Friends of theTonto National Forest's Riparian Photo Point Monitoring Program

Photo point Monitoring

Taking photographs of the landscape from the same location, at the same time of year, to document the changes that have taken place over time.

There are currently about 1,000 riparian photo point sites on the Tonto.

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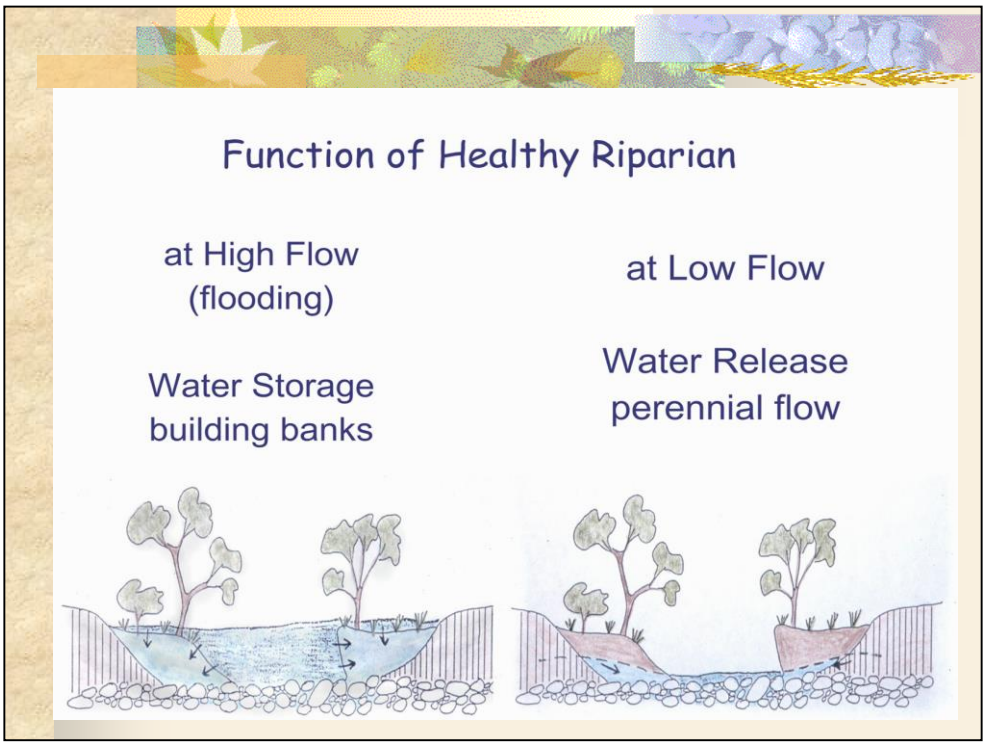
Why riparian areas?

Riparian areas have more resource value, per acre, than any other land type. Yet they are the scarcest of all land types, making up only 1% of the western land base.

Why Riparian areas? Most valuable habitat in western landscape. Wildlife and people have been drawn to them since the dawn of time.

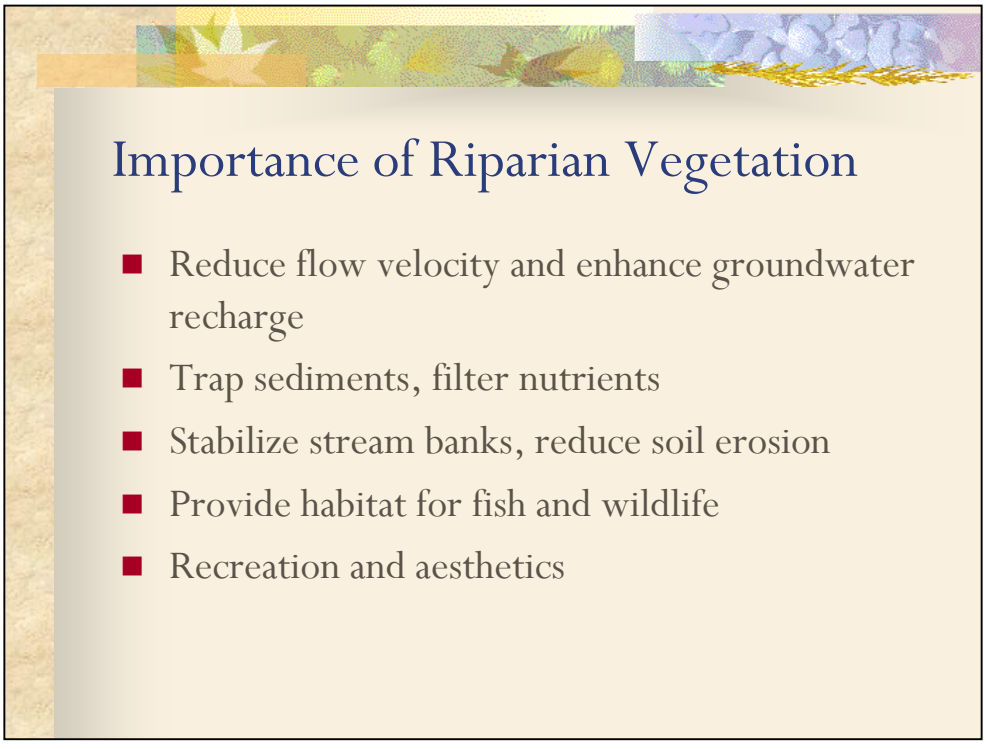
Aspects of a Healthy Riparian system



Flood water flows over the banks and floodplain where it seeps into the ground and is stored.

At low flow water seeps out of the ground into the channel creating perennial flow.

Vegetation is the most important component of riparian areas for protecting the banks and floodplains.



Reduce flow velocity and enhance groundwater recharge

Trap sediments, filter nutrients

Stabilize stream banks, reduce soil erosion

Provide habitat for fish and wildlife

Recreation and aesthetics

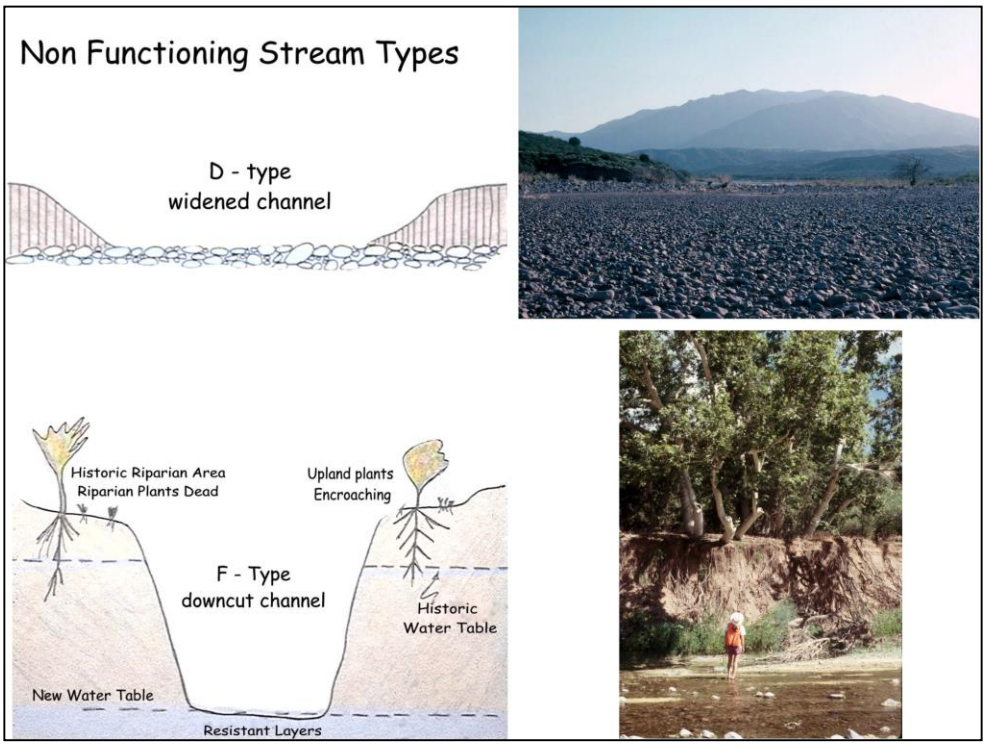
Vegetation can change the structure of the landscape. This picture shows how flood waters cut away the bank. The tree diverted water away from bank protecting it on the left side of tree.

Woody vegetation, young cottonwoods and willows, are supple and bend with the flow to slow velocity and catch sediment.

During a flood the deergrass pictured here slowed the velocity of the water and captured sediments, building stream banks.

Deergrass has extensive root systems that protect the banks during high flows. This is what a healthy riparian area looks like – different age classes of native trees, an understory of native grass or other native herbaceous plants, and undercut streambanks that provide shade for fish and aquatic wildlife.

