RMA Wildlife Society-GO Wild	FF06RRKM00	FVRS72010660040	XXX	$741
Contributed Funds FY 2007 Bison Fence-Shell	FF06RRKM00	FVRS72010660070	XXX	$4,000
Recreation Fee	FF06RRKM00	FVRS80810600000	XXX	$10,702

Expenses:

Agair – herbicide spraying	$52,000
Ceavco – maintenance on audio at VC	$1,220
Building repairs and maintenance	$17,147
Bison Corral material	$8,986
Bison Fence material	$58,914
Bison/Deer health	$4,121
Copiers maintenance agreements	$4,427
Direct TV for Bunkhouses	$753
Dept. of Army –utilities	$15,000
Computers	$10,116
EE Supplies	$7,184
Fire Caps and Covers materials	$1,882
Live fish for lakes	$7,600
Texas Aglife	$10,000
Bee Hive maintenance	$650
Field supplies – all programs	$36,432
Fuel	$40,232
GPO rack cards/two ponds brochure	$4,211
GPS software maintenance	$2,916
Ground Work Denver	$30,723
Herbicide	$30,755
Hoot maintenance	$2,200
SWAN – internet service	$4,689
Volunteer reimbursement	$848
Janitorial Services	$36,834
Janitorial Supplies	$4,578

Jr. Duck Supplies	$5,000
Office Supplies	$8,713
OPM charges	$1,107
Mural for wall at VC	$2,700
Mile High Youth	$30,400
Physicals	$1,054
Repair equipment	$18,890
Romtec (clean and pump)	$2,122
Seed	$40,529
Sand Creek –agreement	$350,000
Signs	$5,291
Terminex	$2,330
Travel	$15,418
Training	$5,390
Uniforms	$8,129
USS – port a potty	$3,064
Vehicle repairs/maintenance	$24,337
Verizon cell phones	$3,228
Volunteer supplies	$6,141
Waste Management	$2,940
Xcel Energy	$12,120
Attachments for skid steer	$15,714
JD 1026R for VC	$13,971
Harrows (2)	$891

B.10. Provision of Installation Maintenance Support in Skilled Trades

B.10.a. Heavy Equipment Operations Support

In FY 2012, the U.S. Army provided funding to cover labor and equipment operation costs for RMA Refuge Operations support to maintain site-wide unpaved roads, including periodic grading to restore acceptable road surface and drainage conditions, snow removal necessary to provide RVO/PMC and Refuge access, and maintenance as needed to remove storm-caused debris and sediment from unpaved roadways. These maintenance projects included using the grader and backhoe for the construction of an oxbow in Section 31, removing debris from Section 23, and the removal of irrigation pipe over 8th and D Streets with the front end loader. Projects also included the removal and spreading of a pile of topsoil by the rod and gun club in Section 12 and the digging of a trench for the linear move irrigation equipment in Section 24. This totaled roughly 32 hours of time for refuge staff.

B.10.b. Site-wide Communications Support

The Refuge Telecommunications Specialist provided comprehensive voice, data, and 2-way radio communications support for all government and contactor organizations, facilities, and

personnel located at RMA in FY 2012. This support included the operation, maintenance, and management of RMA fiber optic and copper cable plants to support numerous data and voice networks. The Telecommunications Specialist is the U.S. Army Base Communications Contract COR for RMA and works on coordination/compliance with the U.S. Army Communications Directorate at Ft Huachuca, AZ. The Basecom contract option year was exercised which will be redone in March. The specialist performed all system administration for voice/voice mail required for office moves, personnel departures and new hires for all organizations at RMA.

A brief summary of telecommunications support provided during FY 2012 includes:

- Provided the Program Management Contractor/Tetratech with technical support in rerouting and re-splicing the fiber optic/data network to facilitate removal of trailers no longer required.
- Transferred T1 service from Building 112 to the computer center at Building 129 to allow USFWS network migration from the U.S. Army to an independent USFWS data network. Helped fiber connectivity to all USFWS buildings.
- Re-spliced Building 808 fiber and copper plants after removal of the South Gate guard shack.
- Added phone service to the new facility at Building 825, the Basin A neck water treatment plant.
- Assisted in locating RMA infrastructure for public utilities and prior to the installation of cattle guards in the new bison pasture.
- Provided a commercial line for ESPN for the fishing frenzy at the contact station.
- Provided briefings for the U.S. Army Program Manager to facilitate long term telecommunications planning.