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# Summer 2024

# CONSERVANCY CONNECTION

FROM THE DESERT'S HEART



### OUR MISSION

Working toward a sustainable future for the Amargosa River and Basin through science, stewardship and advocacy.

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### SINCERE THANKS

#### To My Champion Supporters,

Thank you for standing with us in our mission to protect and preserve Our Basin. Your generosity fuels our efforts and inspires change on a regional scale. I invite you to further your impact by becoming a monthly donor. Your contributions amplify our initiatives and make an even greater difference in the area on Ash Meadows and other issues. Together, let's cultivate a sustainable tomorrow for generations to come. Thank you for being the ones to raise your hands for the Amargosa Basin.

— Ashley Lee, President

## A Defining Moment for the Future of the Amargosa River



There are moments that can define a season of life, images and experiences that lodge themselves fixedly in our memories and endure, crystalized like veins of quartz in granite. This season of life in the Amargosa and Death Valley region has been replete with such defining moments. Gliding

in a kayak across an ephemeral lake in Badwater Basin, the river's final resting place. Gazing out across fields of wildflowers spread like yellow fire across the valley. Sitting quietly in the arrowweed, watching the pink light of dawn shimmer in the rippling waters of Fairbanks Spring. Moments of raw unadulterated beauty, delivered point blank, unforgettable.

But I have been witness to a different variety of defining moments that have shaped this season of our work in the watershed. I've sat at many a table, listening to tribal leaders, community members, fellow advocates, my friends, moved to tears out of fear for what might become of this magnificent desert river in light of the threats it is facing on many fronts. The swirling maelstrom of threats to the river that we saw brewing on the horizon has arrived, and we are doing everything in our power to engage them head-on.

We have brought the fight for the future of Ash Meadows National Wildlife Refuge — celebrating 40 years of protection this year — to kitchen tables, community meetings, and even to the halls of the Capitol. We have worked arm-in-arm with community leaders from Furnace Creek, Amargosa Valley, Beatty, and Nye County, urging the Department of the Interior and Congress to take immediate actions to safeguard Ash Meadows, Death Valley National Park, and the communities of life in this region from the harms of proposed mining. We have called on the Bureau of Land Management to exclude the Amargosa Desert and Pahrump Valley from large-scale industrial solar development out of concern for impacts to groundwater that is the lifeblood of this region. We have convened a working group currently working to secure what could be the largest single investment in restoration and hydrological research in the history of the Amargosa



**Above: AC Board President Ashley Lee investigates flooding in Death Valley. Mason Voehl photo**

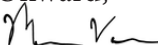
River watershed. We continue to act as a catalyst for collaborative conservation, bringing together communities, land owners, researchers, nonprofit partners, and managing agencies in pursuit of a shared vision for sustainable management of this remarkable and diverse landscape.

We do all of this and so much more because the Amargosa River remains one of our last best chances to protect biodiversity, intact groundwater ecosystems, cultural heritage values, and relics of an ancient world that have inspired, enthralled, and nourished generations of humans beyond count. We do this work because the desert needs champions now more than ever before if it is to flourish into the deep future.

And frankly, we do this work because we have the privilege to do so, because we have the support of the communities and from people around the world who have been changed by their time in these mesmerizing riverlands. I cannot begin to express the depths of gratitude I have for how so many people have showed up for us and for the Amargosa River in this defining moment. Your words of encouragement, your willingness to support our organization through taking urgent actions, the generosity of your financial contributions: these sustain us in every sense of the word. And so despite the significance of the threats facing this landscape, I remain not only undaunted, but fervently hopeful, because the fortitude and passion of our community has revealed itself.

In this issue, you will get a chance to hear from many of the people that make up Amargosa Conservancy, experts in conservation that give freely of

their time, energy, and wealth every day to help our organization meet this moment. I draw inspiration daily from each and every one of them, and I hope you may borrow some from reading this issue as well. And I would like to invite you, whether you having been supporting Amargosa Conservancy for all or part of our 20 year history or are just encountering our work for the first time, to join us. Ours is a community defined by affection for wild places, unbroken vistas, dark night skies, thriving resilient communities, and the majesty of one of West's most iconic and mysterious reaches. If this sounds like your cup of tea, sign up for our newsletter, Follow us on social media. Share our stories. Explore Death Valley and the Amargosa, and bring a friend or two along. Donate knowing that your support is instrumental to our ability to make felt positive impacts on the land. Because our strength is the strength of our community, of you. And together, we can define this new chapter for the benefit of the abundant goodness that is here, and all that is yet to come.