What happens when vegetation is diminished or removed? Water rushes across landscape and the down channel, impacting banks and channel further downstream.

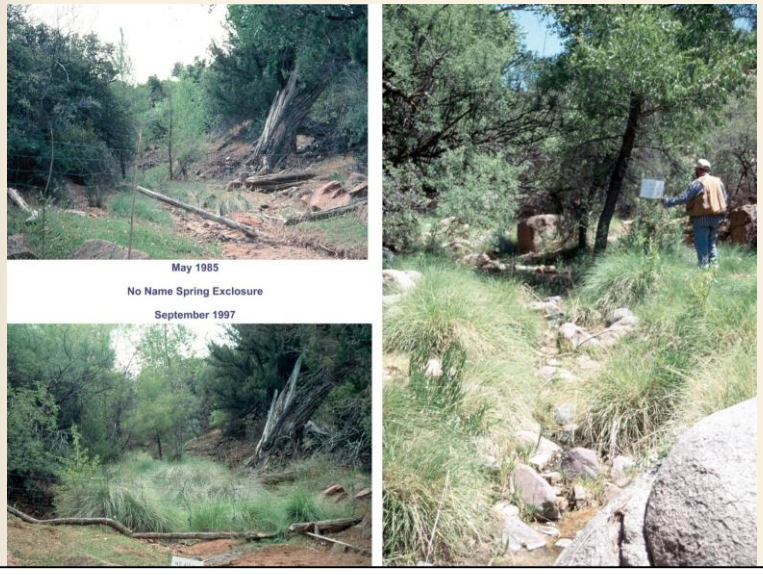


Unprotected channels are scoured by fast moving flood waters. Sediment settles out in valleys building up in the channel covering perennial flow.

In uplands, floods cut down into the channel. This lowers the water table where tree roots and other vegetation no longer have access to water.

The photos we take provide valuable information to the land managers allowing them to monitor the changes that take place over time.

Monitor reference areas to see what the potential is for like areas.
Exclosure on the left, riparian pasture on the right.

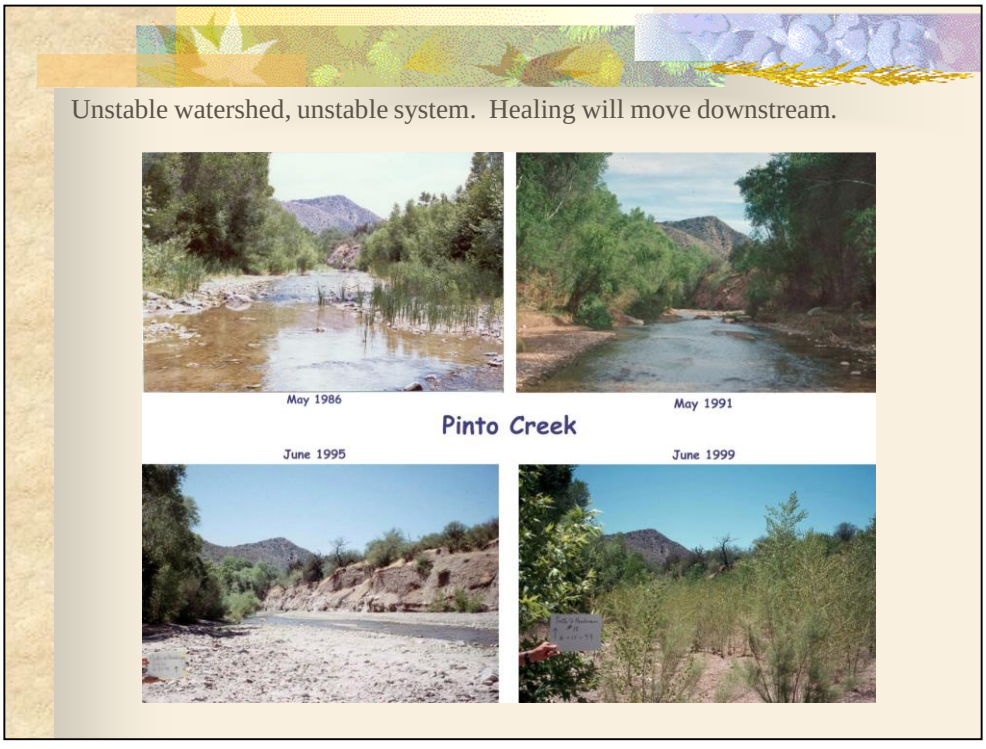


Areas in good condition, with little impact from floods or grazing, are used to see what the potential is for similar areas.

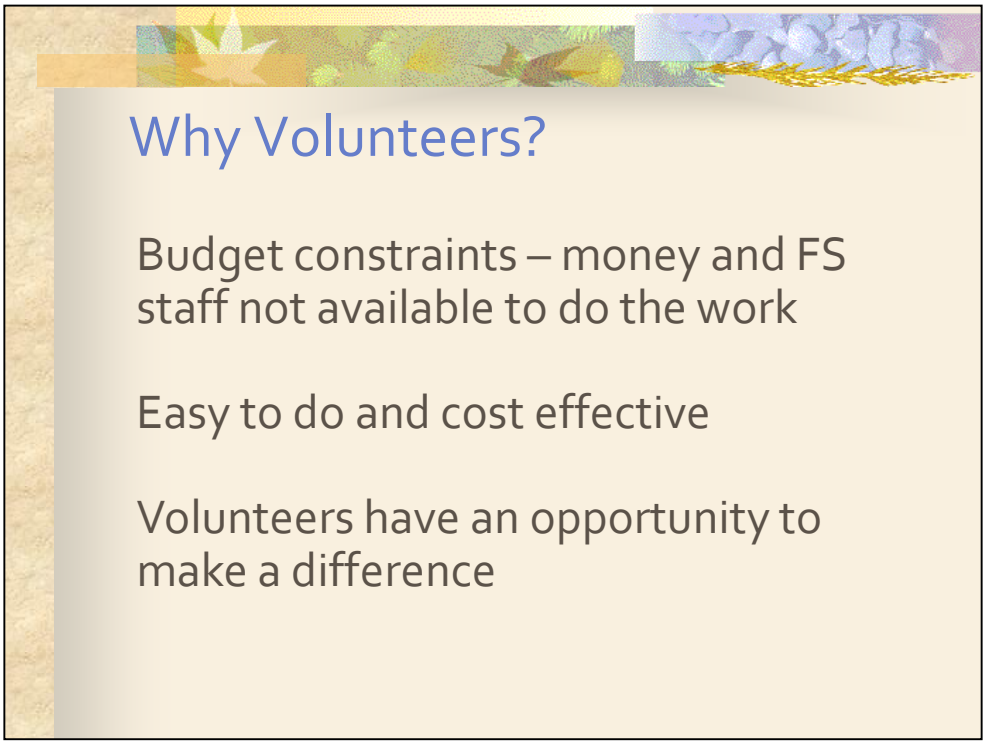
An exclosure is an area fenced off from cattle grazing to allow it to recover. A riparian pasture is grazed periodically, generally during the winter months, to reduce impacts.

This exclosure on Camp Creek shows how quickly the riparian vegetation responds to change.

Management changes in this riparian pasture allowed vegetation to grow along the channel, creating stable banks and restored perennial flow.



This is Pinto Creek. The large upland watershed is impacted by grazing and mining leading to its instability. This area will continue to be unstable until conditions improve upstream.



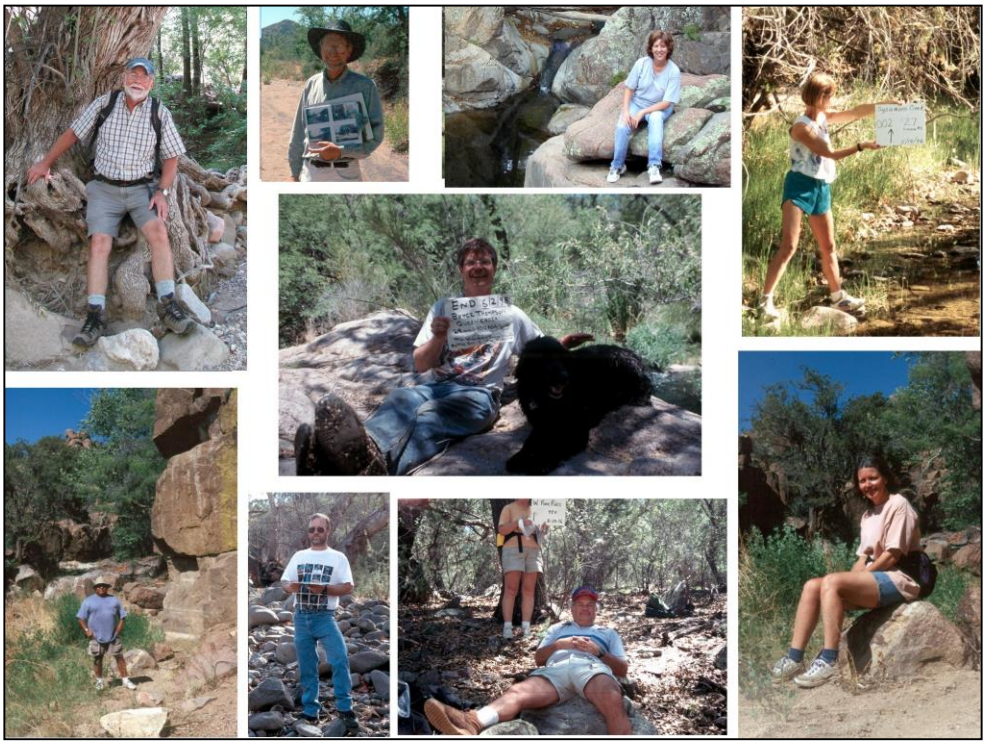
Why Volunteers?

