



Arizona Trail News

News and Information from the Arizona Trail Association

Spring 2016 | Volume 24, No. 1

Hope for the Mazatzal Mountains

Reports from the field over the past two seasons make the Mazatzal Wilderness within Arizona Trail Passages 22-24 sound like an impenetrable labyrinth of angry vegetation that can only be navigated with a GPS unit, a machete and a Kevlar body suit. The Mazatzals garner more negativity than any other segment along the entire Arizona Trail (AZT) despite their incredible beauty, interesting geology, and ability to take you deep into a remote wilderness area just a short distance away from one of the largest cities in America. The 52 miles between Sunflower and the East Verde River have become the AZT's most notorious.



Badly eroded trail with a lack of proper benching and steep side slopes makes the AZT through the Mazatzal Mountains prone to disappearing during a major rainstorm, not to mention dangerous for equestrians. *Bryan Wright Photo*

How did the Mazatzals get so overgrown? It's a combination of factors, including recent plentiful precipitation that encourages rapid vegetative growth; recent wildfires that contribute significantly to deadfall (downed trees) and erosion; lack of funds from the Tonto National Forest to pay for professional trail crews; and a small number of visitors that enter the area, whose boots and hooves help maintain the trail corridor. It doesn't help that there is no easy way into the Mazatzals – difficult access for volunteers and trail stewards means infrequent maintenance. In a very short amount of time, the Mazatzals have transformed from a formidable challenge into something much more intimidating.

In the autumn of 2015, the Arizona Trail

Association (ATA) made the restoration of the trail through this mountain range a major priority. After all, the Mazatzals comprise the wild heart of the AZT since it is near the geographical center of the trail and the AZT was intentionally routed through here because of the Mazatzals' wilderness characteristics. We decided that a multifaceted approach would yield the best results, including major volunteer efforts, partnering with other organizations, and strategic grant applications to help fund professional trail work.

Thanks to the leadership and determination of Regional Steward John Matteson, the ATA has been coordinating Mazatzal Assault Parties (MAPs). These three- and four-day trail work events see a small crew of dedicated volunteers backpacking into the Mazatzals and addressing some priority needs, including removing deadfall, brushing the corridor and fixing basic erosion issues. The most recent MAP occurred on April 1-4. The ATA is also hosting a weeklong Volunteer Vacation on May 1-7 to help beat back the bushes in the Mazatzals (see page 5 for details). We're also working alongside Arizona Wilderness Coalition to organize Alternative Spring Break trips with college students who will backpack, camp, and conduct trail maintenance in the Mazatzal Wilderness. The goal is to make these annual and ongoing events.

Hope for the AZT through the Mazatzal Mountains recently arrived in the form of an announcement from the National Forest Foundation (NFF) that the ATA's grant application had been approved. The \$37,631 will help fund professional conservation corps to thoroughly brush the corridor, remove all deadfall, and repair the tread to its former glory. Crews of eight young people from American Conservation Experience will camp in the wilderness and work up to 10 hours per day hacking back vegetation and moving dirt and rocks. Because of a lack of natural water sources, most of the water the crews need for drinking and washing will be hauled in on the backs of equines.

This outstanding support from NFF will also support elements of the volunteer work events currently underway. The only catch is that every

grant dollar must be matched dollar-for-dollar by private donations. That's where we need your help. The ATA needs to raise over \$37,000 over the next nine months to help restore the Mazatzals. Pioneer Title Agency contributed \$10,000 last month, making the goal much more attainable. Only \$27,000 to go! You can help put young people to work on the Arizona Trail and repair the biggest scar in the entire trail system by making a donation today.



Many parts of the AZT in the Mazatzal Wilderness are so overgrown that it's nearly impossible to see the trail. *Carl Brown Photo*

If you mail us a check, please write "Mazatzal Restoration" in the memo. If you make a donation online at aztrail.org/donate.html, then please indicate that in the notes. Working together, we will soon be able to celebrate one of the largest Arizona Trail work projects in recent history. By this time next year, hikers and equestrians will reap the benefits by passing through this epic piece of Arizona wilderness without getting lost, inadvertently damaging natural resources, calling Search & Rescue, or dragging themselves out the other side looking like they'd lost a fight with a family of bobcats.



Dear Arizona Trail Partner,

Spring is a glorious time of year to be on the Arizona National Scenic Trail. Virtually every mile of trail between Mexico and Grand Canyon is beckoning to be explored and enjoyed, and in another month the Kaibab Plateau will have melted enough to allow access to the far northern portions of the trail. Wildflowers are exploding all over the state and natural water sources, are still trickling from a prolific winter season. The bottom line is this: We hope you find the time to get out there and enjoy it!

A record number of thru-hikers have already begun their long walk from Mexico to Utah, and many have already succumbed to the challenging nature of Arizona's backcountry. Although the AZT is much shorter than other National Scenic Trails, it is arguably much harder. Rugged terrain, lack of natural water sources and huge gaps between resupply towns make the Arizona Trail a serious endeavor. While we want to continue to promote the trail and encourage everyone to enjoy all that it has to offer, please help us spread the word: it's harder than you think.