Onward,  


Mason Voehl  
 Executive Director

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# FLOODS MAKE FLOWERS

## A SPECTACULAR WINTER AND SPRING IN THE AMARGOSA

by Naomi Fraga



**T**he summer sun has arrived in the Amargosa. The enormous horseflies that we call bombers are out, the wildflowers have set seed, and the last vestiges of spring are fading away. Late spring is a time of transition, where you can still find the last few flowers on the desert five spot (*Eremalche rotundifolia*), but also gaze at a hillside full of little desert trumpets (*Eriogonum clavatum*) in the 100-degree heat. We call the wildflower *Clarkia* by the common name “farewell-to-spring,” but in the desert I think the little trumpets are *our* farewell to spring.

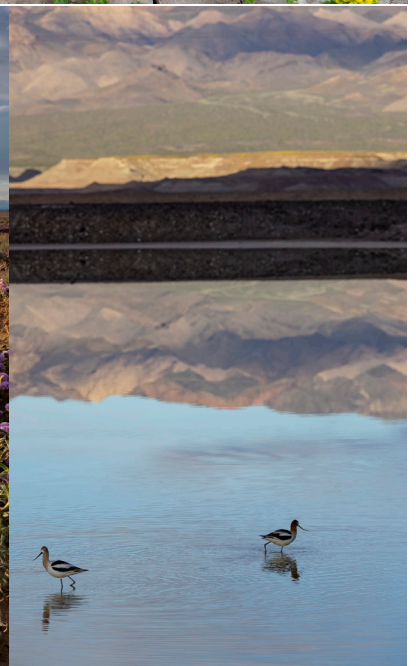
I noticed the buckwheats starting to bloom around mid-April, right around the time the desert gold (*Geraea canescens*) started to give way to producing seed. The desert gold was the real showstopper this year, producing blooms across tens of thousands of acres across the Death Valley region. I heard from several locals that it was the best desert gold bloom they had ever seen and I believe it. The

**Above: So much desert gold. Right, clockwise from top left: primroses and sand verbena; sphinx moth caterpillars on sand verbena; yellow pepperweed; American avocets at Tecopa wetlands; desert lily and sand verbena; Mojave aster. Photos by Bob Wick.**

plants grew large, almost like bushes due to their extended life, starting with germination after hurricane Hilary, then overwintering due to mild temperatures. They got a second wind after February’s atmospheric river. How long could these annual plants go? Well, in the Amargosa, while the rain is unpredictable, one thing we know is for certain, and its the heat.

Hilary dumped more than two inches of rain on the Amargosa region, kick-starting a bloom last autumn which really didn’t stop until just a few weeks ago. Then, the atmospheric river gave the plants a

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# AMARGOSA LOOMS LARGE IN BLM SOLAR OVERHAUL

## GROUNDWATER AT RISK

by Chris Clarke

In the next few weeks, the Bureau of Land Management will be releasing the final version of a planning document for solar energy development covering the entire western US. Depending on whether the agency heeded the input of non-governmental organizations and residents of the west, the Amargosa Basin may be forever changed by the recommendations in the BLM's plan.

### Background

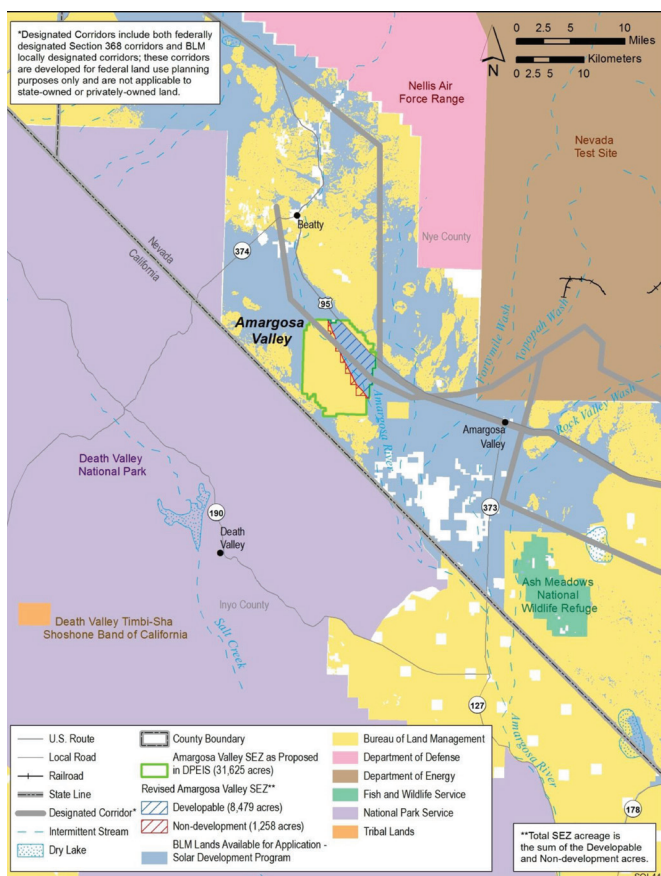
In 2012, The BLM and the Department of Energy released the awkwardly titled "Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States," a.k.a. the Solar PEIS. The Solar PEIS divided up BLM lands in