Budget constraints – funds and staff continue to decline in the Forest Service leaving little or no time for monitoring.

Photopoints are easy to do and cost effective

Volunteers have an opportunity to make a difference.

Volunteers are of all ages and backgrounds, interests and abilities

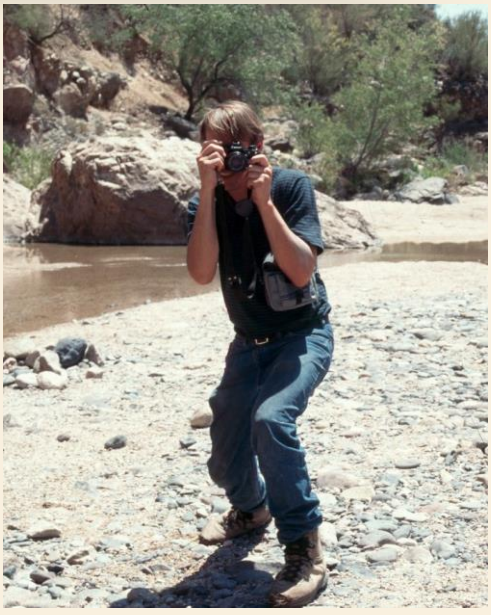


Volunteers have provided a tremendous amount of photographic data that would not be available without them.

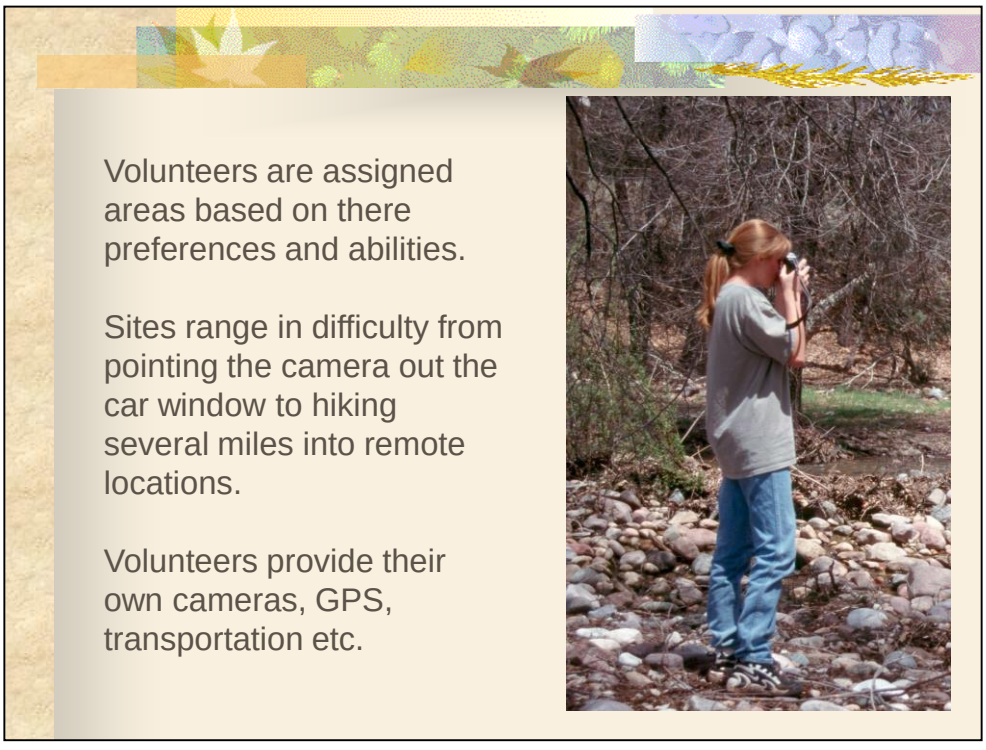
Photos are used by the Forest Service for grazing and watershed management, by Arizona Game and Fish Department to monitor wildlife habitat and various research projects, reports and documentation.

Jerry Nelson – volunteer since 1989.

Photographs over 50 sites along Sycamore Creek and its tributaries,
15 sites along Cherry Creek ;
sets up new sites as needed

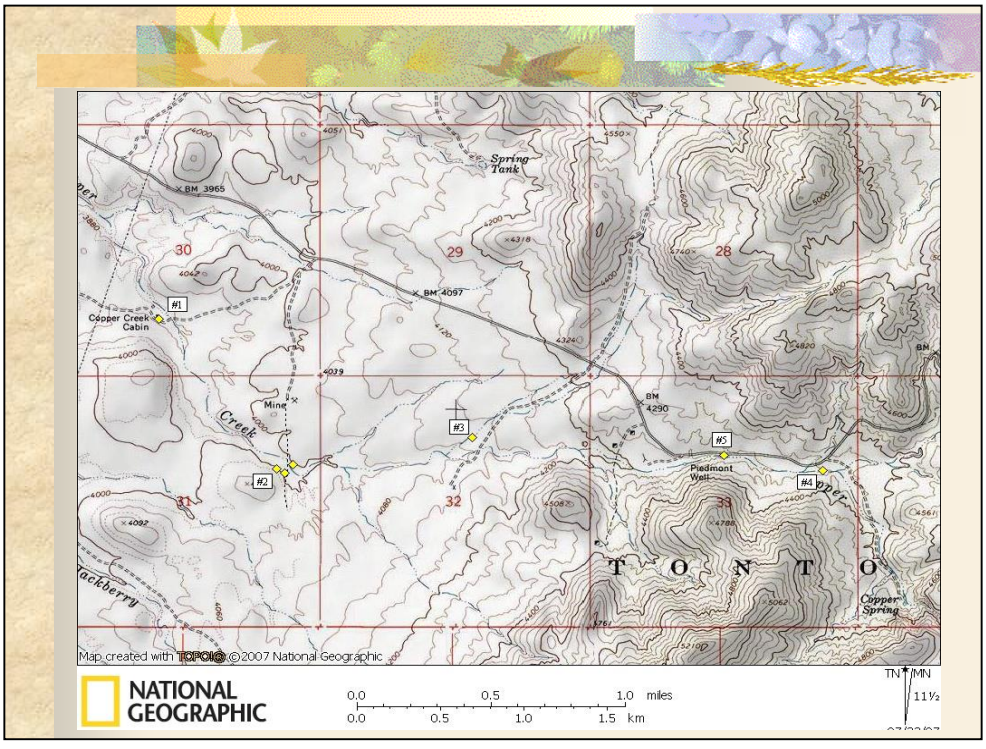


Many have adopted their streams and have been monitoring the same sites for several years. Like Jerry Nelson, monitoring about 50 sites in Sycamore Creek and watershed for nearly 30 years providing a very extensive record of this important stream.



Volunteers are assigned areas based on there own preferences and abilities. Sites range in difficulty from pointing the camera out the car window to hiking several miles into remote locations.

Volunteers provide their own cameras, transportation, etc.



Volunteers are given a packet of maps. Overview maps are used to show access and location of each site.