We are honored to be hosting another group of Warrior Hikers on the AZT this season. You can read more about David Kurneta and Jordan Burke on page 3, and we know the trail will provide an ideal opportunity to walk off the war. We're also delighted that Carol Fontana and her horse, Tiki Barber, will attempt a thru-ride this year. Few equestrians have ever completed this arduous test of strength and endurance, and we hope Carol's experiences inspire others to ride all or a portion of the AZT.

Spring is the busiest season of the year for the Arizona Trail Association, and we encourage you to stay up to date on what's happening with the trail and the ATA through our eNewsletter and social media. Many thanks for your continued support of the ATA!

May your adventures on the Arizona Trail be filled with breathtaking landscapes, memorable experiences, and hopefully a few friendly faces along the way.



Matthew J. Nelson
Executive Director

P.S. Many of you have chosen the "paperless" option for the newsletter and may be wondering why you received this publication. Since our quarterly newsletter has become increasingly popular we wanted to share the printed version with all of our members and supporters this season. If you would like to continue to read the newsletter online, great – you help save us printing costs and postage. But if you'd like the newsletter mailed to you we are delighted to do that. Just let our Membership Director know by sending the message "printed newsletter please" to ata@aztrail.org. Otherwise we will honor your paperless request into the future. Enjoy the *Arizona Trail News*.



The Arizona National Our Vision...

...a continuous, non-motorized trail traversing 800+ miles from Mexico to Utah, linking deserts, mountains, forests, canyons, communities and people.

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Arizona Trail Association

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Arizona Trail News Now Printed in Color!
Thanks to support from Southwest Solutions, we are proud to provide the *Arizona Trail News* in full-color. Enjoy!

WARRIOR HIKERS BEGIN THEIR JOURNEY

On March 20, veterans David Kurneta and Jordan Burke began their two month thru-hike of the Arizona National Scenic Trail. They are “Walking off the War” with Warrior Expeditions, a non-profit organization that puts veterans on National Scenic Trails, waterways and long-distance biking trips.

David is from Memphis, Tennessee, but he is quite familiar with the desert; his parents live in the gateway community of Vail. He is a runner and backpacker and is being cheered on by his wife and daughter as he makes his way up the state. David was a Field Medical Service Technician deployed in Iraq and is enthusiastic about experiencing the wide variety of terrain the AZT has to offer.

“On the Arizona Trail it’s almost like your first week is a microcosm of the whole trail experience,” said David. “There are tough

climbs, hot temperatures, cold nights and concerns about water but there are also amazing views, beautiful sunsets, awesome people you meet on the trail and some great support and trail magic from the communities along the way.”

Jordan is from Billings, Montana and this is his first experience backpacking. Warrior Expeditions provides the veterans with a full backpacking kit donated by generous sponsors such as Granite Gear, Leki, Big Agnes and others. He was a combat engineer in the Army deployed in Iraq. This is also his first time exploring Arizona and he was impressed by the amount of different ecosystems visited in just the first week on the trail.

“Day 1 was a gut check for everyone,” said Jordan, “but that is what the AZT is all about. It doesn’t trick you into thinking

things will be easy. There are so many life lessons to be learned with thru-hiking. Lesson 1: Go big or go home.”

Big thanks to Dick Erwin, the ATA’s Warrior Hike Coordinator, who did a lot of the planning leading up to the day that David and Jordan hit the trail. Dick will be meeting up with them in various gateway communities on the weekends and helping them connect with local veterans along the way.

To learn more about Warrior Expeditions, visit warriorexpeditions.com. Donations for this important program can be made online at aztrail.org/donate/btml. Please note “Warrior Hike” in the appropriate field so we make sure your contribution helps the Warrior Hikers.



CENTENNIAL SAGUARO SURVEY

by Wendy Lotze

On March 5, a team of 25 Arizona Trail volunteers stepped off the trail and became citizen scientists for a day in Saguaro National Park. The goal: to learn how these iconic cacti adapt to the stresses of disease, urban encroachment, climate change and dramatic weather conditions. The tools: a tape measure, measuring stick, clipboard and a clinometer (a device for measuring height based upon angles).

The first saguaro survey was initiated in 1933, when rangers in the newly established Saguaro National Park noticed a decline in saguaros in the Park's Cactus Forest area on the east side of Tucson. Scientists created a one-square-mile test plot called Section 17 and counted and measured all of the saguaros alive in that section in an effort to determine why the cacti were dying. In subsequent decades, additional plots were added to the survey, and the goals of the

study were expanded. Today, the saguaro survey is one of the longest running vegetation surveys in the NPS and provides nearly a century of data on this unique species. To celebrate the Park Service Centennial in 2016, the NPS opened the survey to groups of volunteer citizen scientists. Since more than 18 miles of the Arizona National Scenic Trail are within Saguaro National Park, and many more miles are through saguaro-studded Sonoran upland, it was a great match to partner with the ATA for one of the survey events.

