## MEET THE AMARGOSA

OCTOBER 19 - 21, 2018 TECOPA, CA





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### \_\_\_\_\_ SCHEDULE \_\_\_\_\_

	FRIDAY OCTOBER 19
3:00 - 8:00 PM	Check-in (Tent)
	Meet & Greet (Tent)
	*Preview Silent Auction*
	SATURDAY OCTOBER 20
7:00 - 8:15 AM	Breakfast (Tent)
	*Silent Auction - Bids Open*
8:00 - 8:30	Opening Speakers (Tent)
	Welcome - Amargosa Conservancy
	Wild & Scenic River Presentation - Leigh Karp
8:30 - 9:00	Travel Time
9:10 - 9:55	SESSION 1 FIELD TRIPS (Various Locations)
	Rare Plants of the Amargosa - Naomi Fraga
	Old Spanish Trail - Tom Sutak
	Travelling the Amargosa & Species Along the Way - Ceal Klinger
10:00 - 11:00	Explore Sites
11:00 - 12:00 PM	Lunch & Relax (Tent or elsewhere)
12:10 - 12:55	SESSION 2 FIELD TRIPS (Various Locations)
	[repeated from Session 1]
12:55 - 2:00	Explore Sites
2:00 - 3:00	Break
3:00 - 3:30	Hydrology Presentaion - Andy Zdon (Tent)
3:30 - 5:30	Roundtable Discussions (Tent)
	Renewable Energy - Kevin Emmerich
	Conservation Lands & Other Designations - Frazier Haney
	Water - Andy Zdon
5:30 - 6:00	Break
6:00 - 9:00	Dinner (Tent)
	*Conclude Silent Auction*
	Closing Remarks
	Social Hour
	SUNDAY OCTOBER 21
6:30 - 8:00 AM	Breakfast (Tent)
7:00 - 8:00	Bird Walk - <i>Leonard Warren</i> (Shoshone)
8:00 - 12:00 PM	SESSION 3 FIELD TRIPS (Various Locations)
	Eagle Mountain Hike/Scramble - Roy Gillam & Steve White
	Springs Tour - Andy Zdon
	Amargosa Canyon Hike - Tanya Henderson
	Plein Aire Painting - Laura Cunningham
	Shoshone Village Pupufish & Vole Habitats - Susan Sorrells

### **MtA Tecopa**

#### mta locations





# AMARGOSA CONSERVANCY



### THE AMARGOSA CONSERVANCY IS DEDICATED TO STANDING UP FOR THE WILDS, WATERS, AND COMMUNITIES OF THE SCENIC AMARGOSA BASIN AND EASTERN MOJAVE.

From its headwaters north of Beatty, NV, the Amargosa River flows underground in a southernly direction. Near the Dumont Dunes, it makes a big u-turn and heads north into Death Valley National Park, finally terminating in Badwater Basin, the lowest point in the United States. The river surfaces in a few places, around Beatty and in the Amargosa Canyon south of Tecopa, CA. At times after large rainstorms, the entire course of the river will flow above ground.

The Amargosa River and Basin provide unique desert habitats. The greater ecological setting for the river is the Mojave Desert. In one of the hottest and driest places anywhere, the river and nearby springs provide islands of water that support a variety of plants and animals. Often these animals are unique to the area – or endemic – meaning they can't be found anywhere else on earth.











# **LEIGH**

Leigh Karp is the National Conservation Lands Lead for the BLM's California Desert District Office. Leigh is a long time river lover who grew up kayaking on the Potomac River. One of her life long goals is to paddle a hundred different runs. As she is in the seventies, she just might make it.

Leigh earned BS degrees in biology and Recreation, Parks, and Tourism. After undergrad, she packed up her car, drove across the county, and joined the Student Conservation Association's Desert Restoration Corps. She fell in love with the desert and the BLM's multiple use mission. This led her to pursue her Master's degree in Environment Policy and Consensus Building. Her thesis analyzed public comments on the Solar Programmatic Environmental Impact Statement. So basically she's a BLM nerd.As the CDD National Conservation Lands Lead Leigh enjoys building partnerships to develop stewardship and career development opportunities for young professionals. On her weekends Leigh, her husband Ben, and their dog go up to Kernville to work on their cabin and kayak.