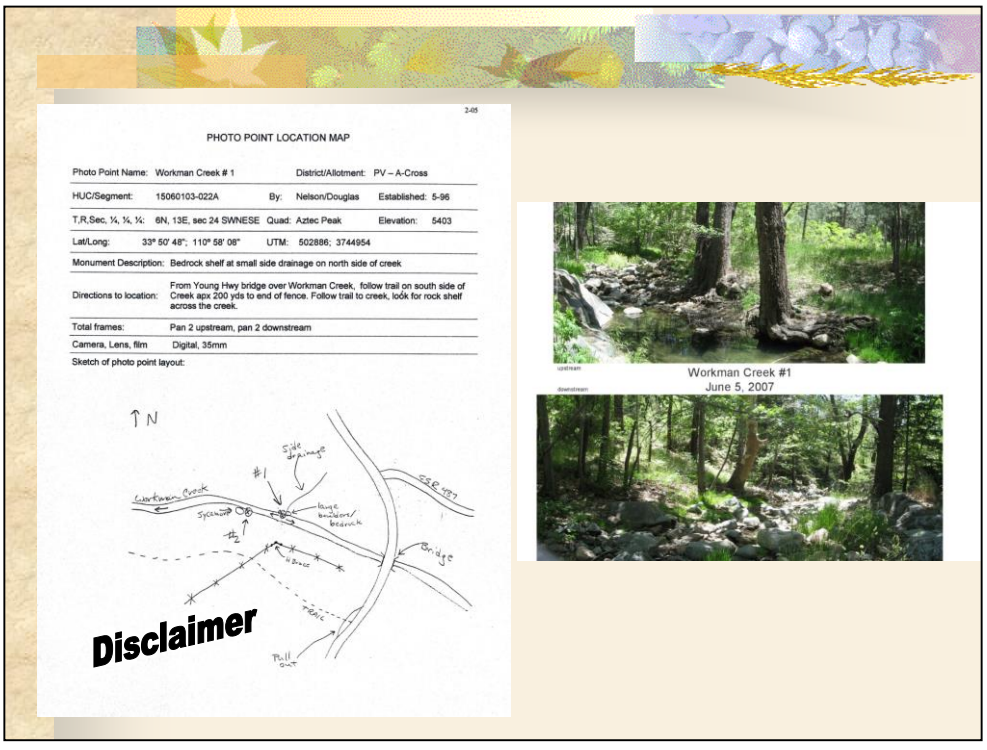
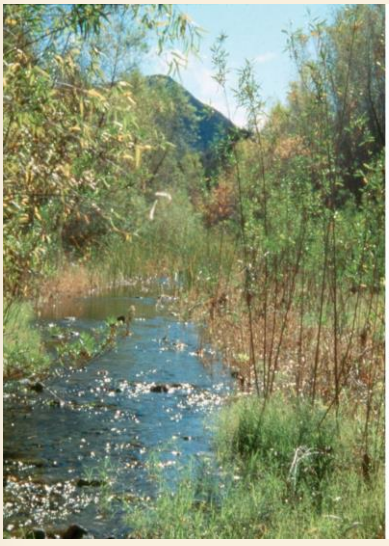


Photo point maps are provided for each site providing directions to the site and instructions for taking the photos.

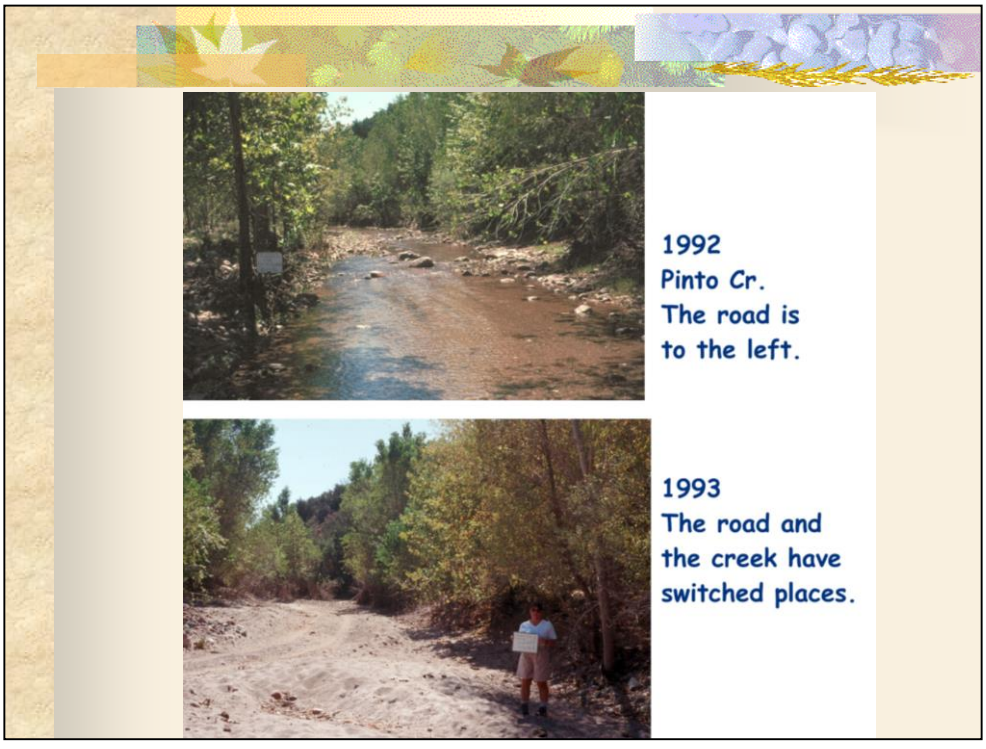
Sketch shows where photos are taken from. Photos on the back are used to match the photographs you are taking.

Disclaimer: Sites can change dramatically from year to year!

Streams and vegetation can change dramatically from one year to the next.



Dramatic changes. Channel shifts, vegetation changes, etc. Important to line up monuments and features in uplands.



Example of how a road and creek change places.

Why we call it a treasure hunt. Takes awhile to find the exact spot. Take your time!

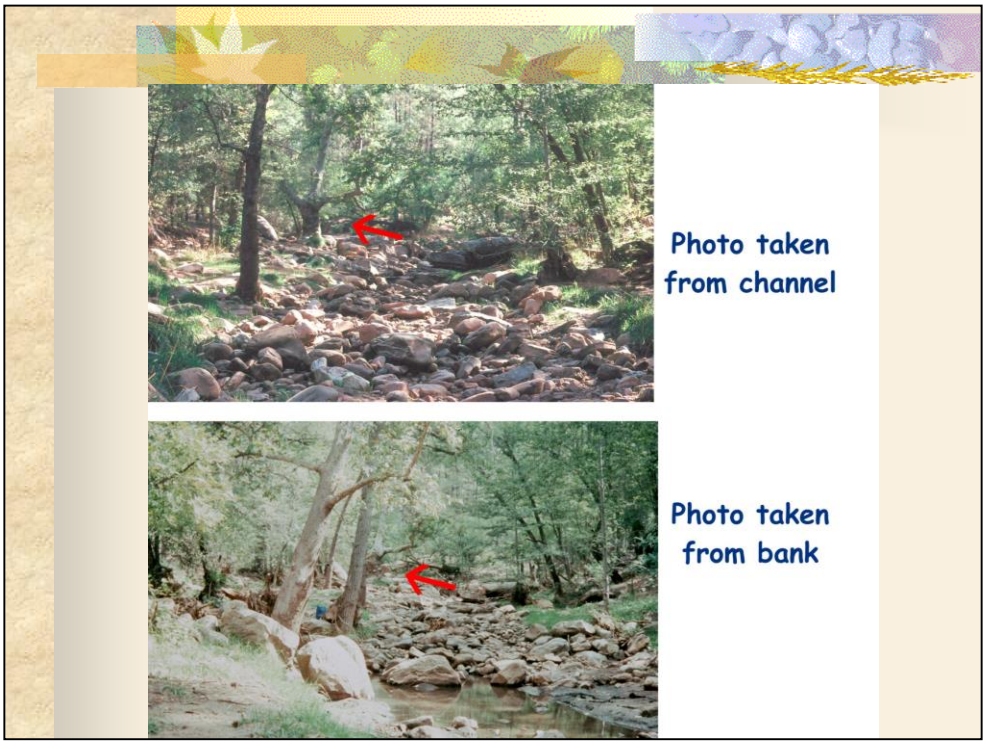
Very important to line up your shot exactly as it was taken previously!

Success of the project depends on how well the photos are lined up with those taken before.