ATA participants included members of the Seeds of Stewardship Program, local hikers, and a family of hikers from Tempe. The plot selected for our study was one of the older plots in the survey, including saguaros that have been tallied periodically for over 30 years. Perched on a crumbly hillside, our saguaros patiently waited as we learned how to

measure their height, count their arms and assess their overall condition. We learned how to identify conditions such as insect and frost damage, cavities and wounds and what "purpling" means (even if scientists are still debating what causes it). At the end of the day, we'd counted, measured and evaluated over 200 cacti. Results of the day will be posted on the Centennial Saguaro Survey website at nps.gov/sagu/getinvolved/centennial-saguaro-survey.htm.

Wendy Lotze is the Volunteer Coordinator for the Arizona Trail Association. She can be reached at volunteer@aztrail.org.



Essential Gear - THE LIGHTSAVER FROM POWERFILM SOLAR

by Matthew J. Nelson



There was a time not long ago when I delighted in leaving my phone buried deep in my pack while I enjoyed the wonders of Nature while out on the Arizona Trail. My goal was only to reach for it in case of emergency. Then I got a smartphone. The single device allows me to navigate the trail using the Arizona Trail App, take photographs, write notes on trail conditions, measure grade and side slope of the trail, and maybe even answer a few emails while in the field. In addition to the smartphone, I've also been using devices with rechargeable batteries, including an ultraviolet water purifier and satellite communication device for solo trips deep into the backcountry where cell phone signals don't exist.

With recent technological advances there has been increased need for electricity to power

these devices. Extra batteries are too heavy and there aren't many outlets to plug into while on the AZT. So the best option is to create your own electricity from the power of the sun.

Solar technology has made quantum leaps over the past decade, and while there are many companies making solar products for outdoor adventurers I have found the absolute best tool for the job when it comes to hiking and riding on the Arizona Trail: the LightSaver from PowerFilm Solar.

The LightSaver was created for ultralight backpackers and bikepackers who need to charge their devices on-the-go. The flexible panel and integrated lithium battery rolls up into a compact unit about the size of a fat cigar and easily attaches to the outside of your pack. Especially for northbound travelers on the AZT, this is an ideal way to harness the power of solar technology while you put in miles with the sun at your back. The LightSaver only weighs 4.7 ounces and produces 3.2 amp hours (aH) of electricity. If you're looking to go even lighter and have minimal electricity needs, consider the skinnier LightSaver Pocket model; 3.5 oz

producing 2.6 aH. PowerFilm also make a beefier model, the LightSaver Maxx, weighing in at 16 oz and producing 15.6 aH.

All units have a USB output and can be recharged rapidly when you do encounter a wall outlet. The construction of the flexible panel is amorphous silicon, which has been proven to be the superior material for this application. In addition to being lightweight, affordable and durable, amorphous silicon collects more energy in lower light situations than other technologies, like on cloudy days or in dappled sunlight environments. It's also ideal for Arizona in that amorphous silicon is less sensitive to high temperatures than other materials.

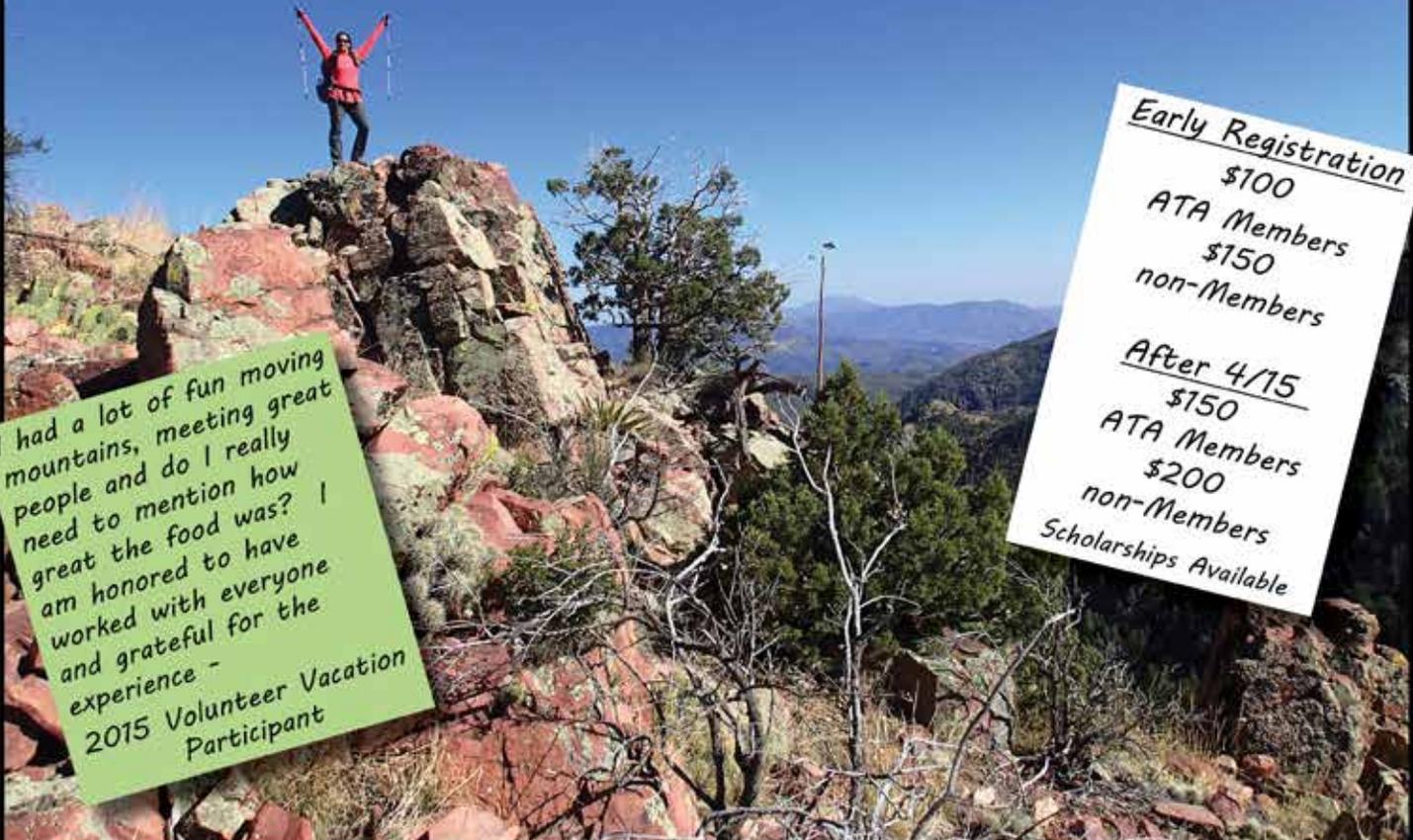
The LightSaver is simple, reliable, and has become one of the essentials in my pack – whether I'm going out for a long day of data collection or a multi-day trip on foot, bike or horse.