California, Nevada, Arizona, New Mexico, Colorado, and Utah according to their presumed suitability for utility-scale solar development. Approximately 285,000 acres across those states were designated as suitable for streamlined solar development, concentrated in 17 Solar Energy Zones (SEZs). More than half the acreage designated as SEZs was in California (153,627 acres), and nearly half the remaining land area — 60,395 acres — was in Nevada. The rest of the SEZs were distributed among the other four Southwestern states. Additionally, some 19 million acres of other BLM lands were designated as so-called "variance areas," where solar development would be allowed with no procedural streamlining. 79 million acres of other BLM lands were designated as "exclusion areas," where no utility-scale solar applications would be considered.

The 2012 Solar PEIS designated 8,479 acres between Beatty, Nevada and Ash Meadows National Wildlife Refuge as the Amargosa Valley SEZ, with the majority of the Nevada side of the Amargosa Basin classified as variance areas.

Many grassroots land protection groups lamented the potential conversion of important landscapes in the SEZs and variance areas designated under the 2012 Solar PEIS. The solar industry responded to the PEIS with a collective "meh." Aside from the SEZs in Riverside and Imperial counties in California, which have seen significant solar construction in the last 12 years, developers complained that SEZs in most other states were unsuitable or unprofitable for development due to impractical distance to transmission and other impediments.

In the meantime, three major developments raised the stakes for the east Amargosa. The Desert Renewable Energy Conservation Plan, finalized in California in 2016, put most of the California side of the Amargosa off-limits to development. A wholesale shift from concentrating solar to photovoltaic cells reduced the cost of entry for solar developers, making locations that had been marginally unsuit-



The 2012 Solar PEIS designated much of the Nevada side of the Amargosa Basin as Variance Areas.

able for solar more attractive to developers. Lastly, the proposed Greenlink West transmission line, which would essentially run from Reno to Las Vegas, offered developers in Nye and Esmerelda counties a viable and economical connection to the grid for their solar projects. This increases solar development pressure on Western Nevada lands, and dozens of speculative proposals have already been offered for BLM land along the state line with California.

## The Expanded Solar PEIS

In 2022, responding to developer concerns and improvements in solar technology, the BLM announced it would revisit the 2012 PEIS, revising some of the criteria for exclusion zones and adding five more western states: Idaho, Washington, Oregon, Montana, and Wyoming. The updated document, called the Programmatic Environmental Impact Statement (Programmatic EIS) for Utility-Scale Solar Energy Development, also intended to eliminate the controversial Variance Areas and SEZs, and simply map areas where solar development would be allowed or prohibited. The Draft PEIS included six alternatives in which the land approved for solar development varied based on different criteria. Those alternatives include a “No Action” alternative that preserves the status quo, and five action alternatives;

- \* Alternative 1 would exclude solar development from areas where such activity would damage listed natural and cultural resources, a limit the remaining alternatives all share;
- \* Alternative 2 would bar developing land with a greater than 10 percent slope (an increase from the 5 percent limit in the 2012 PEIS);
- \* Alternative 3 would combine Alternative 2’s slope exclusions with a requirement that projects be sited within ten miles of existing or planned transmission lines;
- \* Alternative 4 adds a requirement that land available for solar development be previously disturbed, in addition to the resource-based and slope exclusions;
- \* Alternative 5 would contain all the restrictions in the previous alternatives: resource conflicts, slope limits, proximity to transmission and previously disturbed land.

The BLM has identified Alternative 3 (slope plus transmission proximity) as its preferred alternative, which likely means the Final PEIS will be based on that alternative with slight if any modifications. The Final PEIS is now being examined by cooperating agencies such as the US Fish and Wildlife Service



**Alternative 3 designates a significant percentage of the Amargosa Basin and areas with connected aquifers as suitable for development (green areas). The lowest green area on this map is the south Pahrump Valley.**

and National Park Service. The target public release date is August 1, but that will likely slip.