Goal: line up edges, center, uplands. . . clouds (well, maybe not clouds)

Rocks and other monuments identified to show you where to stand

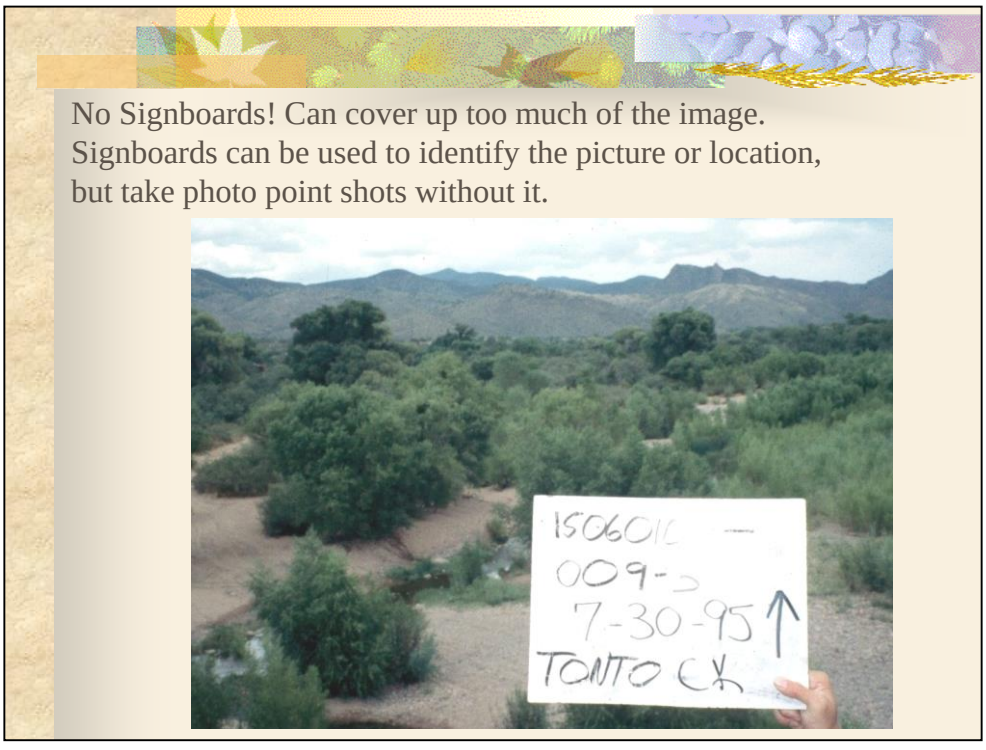
Identifiers – maps often describe a specific feature (rock, tree, etc.) of where to stand when taking the photos



Example of being in the right location but not standing in the correct place. Sometimes you have to get your feet wet!

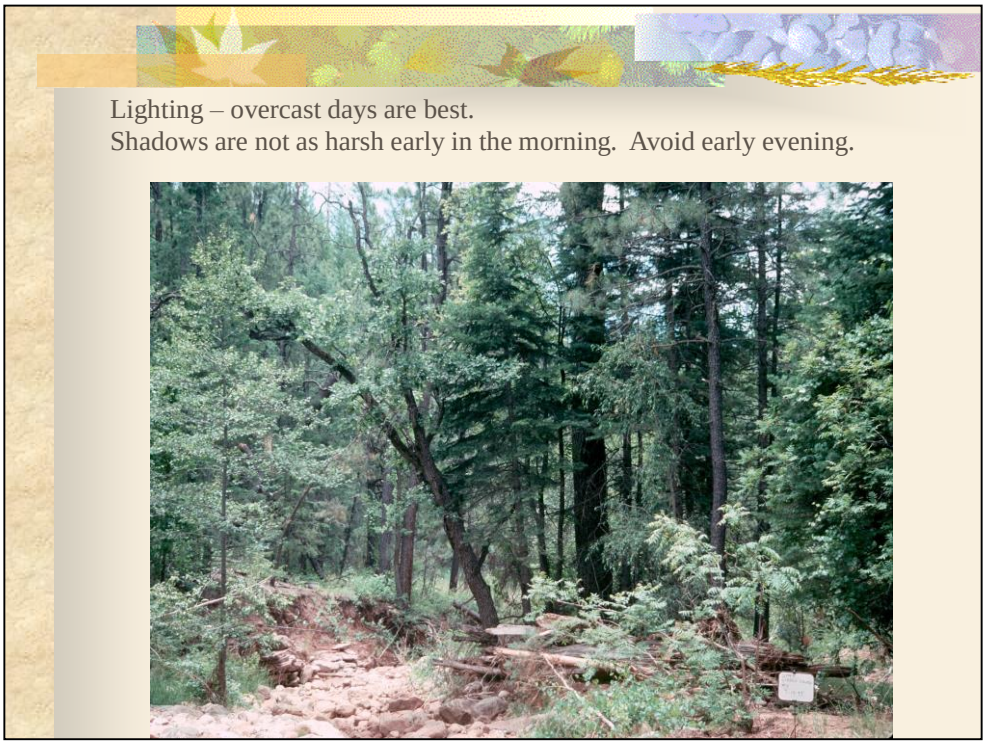
If vegetation blocks view move it. Break off dead branches or stand in front of it and take photo as close to original location as possible. Include this in your notes.

Match as closely as possible if overgrown. Take notes!



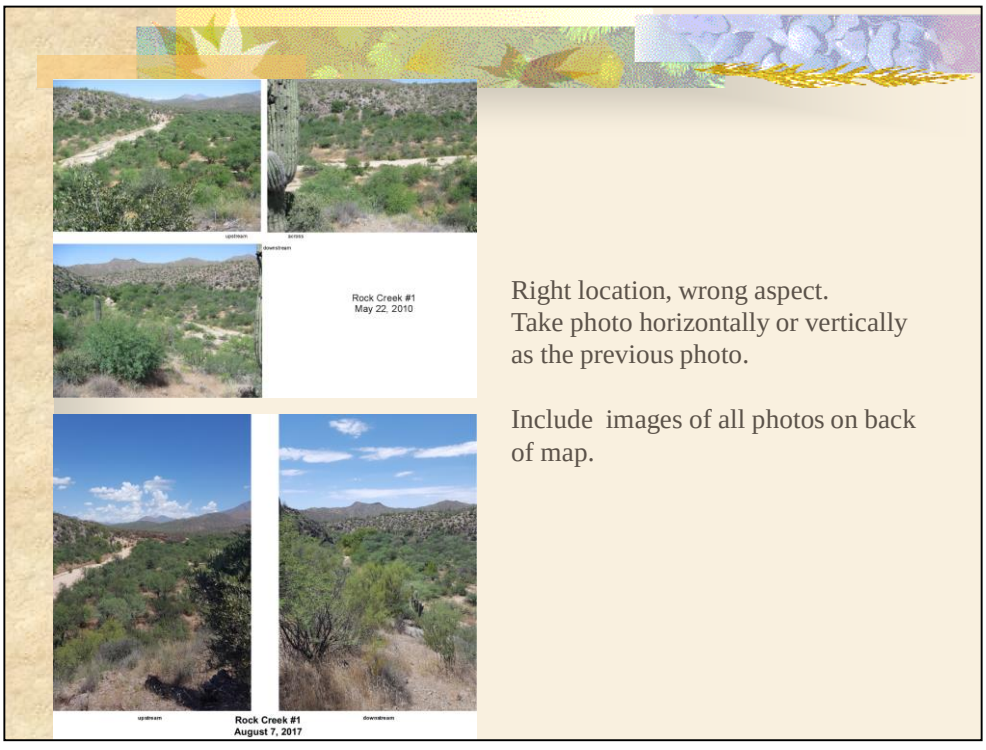
No Signboards! Can cover up too much of the image. Signboards can be used to identify the picture or location,

but take photo point shots without it. Also, if your camera has a feature to digitally add the date to the image, please DON'T USE IT!!! We want clean photos with nothing to detract from the image..



Lighting – overcast days are best.

Shadows are not as harsh early in the morning. Avoid early evening.



Right location, wrong aspect.
Take photo horizontally or vertically as the previous photo.

Include images of all photos on back of map.

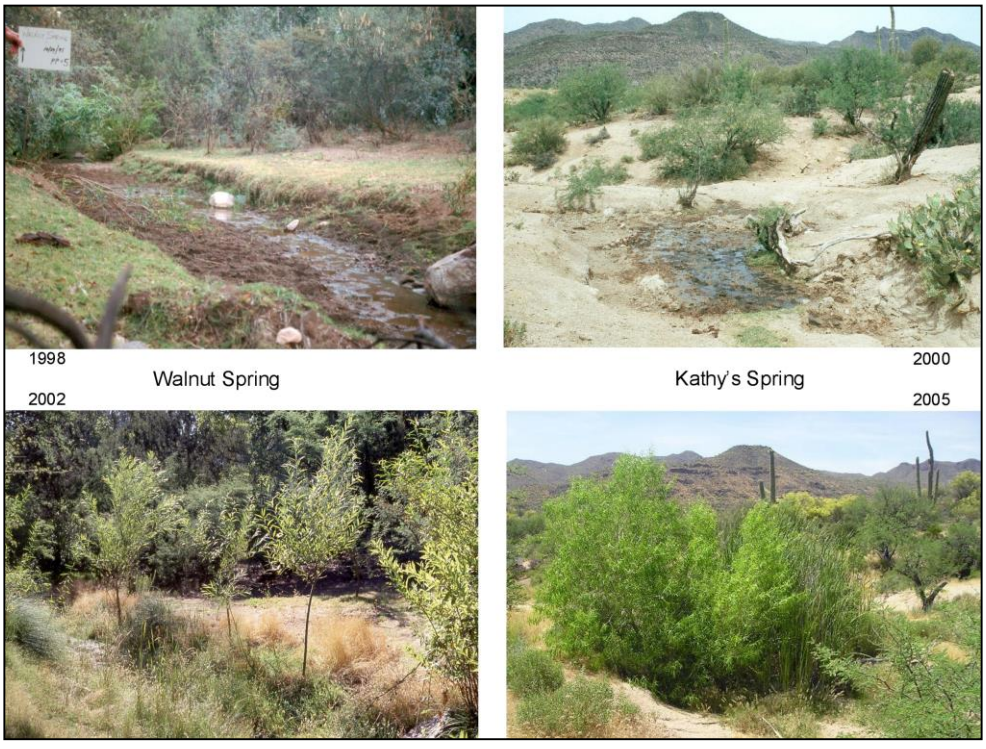
Use the same dimension as previous photo.