You can usually find LightSavers for under \$100. To learn more, please visit www.powerfilmsolar.com.



VOLUNTEER VACATIONS 2016

MAZATZAL WILDERNESS MAY 1 - 7 2016



had a lot of fun moving mountains, meeting great people and do I really need to mention how great the food was? I am honored to have worked with everyone and grateful for the experience -
2015 Volunteer Vacation Participant

Early Registration
\$100
ATA Members
\$150
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After 4/15
\$150
ATA Members
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non-Members
Scholarships Available

Explore the rugged and remote Mazatzal Wilderness by working to improve conditions on this spectacular stretch of the Arizona Trail. This backcountry volunteer vacation combines backpacking, trail work and true Western adventure in an unforgettable 7 day package. Registration includes all meals, training, tools and transportation.

For more information or to register:
aztrail.org/volunteer_vacations or
email volunteer@aztrail.org.



**Mark your calendar for Oct 9-15
for the next Arizona Trail Volunteer Vacation!**

WATER TREATMENT ON THE ARIZONA TRAIL



Ribbon Falls, hidden deep within Grand Canyon National Park, is one of the purest water sources found along the entire Arizona Trail. Yet it still must be treated before drinking. *ATA Photo*

If there is one feature that sets the Arizona Trail apart from the other National Scenic Trails, it's water...or lack thereof. Many ambitious thru-hikers and riders end their adventure before reaching their destination due to dehydration, problems with water filters, the crushing weight of carrying three gallons of water, or other problems directly related to water.

Unlike the trickling mountain streams found elsewhere, water along the AZT is often found within a muddy cattle tank, hidden beneath the green slimy film of a metal trough, or within the turbid waters of the Gila and Colorado Rivers. And sometimes you have to dig deep into the dirt to get water to appear. Finding and properly filtering water is one of the things that will always make a long-distance trip on the AZT a serious challenge.

The goal of this article is to give you a few useful suggestions on how to treat the water you encounter along the Arizona Trail (AZT). And while waterborne illnesses can cause serious illness and gastrointestinal distress, remember that dehydration kills. It's better to drink from a questionable water source than to suffer the consequences of severe dehydration.

WHERE'S THE WATER?

Water can be challenging to locate along the

AZT. For this reason, the Arizona Trail Association (ATA) has developed a water source databook that documents every potential water source along or near the entire length of the trail. Some consider this the most important document for navigating the AZT. It's available online (aztrail.org/watersources.html) and is updated frequently with input from trail users.

One of the important rules about long-distance trips on the AZT is to never pass by a water source without filling up. Plotting all of the water sources in advance of your trip and knowing their reliability is very important. The Arizona Trail smartphone app contains all of the known water sources, but does not contain information about historic reliability. Just because there is a water source listed does not mean it will have water. Know before you go.

WATER IN DRY COUNTRY

To address the issue of lack of water sources in the driest passages, the ATA started installing bear boxes along the Arizona Trail to give individuals an opportunity to cache water in advance of their adventure. Some Trail Angels occasionally deliver gallon jugs to these locations, but unless you have cached water there recently (or asked a friend to do it for you) you should not count on water being there when you arrive.

And if you think that the driest segments of trail

occur in the desert between Oracle and Superior, think again. The Colorado Plateau has interesting hydrology and vast swaths of land north of the Grand Canyon are almost always completely dry. Again, know the conditions of the areas you'll be traveling before you go.