# 

Ceal Klingler, a biologist and writer, studies how small animals create temporary havens with each other at the western overlap of the Great Basin and Mojave deserts. Her creative nonfiction has been published in (among other places) High Country News, the Sun, and Backpacker, and she received a special recognition grant for writing on water from the Ellen Meloy Fund for desert writers in 2016.

As a distance runner who hankers for terrestrial travel, Ceal selfishly adores the Amargosa River for its hidden groundwater heart and the fact that anyone can "run" the river without a boat, float, or paddle.



## NAOMI

Naomi Fraga is Director of Conservation Programs at Rancho Santa Ana Botanic Garden in Claremont, CA. She has been studying plants of the Mojave Desert for over 15 years.

Her research interests include plant geography, conservation biology, rare plants of western North America, taxonomy of monkeyflowers (Phrymaceae), and pollination biology. She is particularly interested in the flora of the Mojave Desert in southern California.

Naomi received her Ph.D. in Botany from Claremont Graduate University and she also holds a M.S. in Botany from Claremont Graduate University and a B.S. in Botany and Biology from California Polytechnic University, Pomona.



# MOT

Tom Sutak is a retired criminologist who has been investigating the history of Death Valley and Region for almost fifty years. Eighteen years ago, he focused on the Death Valley Wagon Train of 1849 (the San Joaquin Company) and its guide, Jefferson Hunt. That work resulted in a book published in 2012 entitled "Into the Jaws of Hell." In addition, Tom has written several journal articles and has given talks to many groups including OSTA, OCTA, the Sixth Death Valley History Conference, the Mormon History Association, and several state and local historical associations.

He is a member of the Old Spanish Trail Association and is on OSTA's Tecopa Chapter board of directors and is chair of OSTA's Research Committee. Tom has done significant work on trail research and mapping in the Tecopa area.





ABOUT

ABOUT

## KEVIN

Kevin Emmerich is a former National Park Service ranger and field biologist. He co-founded Basin and Range Watch in 2008 to address the demand to build large-scale renewable energy projects on public and other undeveloped lands.

Industrial renewable energy companies have been seeking to develop many thousands of acres of unspoiled habitat in our region. Our goal is to identify the problems of energy sprawl and find solutions that will preserve our natural ecosystems and open spaces.

## FRAZIER

Frazier Haney is the Associate Southern California Director for the Conservation Lands Foundation. He has 15 years experience working on issues relating to land conservation, public access, and habitat restoration including his most recent role as Director of Land Conservation at the Mojave Desert Land Trust.

He attended the University of California at Santa Cruz and received a Bachelor of Science degree in Ecology, and is currently in a Masters of Business Administration at the University of Redlands. Frazier serves on the Bureau of Land Management's Desert Advisory Council as the Environmental Protection representative, and is a volunteer board member for The Wildlands Conservancy.

He currently lives in Joshua Tree, Ca with his wife Jamie and their daughter Lily. Frazier gets out to explore the desert on a regular basis, and enjoys hiking and camping with family and friends. Growing up in Joshua Tree, he learned to rock climb which has taken him across the western United States. He enjoys stargazing, birdwatching, and jumping on trampolines.



## ANDY

Andrew has 20+ years of experience in the fields of hydrogeology and geology, and is a California Professional Geologist, Certified Hydrogeologist, Certified Engineering Geologist and Registered Environmental Assessor. He has participated in a variety of regional and site-specific hydrogeology, engineering geology, and mining-related projects throughout the southwestern United States, New Zealand and Peru. Among his specialties in numerical groundwater modeling are: finite element and finite difference modeling of groundwater flow and groundwater / surface water interactions, contaminant transport, and dual-phase flow. Mr. Zdon has also provided expert witness testimony regarding hydrogeologic conditions and activities including groundwater modeling. Mr. Zdon has served as a volunteer subject matter expert for the California State Board for Geologists and Geophysicists He is a graduate of Northern Arizona University.

