

Ash Meadows National Wildlife Refuge Photo Monitoring Protocol



Photo Courtesy USFWS

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Ash Meadows National Wildlife Refuge**

Table of Contents

I.	Photo Monitoring Background	3
II.	Photo Monitoring Protocol Objectives	3
III.	Equipment	4
IV.	Methods	4
V.	Data Management	5
VI.	Site Photographs	5
VII.	Schedule	6
VIII.	Existing Sites	7
IX.	Future Sites	7
	Appendix A – Site Maps	9

I. Photo Monitoring Background

One of the primary tasks outlined in the Recovery Plan for Endangered and Threatened Species of Ash Meadows, Nevada (USFWS 1990) is the restoration of anthropogenically altered habitats, especially hydrology, in the Ash Meadows National Wildlife Refuge (AMNWR) boundary. Since 1997, AMNWR has been actively engaged in the restoration of numerous riparian areas and former agricultural fields. As a way to qualitatively document restoration activities in Ash Meadows National Wildlife Refuge (AMNWR), photo monitoring started at Kings Pool and Point of Rocks in 1997. Since then, permanent and ad-hoc photo monitoring points have been set up as restoration, and other management activities (e.g. prescribed fire), continued at other restoration sites such as Jackrabbit, Fairbanks, Big and Indian springs.

Photographs of management activities are useful for many reasons, including accomplishment reporting, permit reporting, (NDEP, Working in Waterways, etc.) and public outreach. Photographs also can be used to qualitatively and quantitatively assess landscape responses to management activities (Hall, 2002). For these reasons and others, it is important to standardize photo monitoring.

Because AMNWR has always had limited staffing and funding, photo monitoring has only occurred on a “as time permits” basis and proper management (labeling, metadata, etc.) of photographs was often disorganized. Additionally, existing photo sites were inconsistently marked and/or GPS’d and photos were taken without the use of a tripod, which leads to difficulty in repeat photographing due to differing angles and staff member height. Other factors such as the time photographs were taken (some early and some late in the day) also made it difficult to document changes in the environment because of shadows. In a few cases, old photo points needed to be re-established due to excessive vegetation growth or a marshland replacing dry land. Frederick Hall’s Photo Point Monitoring Handbook (2002) is a valuable resource, which was referenced in creating this protocol.

II. Photo Monitoring Protocol Objectives

The purpose of this document is to establish a standardized protocol for all photo monitoring sites in AMNWR, as well as to aid personnel in establishing new sites as the need arises.

III. Equipment

The following is needed in the field:

1. Olympus Stylus Tough 6020 digital camera
 2. Manfrotto MM394 monopod
 3. GPS unit for site location
 4. Site photograph packet as a reference guide
- *Optional: White and orange spray paint for post/pole maintenance

IV. Methods

Having one of the PowerPoint packets handy will make this section clearer.

There are two types of photo monitoring sites: normal and overview. Normal sites consist of a fence post marking the site with multiple orange-topped poles marking the actual photo points. Overview sites are only marked with a fence post; the photographer must align physical landscape features to take the photographs.

Normal Method-

Each site is marked with a white-topped, green fence post. Stream sites generally have two points, one upstream and one downstream. Other sites may have as few as one point or as many as four. Site markers are tagged with the site and number, while the photo points are marked with a number and direction on a metal tag.

1. Locate the white-topped fence post with the GPS unit.
2. Extend each section of the monopod fully.
3. Position the monopod on the right side of the fence post (facing north or upstream).
4. Using the bubble level, try to center the monopod.
5. If needed, adjust the tilt head on the monopod to roughly center the photo point.
6. Take at least two pictures of the photo point (in case of movement or other obstructions).
7. Repeat 4-6 for each additional photo point.

Overview Method-

Each site is marked with a white-topped, green fence post only. In order to take repeat photographs a copy of the original photograph must be brought with to help align the landscape.