TOOLS OF THE TRADE

Pump filter, ultraviolet light, chemical treatment...what's the best to use? There are so many water filtration systems on the market that it can be overwhelming when all you want to do is drink clean water. Each is the best tool for the job in certain environments, but at the end of the day if we had to choose one particular filtration method for the entire Arizona Trail it would be the Sawyer Water Filter. It's the most reliable and easy to use in all of the AZT's challenging conditions.

To use the 3-ounce unit, you simply fill up the plastic bag with water and squeeze it through the filter. What comes out the other side is ready to drink. Then, use some of the clean water to "back flush" the filter using a plastic syringe and you're good to go. Fast, lightweight and very reliable (as long as you back flush the filter after each use), we are a big fan of the Sawyer.



Of all the manual water filters available, the Sawyer Squeeze is one of the most versatile and reliable for use along the AZT. *Matthew J. Nelson Photo*



Natural water sources along the AZT are few and far between, and often contain enough particulates and slime to clog the average water filter. *Fred Gaudet Photo*

DEALING WITH HEAVY SEDIMENT

Even clean-looking river water contains fine sediment that will quickly clog a pump-style water filter, interfere with the action of chemical-based treatments, and render ultraviolet purification methods useless. One of the most frequently discussed topics on the AZT Forum relates to purifying water. To help provide some clarity, we have researched and recommend the use of alum for flocculation.

Alum is very inexpensive, easy to find in most grocery stores, and allows the fine river sediment to gradually clump (“flocculate”) into larger particles. The larger and heavier particles gradually settle to the bottom, allowing you to take cleaner water carefully from the top. You then treat the water with manual, chemical or ultraviolet purification techniques. Flocculation itself does not remove disease-causing organisms; you will still need a filter or a chemical treatment for that purpose.

It is very easy to use too much alum. Excessive alum lowers pH (makes it more acidic) which then interferes with effective flocculation of river sediment since alum will only cause flocculation within the range of 5-8 pH. In addition, excessive alum will cause the water to taste bad (like really bad lemonade) and exposes you to chemicals you don’t need. Unfortunately, the pH of any given river is different on different days and the alum amount that works on one day may not work on another. This is because the pH of the water differs based on which tributaries are active, among other factors. Also, the amount of sediment in the water changes constantly. So some experimentation is necessary.

Tools you’ll need to properly use this method of “pre-filter treatment” include:

- A few teaspoons of alum
- Liter bottle with fluid ounce markings on the side
- Two buckets, cookpots or other vessels for holding water (Sea to Summit makes an outstanding collapsible bucket ideal for this purpose)
- Irrigation syringe from your first-aid kit
- Teaspoon

The best way to start is to make a 1:100 concentration of alum dissolved into already-clean water (e.g. from last night’s camp). You can do this in the field, but it is better to experiment at home so that you know how to do this, using measurement methods that will work for you in the field.

The 1:100 concentrate has two advantages over just adding dry alum to the bucket directly: (1) you can dissolve the alum thoroughly in the clean water and (2) because of the small quantities involved, the initial dilution of alum makes it easier to adjust the amount that will eventually go into your bucket of river water. For risk of stating the obvious, 1 ml of alum in 100 ml of water makes a 1:100

concentrate. 1 ml (a fluid measure, usually) is the same as 1 cc (usually a dry measure). To have enough to allow for some experimentation in the field, if you want to treat two 10-liter water buckets, you probably want to end up with at least 150 ml of the 1:100 concentrate (15% of a 1-liter water bottle). While precision is probably not needed in the field, the following proportions will work for this purpose.

1 US teaspoon is almost 5 ml. Therefore 1 tsp/5ml of alum in 500 ml (1/2 liter or 2+ cups) of clean water will give you the 1:100 ratio, and enough concentrate to allow at least the start of your experiments, if you are working with two 10-L water buckets. If you don’t usually carry a teaspoon with you, you can measure your usual eating spoon with a syringe or teaspoon before you leave. Some syringes are marked with cc’s (same as ml’s) which makes it easy. Irrigation syringes are often not marked but many are 12 cc’s. If you have a water bottle that is marked with cc’s, 4 syringes full from a 12-cc syringe will raise the level of the water shown by just under 50 cc’s, allowing you to confirm the size of the syringe. If you confirm that you have a 12-cc syringe and you can fill up your eating spoon with the 12 cc’s, your spoon must hold a little under 2 1/2 tsps. and you could therefore either make about 3/4 liter of the 1:100 concentration with a half spoonful of alum.

Once you have your concentrate, guess at a concentration that you think might just barely work (see guideline below) and add it to river water in one 10-liter bucket. Add twice as much to the other 10-liter bucket. After 45 minutes, see which one seems to be best causing a visible flocculent (gradually sinking cloud of white particles). If both concentrations work, and about equally, the next night you might try a concentrate half way between the two. If the low concentrate works not at all, and the larger one works OK, discard the low-concentrate bucket (the one that isn’t flocculating) and re-double the stronger concentration in a replacement bucket.