The Amargosa Conservancy has significant concerns about the impacts of Alternative 3, as written, on groundwater dependent ecosystems. While the Draft PEIS did address groundwater concerns in some detail in an Appendix, the responsibility for assessing an individual project’s impact on local aquifers lies with the project proponent, as does monitoring the health of the groundwater dependent ecosystems affected by the project. This opens the door to abuses of the process of the “science for hire” variety, in which scientific consultants hired by the proponents provide assessments of impact that favor the project.

Solar development in the south Pahrump Valley, whose aquifer feeds the Amargosa Basin’s groundwater system, is already adding to a severe overdraft of local groundwater. Alternative 3 would designate more than 175,000 acres in the Pahrump Valley as suitable for solar development. If just twenty percent of that land was developed for solar photovoltaic, yielding approximately 8.8 gigawatts of generating capacity and a likely 22,000 gigawatt-hours of annual output given the 29-percent capacity factor for solar PV in Nevada, the annual operational water consumption would be approximately 1,350 acre-

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# IMPACTS TO GROUNDWATER FROM OPEN-PIT MINING: HISTORY AND PRESENT THREATS

by Patrick Donnelly

**N**orth Bullfrog Mine is the first of a half dozen or so gold mines which are under exploration or permitting near the Amargosa River in Beatty, Nevada. North Bullfrog is owned by AngloGold Ashanti, one of the world's largest gold mining companies, which is headquartered in South Africa. The proposed mine site is located about nine miles north of the town of Beatty and about three miles west of the Amargosa River.

Currently, North Bullfrog Mine is in the beginning stages of the environmental review process under the National Environmental Policy Act (NEPA). It is being reviewed under an Environmental Impact Statement (EIS). Scoping, when members of the public can identify issues which need to be analyzed in the EIS, concluded on May 10, 2024. We are expecting a Draft EIS sometime this summer.

The proposal includes three open pits: the Sierra Blanca, the Jolly Jane, and the Mayflower. Sierra Blanca and Jolly Jane are both proposed to go below the water table, and will thus require dewatering. Dewatering is when a mining company pumps water out of the aquifer to lower the water table so that open pit mines don't flood during operation. Maximal dewatering rate will be around 1,300 acre-feet per year, and will propagate a cone of depression well into Oasis Valley, affecting the Amargosa River. An acre-foot is enough water to fill an acre one foot deep, approximately 325,000 gallons.

The mine would use the dewatered water as a part of their ore processing, but will also require additional water, which will be sourced from a wellfield to the north in Sarcobatus Flat. Total water consumption for

the project including dewatering will be as much as 2,500 acre-feet per year.

Drawdown from pumping and dewatering will extend outward from the mine site for many miles. BLM is only providing the public with a 10-foot drawdown contour – that is, a circle drawn around the mine site where the extent of aquifer drawdown will be 10 feet. Their area of potential impacts to groundwater is being evaluated using the 10-foot contour plus one mile. However, drawdown will propagate for an unknown distance beyond the 10-foot contour – one mile is not a number based on the local hydrogeology, but rather a standard procedure by BLM. As a result, the full area of impacts from groundwater drawdown has not been fully revealed to the public.

At a public meeting for the mining project, BLM stated that drawdown would occur in the following amounts: 13 feet of drawdown at Springdale, a ranch



Amargosa toad. US Fish and Wildlife photo



which is now owned by AngloGold; 3.3 feet of draw-down at the Amargosa River near Fleur De Lis Road; and one foot of drawdown at Colson Pond, which is on The Nature Conservancy’s Atwood Preserve.

There are numerous species endemic to Oasis Valley which could be severely affected by pumping and dewatering for North Bullfrog Mine. These include the Amargosa toad (*Anaxyrus nelsoni*), the Oasis Valley speckled dace (*Rhinichthys nevadensis nevadensis*), the Oasis Valley springsnail (*Pyrgulopsis micrococcus*), and a recently discovered and undescribed species of springsnail in the genus *Tryonia*. These organisms are all reliant on sustained discharge of groundwater from springs and seeps for survival. How will drawdown, even one foot of drawdown, affect these species?