1. Locate the white-topped fence post with the GPS unit.
2. With the original photograph in hand, align the landscape as close as possible with the original.
3. Take multiple photographs of each point

V. Data Management

Once downloaded from the camera, all photographs should be labeled as follows:

YYYYMMDD Site #a

Site – The abbreviation for where the photo was taken, all uppercase (i.e. JACK for Jackrabbit, PETERES for Peterson Reservoir, etc.)

#a – Refers to the site number and the photo point letter (n/s/e/w represent a compass direction, while u/d refer to up/downstream and r/l to the right or left of upstream)

For example: 20111231 FAIR 9u

Once relabeled the files should be moved to the appropriate site folder located under the Photo Monitoring folder (M:\Documents\Photos\Photo Monitoring). In various locations an archive folder may be found. The archive folder contains photographs that were taken prior to this protocol's establishment. These old photographs were either correlated to photo points currently in use or left with the old ID. All previous photographs have the tag (old) at the end of the filename.

VI. Site Photographs

A reference packet for each location has been created separately from this document. The following link is where a PowerPoint file can be found and printed for each location:

M:\Documents\Photos or Illustrations\Photo Monitoring

VI. Schedule

At a minimum, photographs are taken quarterly at each site between the times of 10:00am and 2:00pm. If the photographs will be used for environmental compliance reporting, it may be necessary to increase the frequency of photographs. The Refuge Manager will provide guidance. Ideally the sun should be overhead to reduce glare, adjustments to timing may be made depending on the season.

- 1st week of January
- 1st week of April
- 1st week of July
- 1st week of October

Time Allotment

The following is an estimated amount of time needed to complete monitoring at each site, based on the author's field experiences:

Fairbanks – 3-4 hours

Peterson – 1 hour

Indian – 1 hour

School – ½ hour

South Scruggs – 45 minutes

Rogers/Longstreet – 3 hours

Horseshoe Reservoir – 45 minutes

VII. Existing Sites

The following is an index of the number of current photo sites at each area:

- Upper Carson Slough: 3
- Fairbanks: 9
- Rogers: 3
- Longstreet: 5
- Roge/Long Outflow: 5
- Cold: 1
- Fair/Roge/Long Outflow: 3
- Peterson Reservoir: 5
- South Scruggs: 5
- Indian: 11
- School: 6

Total: 56

VIII. Future Sites

As restoration continues at Ash Meadows the creation of new photo points may be necessary. The number of points at each additional site is tricky; in general four directions should be used. But, if there is some obstruction or if a photograph in a particular direction wouldn't be useful (i.e. a photo point for a fire site that is facing the opposite direction of the actual area to be burned) fewer point should be used. The following describes a general protocol and equipment list to create new sites.

Equipment:

- Post pounder
- Fence post(s)
- 5' metal poles
- "Safety Orange" and White spray paint
- GPS unit
- 30'+ tape measure
- Monopod and camera
- Engraved metal tags

Procedure:

1. At the headquarters shop, prep as many fence posts and metal poles as needed by spray painting the tops the appropriate color
2. With the GPS unit, arrive at the new photo point and record the coordinates
3. Pound in the fence post deep enough that it is stable
4. Measure out 25' from the fence post in the direction(s) needed
5. Pound in the orange-topped metal pole 2' into the ground
6. Record the new photo point's coordinates on the GPS unit
7. In a field notebook record the distance from the fence post and height of metal pole*
8. Repeat steps 4 – 7 for each additional photo point

*Note: The metal poles may not be able to be driven 2' into the ground and the distances to the poles may need to be altered depending on vegetation. Be sure to record the distance and height of each point in a field notebook and GIS layer.