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Parker Canyon Lake is a coveted water source along the AZT’s southern passages. It is one of the few water sources that can be easily filtered. *Robert Garber Photo*

Trail Angel SPOTLIGHT: MARNEY AND JIM

by Sirena Dufault

If you've ever driven through the Arizona Trail Gateway Community of Oracle, you've probably seen the whimsical row of A-frame cabins called the Chalet Village Motel. Trail journal stories abound about the friendly couple in Oracle who go out of their way to help Arizona Trail hikers and riders.

Like many people in Arizona, Marney and Jim aren't originally from Oracle, but moved to the state from Ohio. They lived in Phoenix for a while and settled in Oracle to manage the Chalet in 1991. Marney said she first became aware of the trail through former Executive Director Dave Hicks. "He would stay here and explained to me that he was traveling through the desert north of Oracle, laying out a trail that would go from Mexico to Utah when it was completed."

She was somewhat familiar with the Arizona Trail, having ridden her horse on parts of it since the first year she moved to Oracle. Then the thru-hikers started showing up. Through

their suggestions, Marney and Jim came up with numerous ways to make AZT travelers more comfortable. "A hiker box where people can put their extra food and supplies, a sign-in register, rides into town from nearby trailheads, and a box of loaner clothes to wear while doing laundry – these are all ideas I got from people who stayed here," she said. "I think it's great what a network these trail users have and how they look out for each other."

The Chalet is a Business Partner of the Arizona Trail Association and offers an AZT discount to folks who arrive by foot or bicycle. They have laundry facilities, free Wi-Fi, will accept General Delivery packages, and Marney and Jim will shuttle people as their schedule allows. One thing that they don't have yet that people have requested is a loaner bicycle that people can borrow to use to get around town for resupply and restaurants. If you have a bicycle that you'd like to donate to the Chalet, please let them know.

Marney says it has been a pleasure meeting people who from all over the country and even internationally to visit the Arizona Trail. "I enjoy the personalities and the stories. I've never had a bad experience."

The Chalet Village Motel is located at 1245 W. American Avenue. Contact Marney at (520) 904-2122 for reservations or a shuttle into Oracle from American Flag or Tiger Mine Trailheads.



Become a Trail Angel

Hiking or riding the entire length of the Arizona Trail is a tough and often lonely endeavor, and having a little help from a friend along the way makes the experience much richer. Since Arizonans are among the nicest people on Earth and there are so many trail enthusiasts that wouldn't mind helping out a thru-hiker, we are proud to announce the development of the AZT Trail Angel program.

Trail Angels are volunteers who are willing to cache water, provide a ride to/from a trailhead, or open their home or guesthouse for an evening to one of the many adventurous individuals out there on the AZT. You choose how you'd like to help, and in which part of the state, and we publish your information on the Trail Angel page: aztrail.org/trail_angels/list.html

To learn more, or to sign up to become a Trail Angel, please visit the Trail Angel Registration page: aztrail.org/trail_angels/registration.html

SEEDS OF STEWARDSHIP PROGRAM TAKES FOURTH GRADERS ON THE TRAIL

For the past four years the ATA's Seeds of Stewardship program has helped introduce thousands of middle school and high school students to the wonders of the outdoors, and inspired them to become the next generation of stewards of the Arizona Trail. Now, through support from the national Every Kid in a Park initiative, we are proud to begin taking groups of fourth graders into the wild as well.

Every Kid in a Park (EKiP) is an important program that gives every fourth grader and their families in America free access to a National Park in 2016. The USDA Forest Service and Bureau of Land Management are also involved, and have partnered with the ATA to add a fourth grade element to the Seeds of Stewardship program.

Thus far, we have led groups of fourth graders from these elementary schools to beautiful locations in Arizona: Huachuca Mountain in Sierra Vista, Leupp in Leupp, and Marshall in Flagstaff. Many more outings are planned before the end of the year.

The Tonto and Coronado National Forests have successfully secured funding to support EKiP trips, allowing the ATA to expand our reach to young people throughout the state. Check the Seeds of Stewardship trip reports online to learn more about the great things young people are doing through this program: aztrail.org/stewardship/seeds.html

And if you know of a family with a fourth grader who has not yet received their EKiP

pass, they can get it online for free by visiting everykidinapark.gov



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Conversely, if the high-concentrate bucket isn't working and the low-concentrate bucket is working minimally, then dump the high-concentrate bucket and try again with a new bucket with half as much of the 1:100 concentrate as in your prior low-end trials. Repeat these tests until you find a concentration that causes substantial settling within an hour (which will give great settlement overnight).

SO WHERE DO YOU START?

We found that that about 50 cc's of the 1:100 concentrate in a 10-liter bucket worked minimally (slowly) but 100 cc's worked better. We measured the 50 and 100 cc's by squirting in 4 and 8 syringes full of the 1:100 concentrate (using the 12 cc syringe) but we probably could have just eyeballed the markings on a water bottle.



A pinch of alum bonds with particles within cloudy water, making it easier to filter clear water off the top – saving your water filter from early demise.