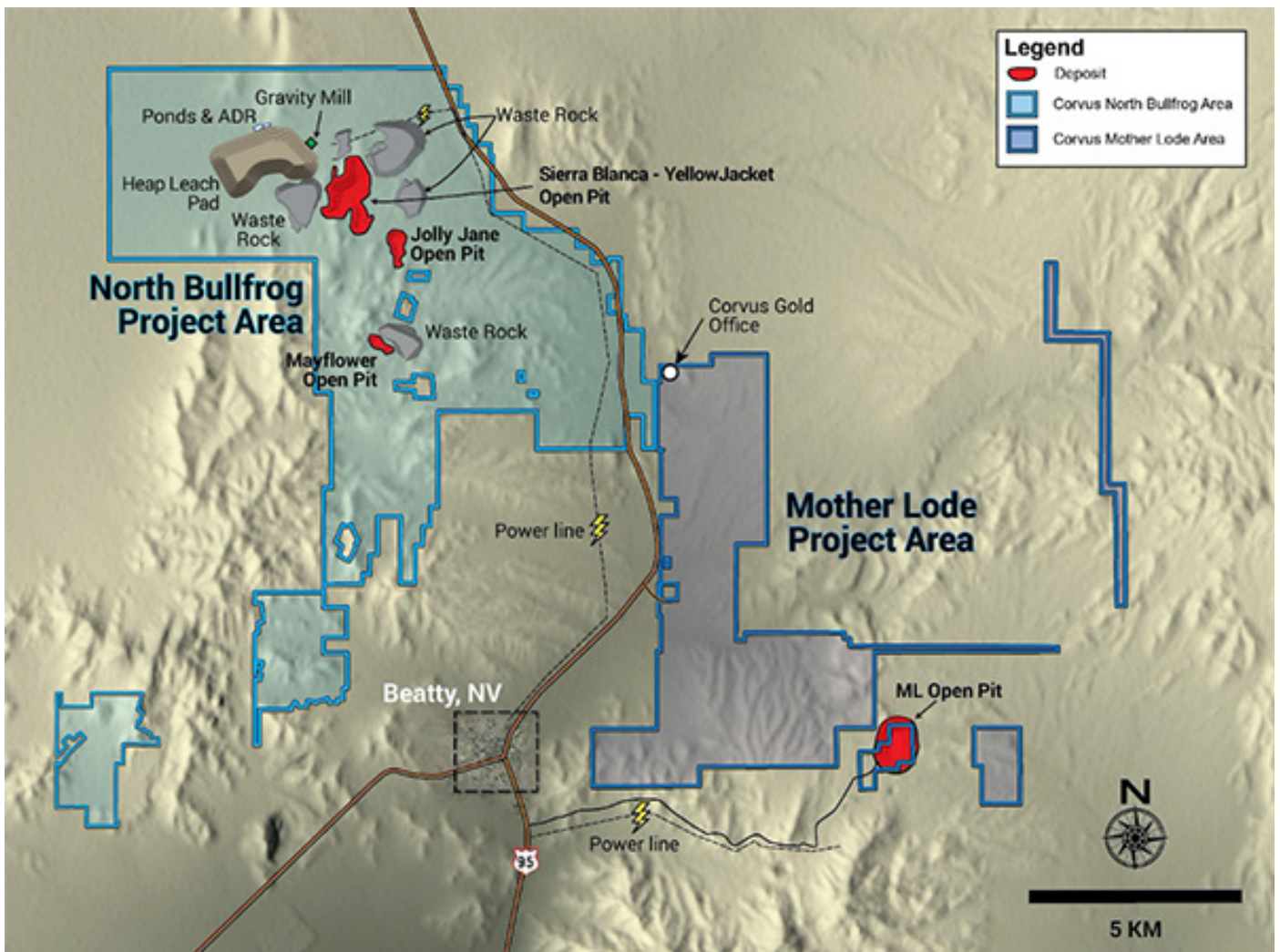
The mine is also sited in desert tortoise habitat. Beatty, being on the northern edge of the Mojave Desert, is at the very northern extent of the desert tortoise. However, with climate models showing

much of the tortoise’s range becoming hotter and drier and possibly incompatible with tortoises’ life history and needs, the northern part of the species’ range is of increasing importance. The tortoise as a whole will eventually need to move northward to adapt to the changing climate, making habitat in Beatty of high importance.