Outside of his geologic work, Andy is an avid birder and is a member of the American Birding Association and Western Field Ornithologists. He is also a Member of the Explorer's Club and is President ex-officio of the Friends of the Eastern California Museum. Mr. Zdon is the author of Desert Summits: A Hiking and Climbing Guide to California and Southern Nevada. Desert Summits includes routes up many desert peaks in the Amargosa area.



### Wild and Scenic Rivers

WITH

LEIGH KARP



National Inventory of Dams (Source: US Army Corps of Engineers National Inventory of Dams)



#### The National Wild and Scenic Rivers System

Established by Congress under the Wild and Scenic Rivers Act of 1968, the National Wild and Scenic Rivers System was created to preserve the free-flow, water quality, and outstanding natural, cultural, and recreational values of select rivers for the enjoyment of present and future generations. The Act is notable for safeguarding the special character of these rivers, while also recognizing the potential for their appropriate use and development. It encourages river management that crosses political boundaries and promotes public participation in developing goals for river protection.

More information about the National Wild and Scenic Rivers System or specific designated rivers can be found at the Interagency Wild & Scenic Rivers Coordinating Council's website, www.rivers.gov, or by contacting one of the federal river administering agencies:



#### U.S. Forest Service



National Park Service w.nps.gov/wsr



RUSSIA

Bureau of Land Management

U.S. Fish and Wildlife Service

#### Names of Numbered Wild and Scenic Rivers

15 Deschutes	30 Donner und Blitzen
16 North Fork Crooked	31 Wildhorse Creek
17 Whychus Creek	and Kiger Creek
18 North Fork Smith	32 North Fork Owyhee
19 River Styx	33 Red Canyon
20 Big Marsh	34 South Fork Owvhee
21 Crescent Creek	35 Battle Creek
22 Little Deschutes	36 Deep Creek
23 Crooked	37 Dickshooter Creek
24 North Fork Crooked	38 Little Jacks Creek
25 South Fork John Day	39 Big Jacks Creek
26 North Fork John Day	40 Duncan Creek and
27 North Powder	Wickahoney Creek
28 Joseph Creek	41 Cottonwood Creek
29 Lostine	42 Sheep Creek
	15 Deschutes 16 North Fork Crooked 17 Whychus Creek 18 North Fork Komith 19 River Shyx 20 Big March 20 Big March 21 Grossent Creek 22 Little Deschutes 23 Crooked 23 South Fork John Day 26 North Fork John Day 26 North Fork John Day 26 North Fork John Day 27 North Fork John Day 28 Joseph Creek 29 Joseph Creek

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#### WILD AND SCENIC RIVERS ACT OF 1968

"...we are establishing a National Wild and Scenic Rivers System which will complement our river development with a policy to preserve sections of selected rivers in their free-flowing conditions and to protect their water quality and other vital conservation values."

- President Lyndon B. Johnson, October 2, 1968

#### WILD

- Free of impoundments
- Inaccessible except by trail
- Shorelines primitive
- Waters unpolluted

#### SCENIC

- Free of impoundments
- Shorelines largely primitive and undeveloped
- Accessible in places by road

#### RECREATIONAL

- Readily accessible by road or railroad
- Some development along shoreline
- May have some impoudments or diversions

#### SUMMARY

The Act is the basis for the national system and provides the avenue to set aside our most valued free-flowing river systems.

It protects our designated rivers from hydroelectric and other water resource projects.

It requires federal agencies to conduct Wild and Scenic Rivers analysis as part of land use planning efforts, and make recommendations for rivers that should be part of the national system.

Its underlying principles set the stage for additional policy, regulation, and guidance.