If shots are horizontal, they will be wider than tall. If vertical they will be taller than wide.

Be sure to include all the photos shown.

Panned images – overlap 20 to 50% so they can be stitched together. Hold camera level as you pan to take photos

Sometimes images are panned, or overlapped. Can be stitched together later. Hold the camera level and overlap at least 20% and no more than 50% for it to work. Send us the entire sequence of photos and we will stitch them together to make a seamless image.



Example of changes in management documented by our photopoints

A. Walnut Spring - change in time of use;

B. Kathy's Spring - allotment rested for a few years

Riparian pasture – photopoints show long term affect of grazing management changes on Sevenmile Wash. Didn't realize what the potential was in this area

Take a notebook with you to record the order of your sites and anything else we will need to know to identify the photos. Include anything you may see that we should know about. If the treasure map is incorrect due to changes that have happened, feel free to write on it any corrections. That includes GPS coordinates. Sometimes volunteers find the correct spot using previous photos and landmarks, and the coordinates are way off. Tell us the correct ones so the next person can find the site more easily!

Note wildlife you see. If it's a threatened, endangered or sensitive species note the location.

Note location of fountain grass or other exotic species such as salt cedar, tree of heaven or globe chamomile, if you know these species are can recognize them.

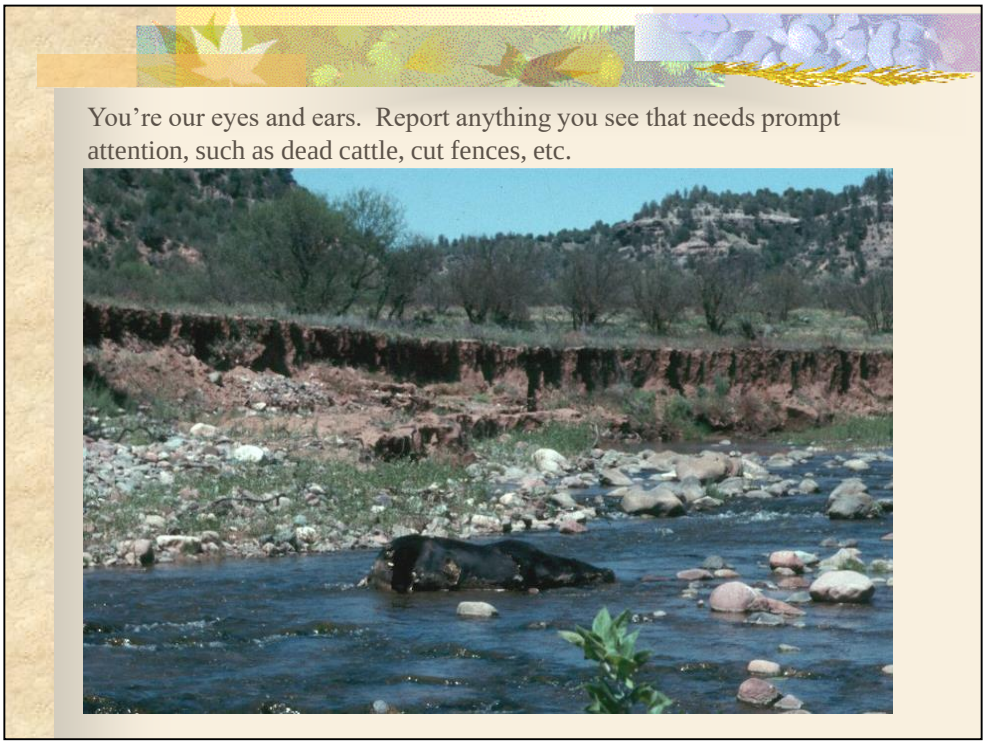
Salt cedar (Tamarisk). Pink flowers, red stems, small scaly leaves.

May 1996

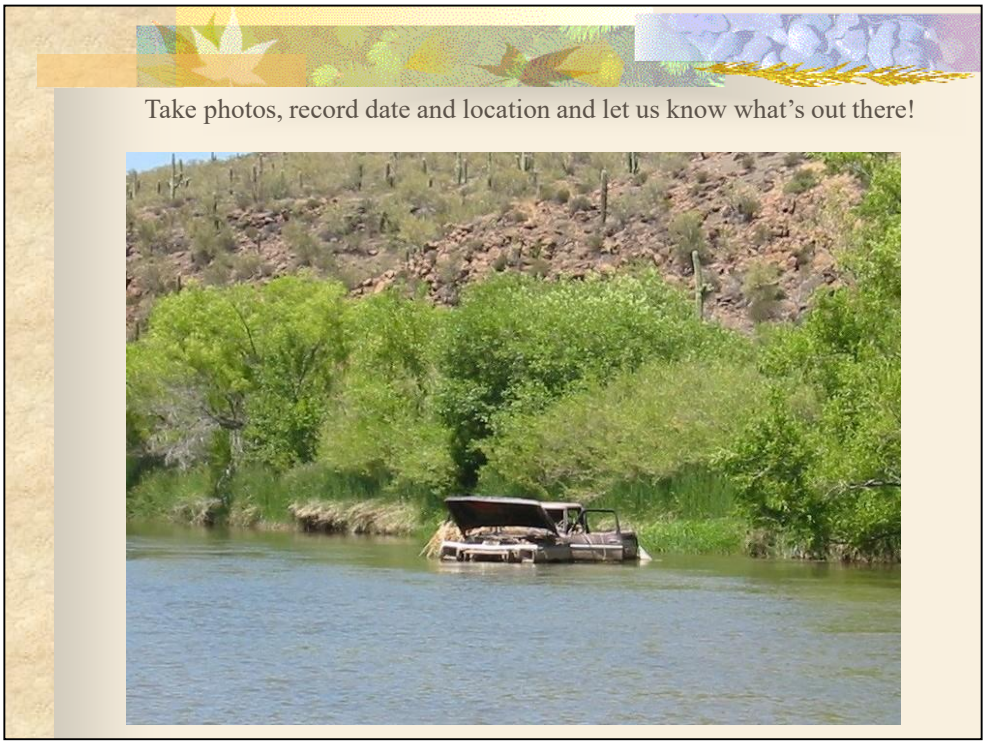
Brushy Basin #2

May 1997

Brushy Basin – Photopoint shows buildup of sediment in the channel after a fire. Unlike Las Vegas what happens in the uplands doesn't always stay in the uplands.



You’re our eyes and ears. Report anything you see that needs prompt attention, such as dead cattle, cut fences, etc.



Take photos, record date and location and let us know what's out there!

Generally, lower elevations are done in April and higher elevations in May. Looking for spring growth, winter effects to banks.

If you are unable to do your sites, contact us immediately so we can assign them to someone else.