North Bullfrog is the first of many mines which are proposed in Beatty/Oasis Valley. AngloGold has several other projects, including the Expanded Silicon Project, described as one of the largest recent gold discoveries in the world, the Mother Lode project, and the Sterling project. Augusta Gold has two projects, the Bullfrog project and the Reward project. And finally a company called Zacapa Resources has the South Bullfrog project. Cumulative pumping and dewatering from these projects could cause devastation to the Amargosa River.

The Amargosa Conservancy is remaining engaged on these issues and will push back on any projects which will harm the Amargosa River. Stay tuned for more information.

Map courtesy Anglo Gold/Ashanti



## Flowers

(continued from page 10)

new lease on life, and this spring we got to witness the consequences. It was a dramatic reminder of the power of rain and water to shape this desert. And a powerful reminder of how opportunistic desert organisms can be when faced with an abundance of precipitation.

I was lucky enough to lead a group of Amargosa Conservancy supporters on a wildflower walk in April. We visited the Gunsight Mine and saw a diversity of flowering plants and shrubs, including the iconic local favorite, the Death Valley sage (*Salvia funerea*). We reveled in fields of desert gold, and visited a local and highly imperiled population of the endangered plant the Amargosa niterwort (*Nitrophila mohavensis*). Participants left with a new sense of appreciation of the diversity of flowering plants in the desert, and the threats that put them at risk of extinction.

As we say farewell to the blankets of desert gold we can still enjoy the riches of the rain. The creosote and burro bush are still lush and producing prodigious amounts of fruit. The honeysweet (*Tidestromia suffruticosa* var. *oblingifolia*) is starting to come up *en masse* near Dumont Dunes. Some of these wildflowers are more modest than the earlier spring wildflowers, but they are still a sign that the rain in the desert brings magic.

The Amargosa is a place of distinct seasons - the wet season, the dry season; the cool season, the hot

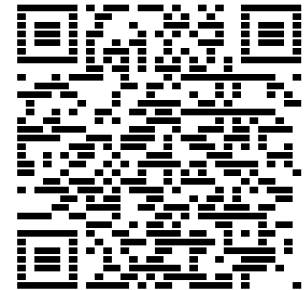


Above: Desert five spot. Chris Clarke photo.  
Below left: Golden suncup. Ashley Lee photo

season; the blooming season and the fruiting season and the dormant season. All of them are necessary for life to thrive in one of the harshest climates in the world. And if we pay attention to changing of the seasons, we will learn something new about the plants and flowers that make this place so special. Summer is coming; let's enjoy it.



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## New Board Member: Louise Mathias

The AC is pleased to introduce you to the newest member of our Board of Directors, Louise Mathias. Louise is a 15-year resident of the Mojave Desert, whose interest in and passion for the delicate ecosystem of the Amargosa Basin began in 2014, when she visited Tecopa with her partner. She has been a frequent visitor ever since, and calls the Amargosa Basin “one of my favorite places on earth.”

Louise is co-founder and Senior Partner of Innovative Funding Partners, LLC ([www.innovative-fundingpartners.com](http://www.innovative-fundingpartners.com)), a consulting firm that works with nonprofits across the nation in various sectors and sizes, from small organizations to some of the largest health care systems and major universities in the country. In addition to her work in the business and nonprofit world, she is also the author of three books of poems (including the forthcoming *What if the Invader is Beautiful*, which includes a number of poems set in the Amargosa region.) Her writing is deeply rooted in the natural world.

We are extremely fortunate to be able to welcome Louise to our Board! — *Chris Clarke*

## Solar PEIS

(continued from page 7)

feet just for cleaning and ancillary operational uses, a not insubstantial amount in a basin already oversubscribed by more than 300 percent. Of greater concern would be water use during construction of these solar facilities for dust control and related uses. Construction water use for that hypothetical 20 percent of the available area in Pahrump Valley under Alternative 3 could surpass 8,000 acre-feet per year. Developing half of Alternative 3’s designated area in the Pahrump Valley would mean an annual construction water demand roughly equivalent to the total annual estimated recharge of the basin. That’s leaving current use out of consideration. It’s also assuming best case scenarios for water consumption. In 2021, a solar project in Boulder City made the news for using more than 60 acre-feet of water in less than two months in an unsuccessful attempt to control dust emissions from the project.

Unless the BLM releases a final PEIS that has added oversubscribed aquifers to its list of resource exclusions, Nevadans will find themselves in the position of needing to trust project developers’ claims about the impact their projects have on the groundwater that keeps the Amargosa alive and diverse. The Amargosa Conservancy will be tracking this issue, and will also be keeping an eye on local proposals that could harm this unique basin’s irreplaceable ecosystems.

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