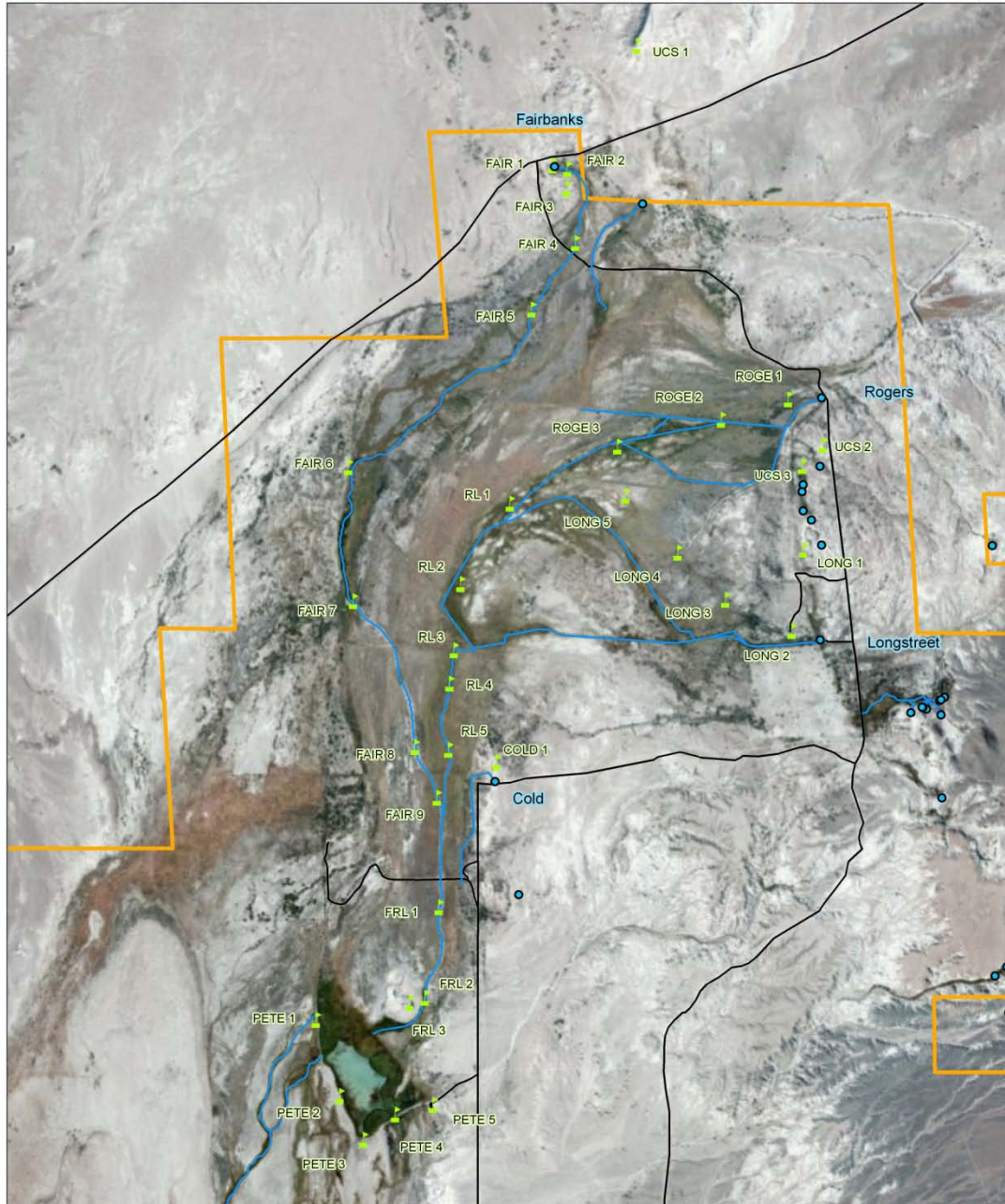
Appendix A – Site Maps



U.S. Fish & Wildlife Service

Ash Meadows National Wildlife Refuge
Nye County, Nevada

*Photo Monitoring:
Upper Carson Slough*



Legend

- Spring/Seep
- ▲ Photo Site
- Boundary
- Intermittent
- Perennial
- Road