### Rare Plants of the Amargosa

#### WITH

#### NAOMI FRAGA

The Amargosa Wild and Scenic River supports a diversity of plant species, many of which are endemic to the region, or occur in specialized habitats, including 24 rare, threatened, and endangered plant species (Table 1).

Three plant species in the region are federally listed; the Amargosa niterwort (Nitrophila mohavensis), the Ash Meadows gumplant (Grindelia fraxinipratensis) and the spring-loving centaury (Zeltnera namophila). Amargosa niterwort and Ash Meadows gumplant are also listed as Species of Greatest Conservation Need by the State of California in the California State Wildlife Action Plan.

Despite preliminary findings of exceptional and unique plant diversity, botanists have yet to complete a comprehensive inventory of plant species and describe the vegetation of the Amargosa River. However, such an inventory is in progress (Fraga in prep) and will likely yield remarkable discoveries, including

range extensions and increased understanding of rare plant diversity.

Below is a summary of existing knowledge of plant diversity along the Amargosa River within the National Wild and Scenic River designation, with a special emphasis on the rare and endemic plant taxa.

Chloropyron tecopense (Tecopa bird's beak) in the alkali meadows south of Shoshone along the Amargosa River.



Table 1. Rare Plants known to occur within the Amargosa River Basin in Inyo and San Bernardino Counties, California (CNDDB 2017, CNPS 2017).

Scientific Name	Common Name	Family	CRPR	State Rank	CESA	FESA	Habitat
Aliciella ripleyi	Ripley's aliciella	Polemoniaceae	2B.3	S2	None	None	Mojavean desert scrub (carbonate)
Almutaster pauciflorus	alkali marsh aster	Asteraceae	2B.2	S2S2	None	None	mesic, alkaline
Arctomecon merriamii	white bear poppy	Papaveraceae	2B.2	S3	None	None	Mojavean desert scrub
Astragalus lentiginosus var. borreganus	Borrego milk-vetch	Fabaceae	4.3	S4	None	None	desert dunes
Calochortus striatus	alkali mariposa lily	Liliaceae	1B.2	G3	None	None	mesic, alkaline
Chloropyron tecopense	Tecopa bird's-beak	Orobanchaceae	1B.2	S1	None	None	mesic, alkaline
Cladium californicum	California sawgrass	Cyperaceae	2B.2	S2	None	None	marshes and swamp
Cleomella brevipes	short-pedicelled cleomella	Cleomaceae	4.2	S3	None	None	playas, marshes
Crepis runcinata	fiddleleaf hawksbeard	Asteraceae	2B.2	S3	None	None	mesic, alkaline
Ericameria albida	white-flowered rabbitbrush	Asteraceae	4.2	S3	None	None	saline or alkaline
Eriogonum bifurcatum	forked buckwhea	Polygonaceae	1B.2	S3	None	None	chenopod scrub, playa
Eriogonum contiguum	Reveal's buchwheat	Polygonaceae	2B.3	G3	None	None	Mojavean desert scrub
Euphrosyne acerosa	copperwort	Asteraceae	4.2	S3	None	None	meadows, seeps
Fimbristylis thermalis	hot springs fimbristylis	Cyperaceae	2B.2	S1S2	None	None	meadows, seeps
Grindelia fraxinipratensis	Ash Meadows gumplant	Asteraceae	1B.2	S1	None	FT	meadows and seeps
Johnstonella costata	ribbed cryptantha	Boraginaceae	4.3	S4	None	None	desert dunes
Johnstonella holoptera	winged cryptantha	Boraginaceae	4.3	G4G5	None	None	mesic, alkaline
Juncus cooperi	Cooper's rush	Juncaceae	4.3	S3	None	None	meadows, seeps
Nitrophila mohavensis	Amargosa nitrophila	Amaranthaceae	1B.1	S1	CE	FE	playas (mesic, clay)
Phacelia parishii	Parish's phacelia	Boraginaceae	1B.1	G2G3	None	None	mesic, alkaline
Plagiobothrys salsus	desert popcornflower	Boraginaceae	2B.2	G2G3	None	None	mesic, alkaline
Salvia funerea	Death Valley Sage	Lamiaceae	4.3	G4	None	None	Mojavean desert scrub (carbonate)
Sclerocactus johnsonii	Johnson's bee-hive cactus	Cactaceae	2B.2	S2	None	None	Mojavean desert scrub (granitic)
Zeltnera namophila	spring-loving centaury	Gentianceae	None	S2 (NV)	None	FT	mesic, alkaline