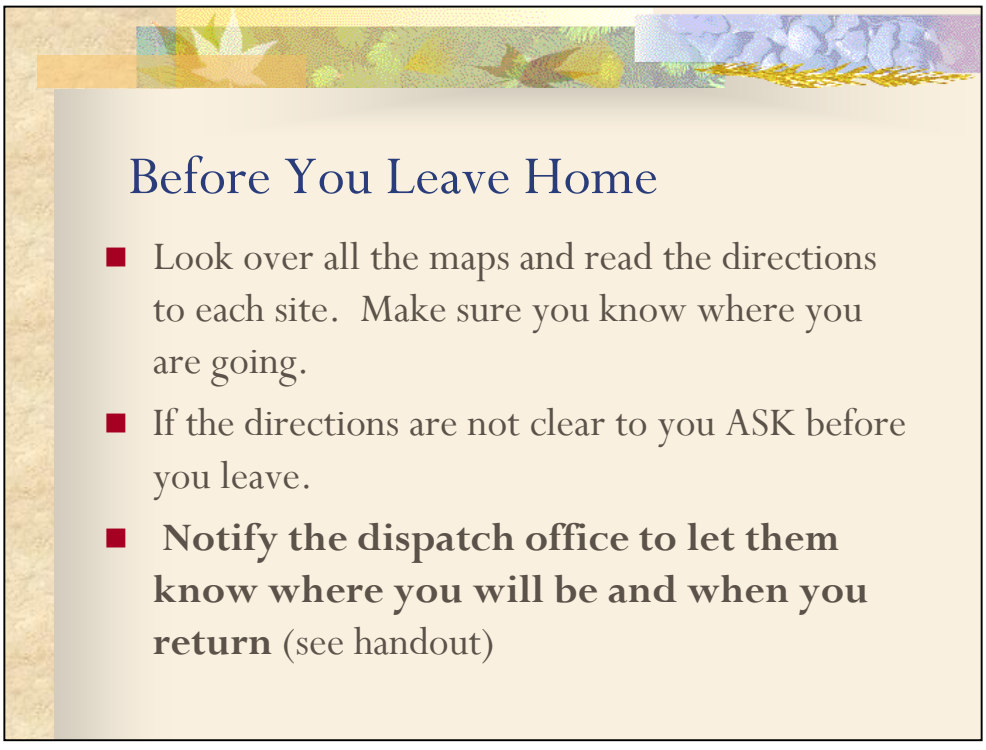
Maps (FS, overview, site maps)

Camera with extra batteries, or fully charged phone. External portable power sources can be helpful if you're out for a long hike.

GPS or GPS app on smart phone

Note paper and pencil

FOOD, WATER, SUNSCREEN

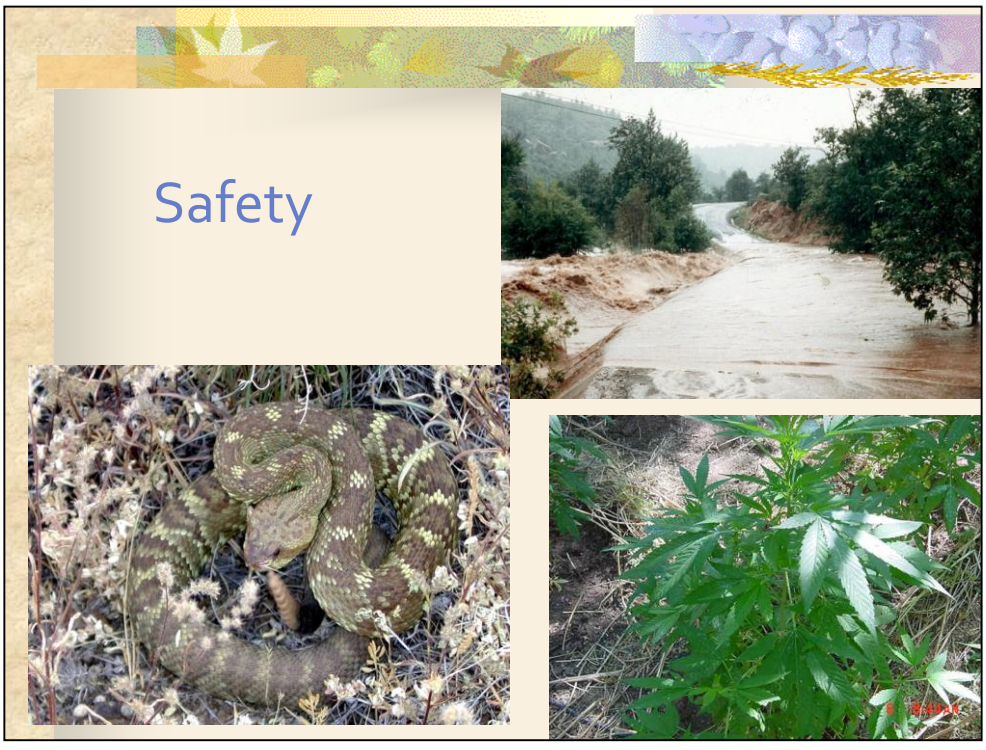


Before you leave home:

Look over all the maps and read the directions to each site. Make sure you know where you are going.

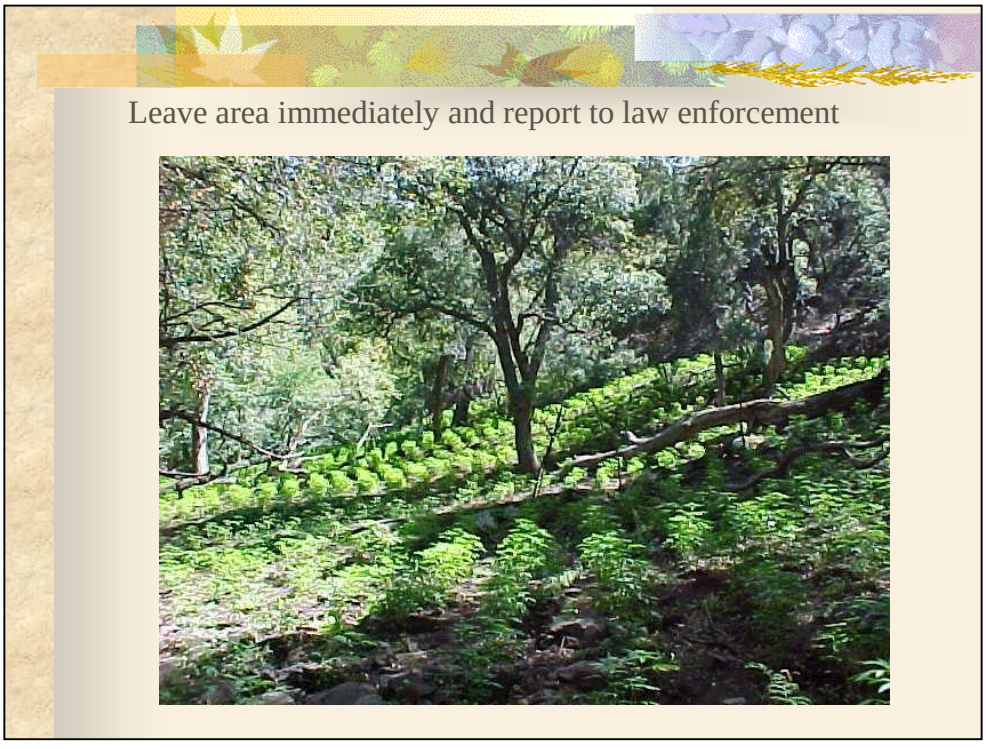
If the directions are not clear to you ASK before you leave.

Notify the dispatch office to let them know where you will be and when you return (see handout)

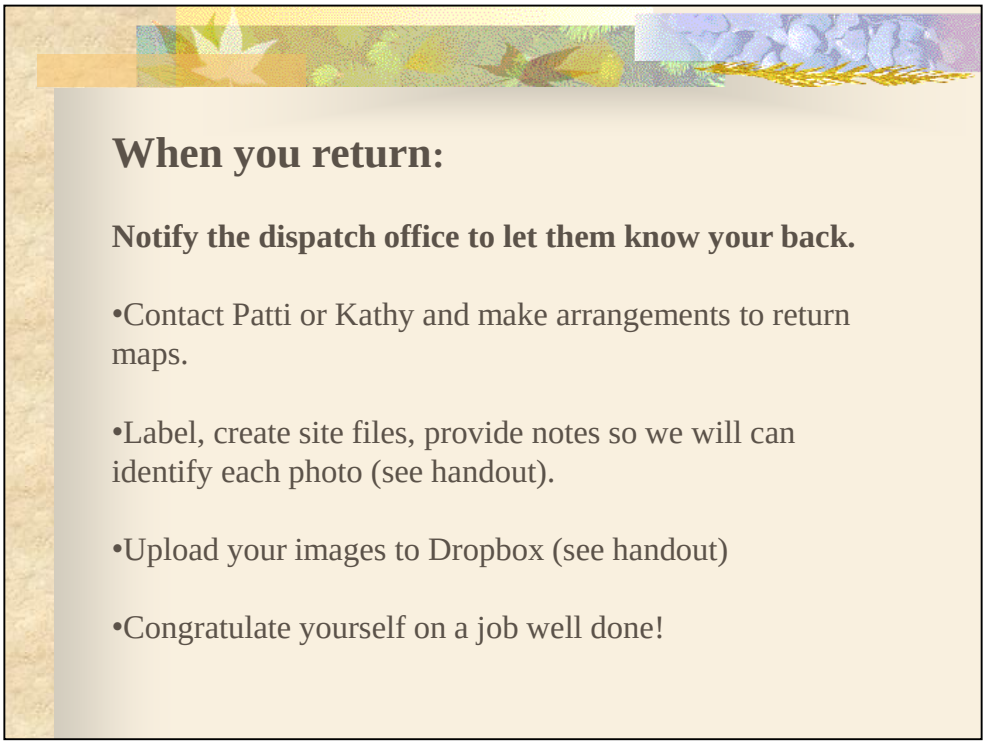


Don’t enter when flooded! No photo is worth risking your safety!