0 0.25 0.5 1 Miles

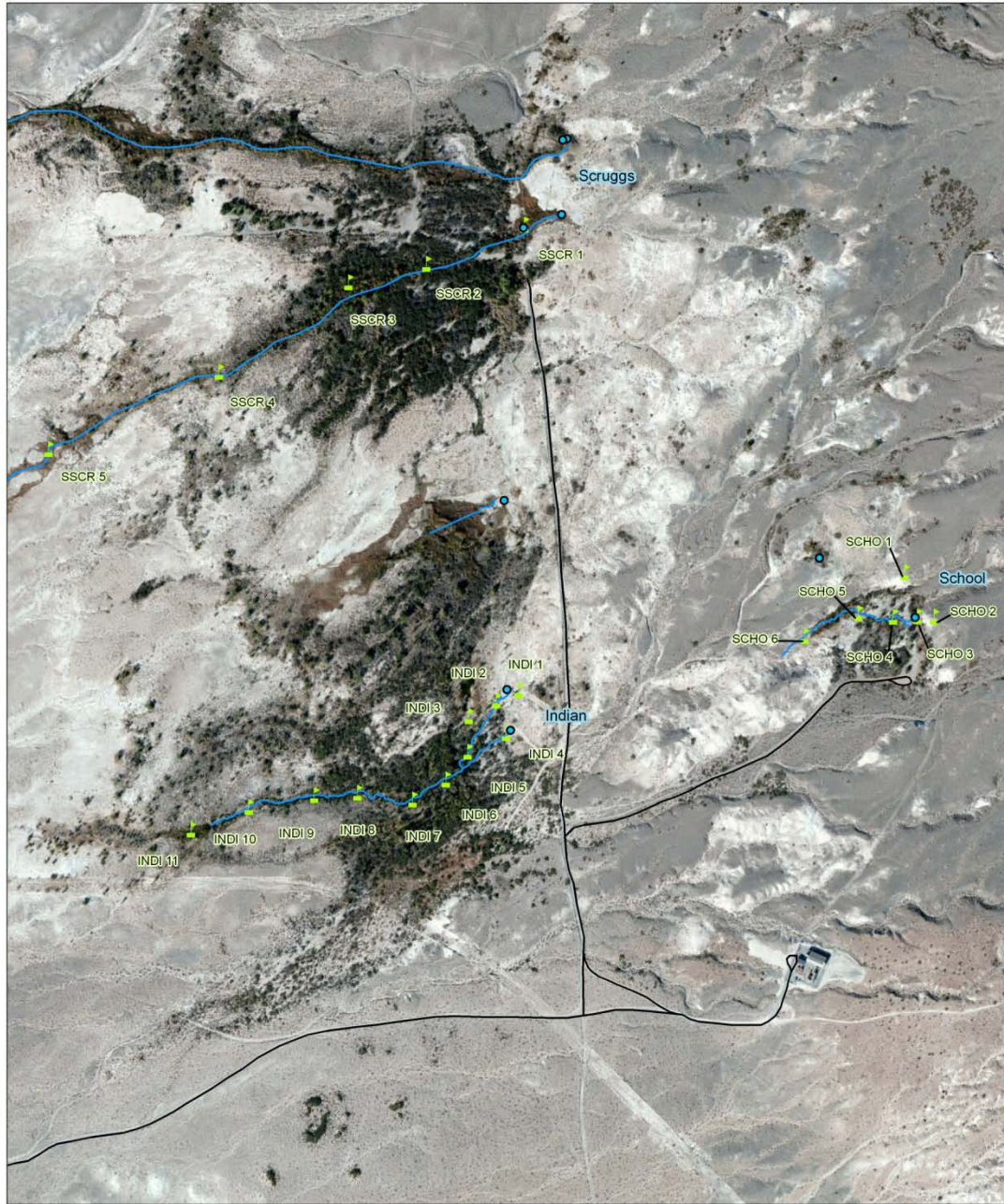




U.S. Fish & Wildlife Service

Ash Meadows National Wildlife Refuge
Nye County, Nevada

Photo Monitoring: Warm Springs Complex



Legend

- Spring/Seep
- Photo Site
- Boundary
- Intermittent
- Perennial
- Road

0 0.05 0.1 0.2 Miles