#### WETLANDS HABITATS FOR RARE PLANTS

The associated wetlands of the Amargosa Wild and Scenic River includes: springs, seeps, river channels, and alkali meadows. The exceptional water resources available in these habitats provide unique opportunities for isolated wetland species to occur in the vast arid region of the Mojave Desert. Most of the wetland species are thought to be relicts that have persisted in this region from a wetter historical climate; their continued persistence is attributed to the availability of perennial water that is associated with an extensive groundwater basin.

Rare and endemic species of the Amargosa River that rely on these perennially wet habitats include: Almutaster pauciflorus (alkali marsh aster), Chloropyron tecopense (Tecopa bird's beak), Cladium californicum (California saw grass), Cleomella brevipes (short-pedicelled cleomella), Crepis runcinata (fiddleleaf hawksbeard), Ericameria albida (white flowered rabbit brush,), Euphrosyne acerosa (copperwort), Fimbristylis thermalis (hot springs fimbrystylis), Grindelia fraxinipratensis (Ash Meadows gumplant), Juncus cooperi (Cooper's rush), and Nitrophila mohavensis (Amargosa niterwort).





Salvia funerea (Death Valley sage) in the mint family (Lamiaceae).

Juncus copperi and Euphrosyne acerosa growing in an alkali meadow dominated by Distichilis spicata (salt grass), south of Shoshone Village within the Amargosa Wild and Scenic River designation.

#### ARID UPLAND HABITATS FOR RARE PLANTS

The arid upland slopes are diverse in topography and geologic composition. Notable substrates include calcareous soils such as marble and limestone; these substrates frequently support endemic plant species such as Arctomecon merriamii (white bear poppy) and Salvia funerea (Death Valley sage; Fig. 4). Astragalus lentiginosus var. borreganus (Borrego milkvetch) is adapted to sandy habitats and is known from one occurrence on the Dumont Dunes in San Bernardino County. Many of the species in arid upland habitats have adaptations such as succulence that aid in drought tolerance (e.g. Sclerocactus johnstonii; Johnston's beehive cactus), or they may evade drought by completing their life cycle early like the annual plants Aliciella ripleyi (Ripley's aliciella), Eriogonum trichopes (little desert trumpet), Johnstonella costata (ribbed cryptantha), and J. holoptera (winged cryptantha). Species that occur in arid upland habitats typically bloom in the early spring between the months of March to April.

## The Old Spanish Trail In the Tecopa Area

WITH

#### TOM SUTAK

The Old Spanish Trail (OST) period began in 1829 when Antonio Armijo pioneered trading between Santa Fe and Los Angeles over a distance of more than 1,000 miles. It ended in 1848 when the last caravan went through. However, the trail was used for centuries before this by Native Americans who had their own migration and trading routes. With the start of the Gold Rush in 1849, the route morphed into a wagon road between Utah and Southern California; the OST ceased to exist but the Mormon Road, also called the Southern Route or the Salt Lake to Los Angeles Road, carried much more traffic than the OST ever did.

In addition to the trading caravans, the OST was used extensively by emigrants, Native Americans, mountain men, slavers and horse thieves. The travel of many of these was recorded, but many were not so we don't have an accurate accounting of actual travel over the trail. The OST is not a single, well defined route; it consists of many major variants crossing through six states with dozens of more variants at the local level. In the 40 mile segment between Stump Springs, just across the Nevada border, to the Salt Spring Hills, there are multiple variants of the OST and the Mormon Road. In fact, the route through the Tecopa area is itself one of two major variants across the Mojave Desert with the other route more than 50 miles south of Tecopa.