Mixing is nearly as important as getting the dosage right. A water treatment plant will normally rapid mix for 30-60 seconds and provide slow, gentle mixing for up to an hour. The rapid mix disperses the treatment chemical so that all the water is treated with no localized overtreatment and the slow mix brings the particles together so that they will grow in size and settle out quicker. In a bucket treatment situation we would recommend at least 15 seconds of rapid mix and 3 minutes of slow mix. The slow mix should be more back and forth across the bucket rather than swirling. Using these techniques it should be possible to produce clarified water in less than an hour.

Note that the initial mixing of the 1:100

concentrate can be very vigorous (you shake the bottle like mad). We found that sometimes after 30 minutes or so, some of the fine flocculent would gather at the water surface rather than sinking. A light stir of this top layer seemed to allow this flocculent to re-assemble in larger pieces that sank to the bottom.

A CHANGING CLIMATE

As the weather warms and water sources disappear, the ATA will have to work harder to revitalize historic water sources and develop new ones if people are going to continue to hike and ride along the AZT for extended periods of time. We are researching many options, including water tanks (cisterns) that can be refilled by water trucks; shade structures that catch rainwater and store it within cisterns nearby; and drilling wells. All of these options require significant infrastructure, and donations from individuals and businesses will help tremendously with the development of more reliable water sources along the AZT. Please consider making a donation online today at aztrail.org.

Before these alternate water sources can be developed, volunteers are needed to help keep water caches filled and help remove empty gallon jugs that occasionally accumulate. Some locations can be easily accessed by a passenger car while others require a high clearance four-wheel-drive. These water caches have helped many thru-hikers in a time when they need it most, and if you've ever been out of water in the desert you know just how important this act of kindness can be. If you are interested in helping out – especially this Spring as temperatures are quickly rising and there are a record number of long-distance trail travelers on the AZT – please send a message to the Volunteer Coordinator (volunteer@aztrail.org).

Special thanks to Rob "Wilderness Vagabond" and John Ladd for their contributions to this article, and for helping river runners, hikers and bikers learn more about the virtues of alum in the treatment of turbid water.



A typical water source found along the AZT. No babbling brooks here! Any water source can mean the difference between a good day on the trail and severe dehydration and emergency evacuation, or worse. *David Baker Photo*

GATEWAY COMMUNITY ADVISORY COUNCIL

by Sirena Dufault

The Gateway Communities of the Arizona Trail (AZT) are vital to the trail user experience – places to rest, resupply, refuel, and get that all-important cold beverage at the end of a long day on the trail. The Arizona Trail Association has long recognized that the gateway communities are integral to the trail experience, and that the individuals within these communities are the true AZT ambassadors that interact with trail users on a regular basis. Since 2011, I have been working with these 33 towns that are on or near the trail to educate them about the AZT and the travel and tourism impact it has on their local economy.

At first, hardly anyone knew about the AZT and I had to explain where it went and that the hungry, dirty people coming into their town wearing backpacks were not in fact vagrants, but were there to spend money on food, lodging and other amenities. I gave countless maps for businesses to give away and put up on their walls, visited Chambers of Commerce and local tourist offices, and talked again and again about the rewarding experience that the Arizona Trail provides to not only the people who use it but also the businesses and communities that support it.

Over the years I've enjoyed seeing the communities embrace and promote the AZT and the many relationships I've made. In each of the Gateway Communities there are always a couple of community leaders who know everyone in town and can get any job done. Often, they volunteer on numerous local committees as well as being involved with the Arizona Trail. I wanted to get all these people in the same room, sharing ideas and helping the Gateway Community program grow.

That's what led to the development of a Gateway Community Advisory Council. Made up of leaders within each of the communities, we meet three times a year to discuss how best to support trail users and promote the trail and area tourism.

Our first meeting was on February 27, hosted by the Superior Chamber of Commerce. Representatives attended from Sierra Vista, Patagonia, Vail, Kearny, Florence, Superior, Pine/Strawberry and



The Town of Tusayan proudly displays their Gateway Community sign for all locals and visitors to see as they enter the small community that receives millions of visitors each year. *Sirena Dufault Photo*

Flagstaff. It was great to see the exchange of ideas and stories and the common thread that connected us all.

We discussed all the different things that a Gateway Community can do to provide services and amenities for trail users, from public shower facilities to stocking common resupply items in the grocery store to shuttle services. Several of the communities expressed the need for more hotel or bunkhouse space to accommodate the ever-growing traffic on the trail.

SERVICES AND AMENITIES

The ATA has worked hard to identify all of the services and amenities within each of the Arizona Trail's Gateway Communities. For a map of the communities and what they have to offer, please visit aztrail.org/gateway/gateway.html

After listing all the support and amenities needed, we turned our attention to how best to promote and market the Arizona Trail in the Gateway Communities to locals and tourists. Gary and Lorraine, from Old Time Pizza in Kearny, told about their sign-in banner and how they often drive visitors from town to the Kelvin Bridge (start of popular Passage 16).