Careful walking through areas like this. Snakes climb trees!

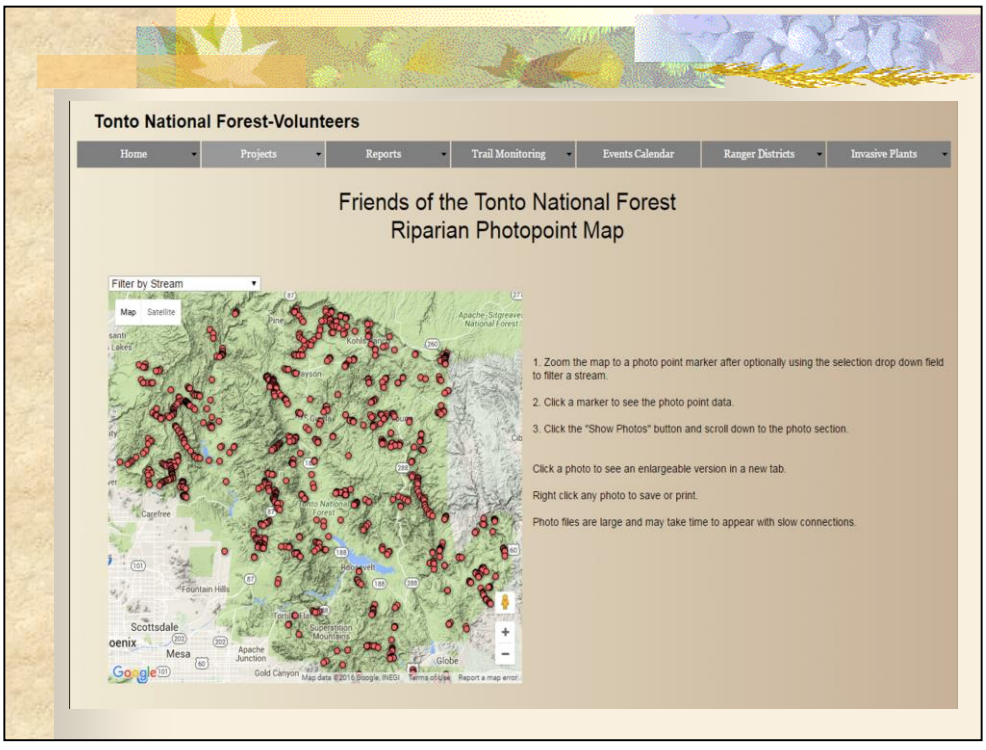


Pot farm. Harvest time is in the fall which is the most dangerous time to be around them. Watch for buckets, pipes, fertilizer bags, hidden trash, etc.

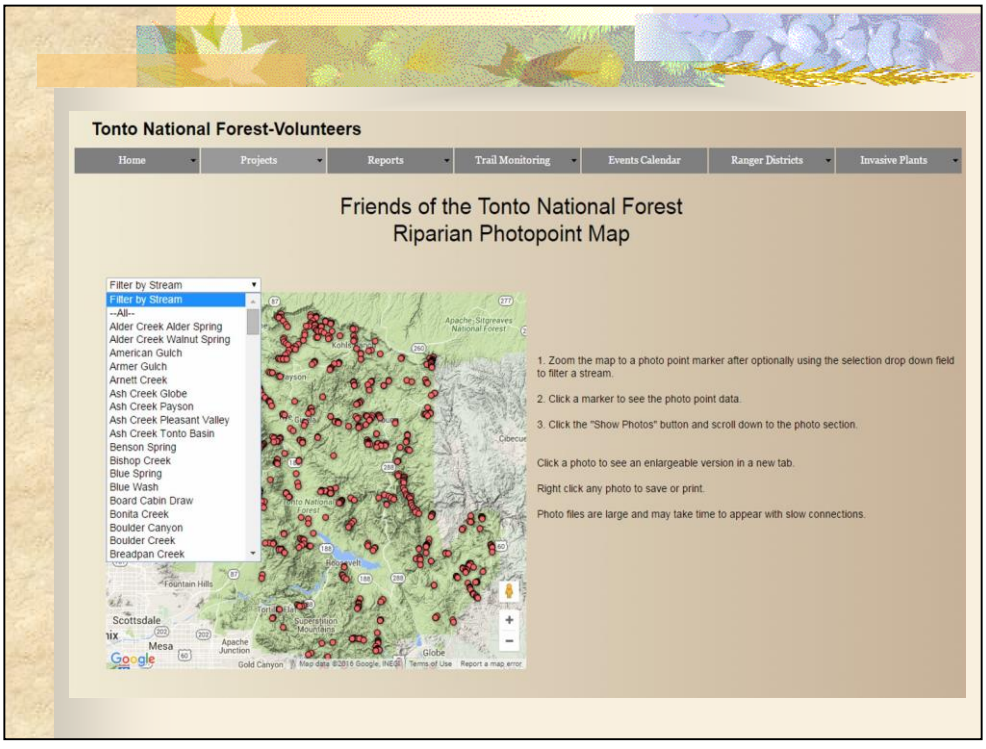


Be sure to contact the dispatch office before the end of the day to let them know you are back or headed home. If not, they will call Patti and send someone looking for you!

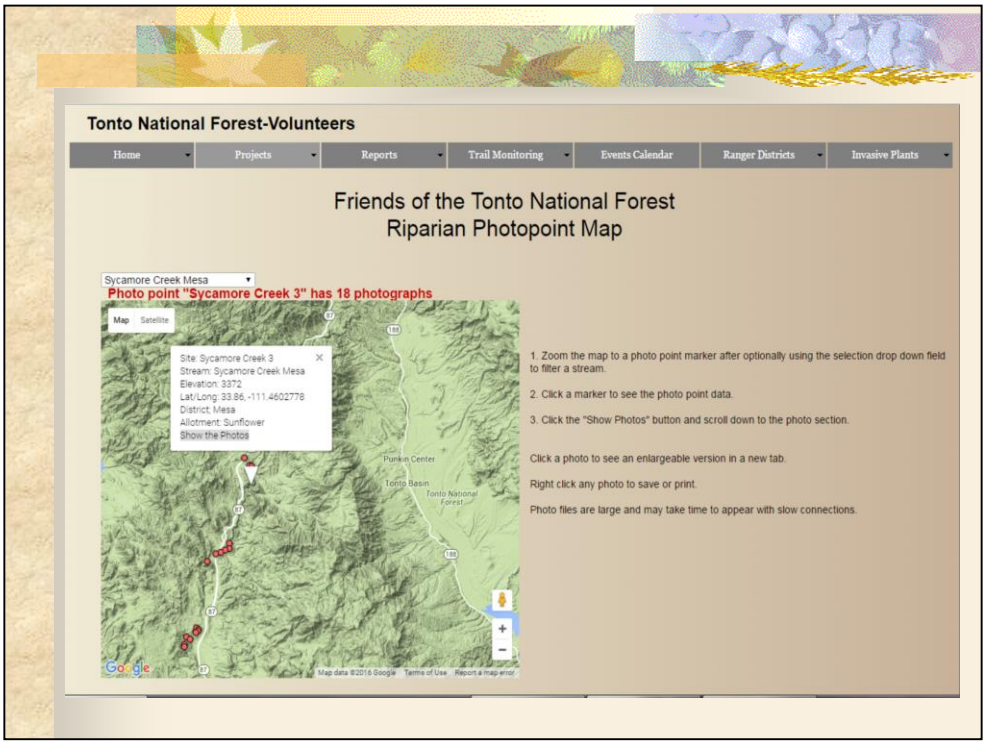
Patti Fenner created “Friends of the Tonto National Forest” about 4 years ago and agreed to take over management of the photo point program.



Friends of the Tonto's website provides not just the Forest Service, but also the public with access to a map of the photo point sites and the photographic history of the streams. This is where you can go see the photos you've taken. Be patient. It may take awhile!



Enlarge the map to the area you're interested in; or use the drop-down list and select your stream. About 180 to choose from.



Select a site from the drop-down list, and it will bring up the information about that site; elevation, lat/long, etc. It shows the photographs for that site.

Scan through the history of that site.

Here's the first and latest photos of this site. The images are good resolution, can be magnified, and easily downloaded.

If you're interested in volunteering for the photopoint program or checking out other opportunities to volunteer, see www.friends of the Tonto.org.