In 2002, Congress designated the Old Spanish National Historic Trail. It is jointly administered by the Bureau of Land Management and the National Park Service. The Old Spanish Trail Association is the primary volunteer organization supporting the trail.



**Note:** Roads needing high clearance and/or 4wd also require substantial tires suitable for unpaved road use such as light truck tires with good sidewalls. Road conditions are subject to change due to weather events.

**1.** China Ranch: Drive from here to china ranch. You can then hike 1 mile down a trail to the confluence of Willow Creek and the Amargosa.

**2.** Cowboy Canyon: Hike Cowboy Canyon. Hike west from top of pass that descends into China Ranch. See Pratt's "steep hill" between two drainages at 0.5 miles. Return or continue on down another 1.7 miles to the Amargosa.

**3.** Cowboy Canyon/China Ranch Loop: Hike down the Amargosa from cowboy canyon to the confluence (3 miles) then up to China Ranch and back to the top of the pass (7.5 mile round trip.)

**4. OST/Mormon Road to Mud Hills:** Hike from China Ranch road/Furnace Creek road intersection north to the mud hills. After about 1.5 miles, an old, small dirt road intersects from the left, this is the old Mormon road and it goes past the old transfer station. The pack trail goes straight into the mud hills about 0.5 miles straight ahead. The Mormon road crossed Old Spanish Trail highway where the road from the transfer station intersects the OST highway.

**5. Emigrant Pass:** Drive east to emigrant pass. Go up small dirt road (high clearance advised) on west side of pass to the top, and park. Walk north on the ridgeline for 125 yards where the wagon road begins its descent towards resting spring. Continue another 75 yards to where the Mormon road ascends to the ridge line from the east. Look to the east about 1.5 miles to a rock formation in the valley (Mormon rocks) where wagons would sometimes camp. From the point on the ridge line where you are standing, look to the northwest towards the base of the mountains; about 175 yards away you will see the OST pack trail ascending towards the top. You can continue hiking along the ridge line 325 yards to where the pack trail crosses over the ridge line. You can see it descending to the northwest formidable pass. There will be an Old Spanish Trail obelisk marker here.

6. Drive to Formidable Pass: (High clearance advised on dirt roads.) Go to Charleston view (also known as Calvada Springs – the community just west of the Nevada state line on Old Spanish Trail highway.) Turn south on Turtle Rock Way (also known as Carpenter road), the fifth dirt road you see on the right as you come into the area from the west or Tecopa. Go 2 miles to the intersection of dirt roads. Take the road that crosses the cattle guard and then goes southwest. At 0.9 miles up the road, a branch goes to the left; this is likely a variant of the Mormon road which would avoid Formidable pass or even Emigrant pass. Don't take this road to the left and go straight for another 1.85 miles to the top of the descent of Formidable pass. (Note: driving down Formidable pass is not recommended unless you have a substantial 4wd vehicle with substantial clearance and considerable experience and are traveling with other similarly equipped vehicles.)

7. Explore the Salt Spring Hills: There are two easy ways into this area; the north parking area which is closest to the canyon which the pack trail goes through, and the south parking area where the BLM has erected a visitor panel. To get to the north parking area, you will need to drive about 1 mile through a fairly sandy area. This road turns off Highway 127 about 26 miles south of Shoshone (or about 18 miles south of the Old Spanish Trail highway and 127. The road is unmarked and appears to be part of the Dumont Dunes recreation area. It is about 1/3 mile north of the harry wade monument (where the Harry Wade road/Saratoga Springs road intersects 127). A high clearance vehicle capable of driving in light sand is advisable. Follow the road one mile to a BLM panel. Hike the trail into or through the canyon. You will see remnants of the 19th & 20th century mining operations. The original gold discovery was made by Mormon packers and by members of the Jefferson Hunt wagon train in 1849. It became an active mine shortly thereafter. Note the remnants of a stone building on a hill to the east of the canyon- it is said that this was the first non-Native American building built in the Mojave desert when Mormon miners erected it in 1850. Finally, look for some vegetation growing in the channel near the mine workings- if you dig a small hole in the sand near this, you will likely find a small spring with potable water.