We had a delightful lunch from Jade Grill, and Tamara Morken of THAT Brewery was nice enough to bring cans of Arizona Trail Ale for lunch. Tamara discussed their Business Partnership and how they donate a portion of the proceeds from Arizona Trail Ale sales to the ATA. She also told of how her business has evolved in the ways that they support trail users who come to eat and stay in their rental cabins.

Mila Besich-Lira from the Superior Town Council and Copper Corridor Economic Development Coalition spoke to the group about her journey in promoting the town as a Gateway Community and the construction of the Legends of Superior Trail (LOST).

Arizona Trail Day events are an integral part of the Gateway Community Program and Jim and Carol McFadden told the group about their experiences in putting together a full weekend of events in Flagstaff. They also spoke about their role as trail stewards supporting trail users.

It was a very productive first meeting and I am looking forward to seeing the relationships between the Gateway Communities develop and flourish as a result of the Advisory Council. As with every component of the Arizona Trail, the volunteers are the people who really make a difference and I am forever grateful for their involvement. Working together, I know that we can all help make the Arizona Trail and its Gateway Communities a truly amazing resource for locals and visitors alike.

Sirena Dufault is the Gateway Community Liaison and Social Media Coordinator for the Arizona Trail Association. She can be reached at gateway@aztrail.org.



TIPS FOR Trail Stewards

by Mark Loseth



WHAT TO DO WITH EROSION

Does your trail segment have some serious erosion? Something you would describe as a ditch, a trough or a mini-canyon? This unsightly problem is bad for the earth and a threat to user safety, and we as trail stewards want stop that erosion as soon as we find it. Erosion begins when there is enough water volume and speed to pick up and carry sediment. On the trail, this is often when water is trapped on the trail, gets deposited by a drainage or head cut, or the grade of the trail gets steep enough for water to gain speed. These sections of trail will continue to erode until either the drainage problem is fixed or the trail grade is reduced enough to cause sedimentation.

TAKE A LOOK AT YOUR SECTION

Where is the water coming from? Is it running down the trail or does it drain onto the trail from above? You are looking for the source of the erosion. Once you identify the source, the next step is to decide which maintenance technique is the most appropriate. Is the trough on a piece of trail that is too steep for standard maintenance techniques like grade dips or out sloping? Which structure should you put where? Here are a few of the most commonly used

methods to improve eroded trails.

GRADE DIPS/DRAIN SWALES

These maintenance structures are all dirt work. The 'dip' means you are digging a long and gentle U into the trail, typically 4 - 8 feet long and deep enough that downhill side of the U rises back up to meet the original trail tread, effectively creating a grade reversal in the trail. Make sure all soil removed from the grade dip goes back on the trail, downhill of the structure.

OUT SLOPING

Sometimes called 'berm busting', this technique removes the lip of the trough on the downhill edge of the trail to re-establish your out slope and encourage sheet flow. At times the best method for sustainable trail maintenance, it can also be a waste of effort on steeper trails (more on this in an upcoming article).

TRAIL REALIGNMENTS

Sometimes moving the trail is as easy as benching in on either side of the ditch. Sometimes finding a better place for the trail altogether and moving it well away from its current location is the only solution. Either way, this requires official input and should not be done until you

talk to and receive permission from the regional steward, trail director and most importantly – the land manager.

TIP FOR THE TRAIL STEWARD

Protect! Assuming that the trough is on a section of trail that is too steep for basic dirt moving techniques, we do the best we can by shedding water from the trail where practical and sustainable. Install drainage above and below the problem. That way, any water coming from the trail above will be shed before creating more erosion, and any water that ends up in your trough will get off the trail as soon as possible. If water is draining onto your trail from the hillside above, make sure it will flow directly across the trail and off, not down it!

Mark Loseth is the National Trails Coordinator for American Conservation Experience. Tips for Trail Stewards is a regular column intended to further your understanding and skills in trail maintenance. The ideas have been developed, tested and proven by trail professionals on the Arizona Trail. To learn more about the art and science of trail stewardship, sign up for one of the Arizona Trail Steward Trainings offered by ACE throughout the year by visiting aztrail.org/volunteers/training.html

2016 TRAIL VOLUNTEER TRAININGS

Are you interested in learning more about monitoring, maintaining and constructing trails? Are you a steward of the Arizona Trail or are you interested in helping out with trail projects? Do you like to get your hands dirty while learning valuable skills at the same time? If you answered "yes" to any of these questions, then make your reservations today for the upcoming trail trainings!

Dates include April 16 in Oracle State

Park; June 25-26 near Flagstaff; October 15 near Sunflower; and November 5-6 near Patagonia.

This collaboration between the ATA and ACE will teach valuable skills to volunteers, including those who have been involved in trail projects for many years. Drawing upon thousands of hours on the trail and in the classroom, including some of the most daunting trail projects you can imagine, ACE staff will inspire, educate,

and give you the skills you need to be an effective steward and trail volunteer.

Each training will take place entirely outdoors and is designed to benefit veteran trail dogs and first-timers alike.

To learn more, and to register, please visit the Trail Trainings page online: aztrail.org/volunteers/training.html



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