The south parking lot is just beyond where 127 curves around the south side of the hills. This short road (200 yards) takes you to a BLM panel. You can hike from there to the Salt Spring about 300 yards to the northeast. This is non-potable water. You can continue on to the canyon and mine and other sites above. This road is ok for normal passenger cars, but the hike to the north end (above) is much longer. The mine area is about a mile away and the north lot about 1.25 miles. The OST pack trail went through this canyon; not everyone found the fresh water spring but some found water in pools just to the east and south of the parking lot during winter months. The original wagon road went around the west side of the hill.

8. Drive to Old Tecopa, [west] Tecopa pass, Tule Springs (or Tule Holes) and Mesquite Valley: Begin at the intersection of Furnace Creek road/China Ranch road. At 2.5 miles (the road gravel area and power line), a short side trip goes to the right and goes about 0.4 miles to a spectacular view of China Ranch/Willow Creek wash. (Don't go fast and don't drive off the edge.) [From there another optional side trip goes about 0.3 miles north-northwest to an old road that descended into the canyon. At this point, look towards the side of the hill above the gully to the south and see if you can see the old Native American trail slanting up the hill on its way to entering the canyon on the other side of the hill.] Return to the main dirt road and turn right. About 2.5 miles later you will see the remains of the old mining town of Tecopa. About 0.8 miles later a road turns to the right- this road goes to the western talc mine and is right at the eastern entrance to the wash. (Its possible that Antonio Armijo used this route to go to china ranch.) This road is also the route to Sperry Wash. Don't turn right; continue straight. You are now on Mesquite Valley road. Continue straight and go about 1.3 miles to the intersection of the Smith Talc Mine road (don't turn right.) About 1.5 miles you will come to several springs (Tule springs or holes) that may have been the springs that Armijo called "the little salty springs." (Armijo never mentioned seeing Resting Spring, a very large spring with fresh water and substantial grass.) Continue up the valley and then connect with the paved road east of emigrant pass. Note: the portion of this road from the entrance to China Ranch wash through Mesquite Valley is a variant of the Mormon road.

**9. Sperry Wash Road:** This road requires a high clearance vehicle, and following rainstorms, possibly 4wd. Turn right onto the western Talc Mine road described in #8 above. Follow the main traveled road through the mine area to the west and then south. After about 3.75 miles, you will then begin to descend into the upper end of Sperry Wash. Follow the road another 7 miles and you will reach the lower end of the Amargosa canyon. Continue on the road and 4 miles later you will reach the main road to the Dumont Dunes recreational area. A right turn will take you to Highway 127. Note: there is often ATV and/or dirt bike traffic in Sperry Wash.

## Travelling the Amargosa and Species along the Way

WITH

#### CEAL KLINGER

The Amargosa River acts both like a continuous river and like a group of islands - just ask the Amargos'a smaller inhabitants. For a small animal, long-distance travel across a desert can have the same consequences as a stint in a fruit dehydrator. Although birds and some dragonflies can migrate from point to point across short sections of the Mojave, pupfish, speckled dace, and Amargosa toads can't fly or sprint, and neither can caterpillars or beetle larvae (although some of them hitch rides).

The Amargosa's watered channels, pools, and nearby springs act as stopover points for more mobile animals and as watery islands of habitat where desert fishes, amphibians, and aquatic insects can breed and sometimes, during floods, connect with each other. The river's surface channels also serve as sheltered corridors and connectors for some animals even when channels are dry, or merely damp.

As a result, the smaller animals of the Amargosa are a moving map of time. Millenia of isolation, floods, droughts, prehistoric lakes, disconnected basins, and withdrawing water are written in their genes, their behaviros, and their appearances.



### Thank You

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## Amargosa Cafe





