Are you feeling the heat?

By Gary Beverly @080

You're right. From 2000 to 2020 in Arizona, average temperatures have increased about 2°F over the long-term average (data from US EPA).

Get ready for more! Climate scientists predict that the Grand Canyon will be 13° hotter by 2100. Climate models project that by 2060 Phoenix will have twice as many days over 105° as now.

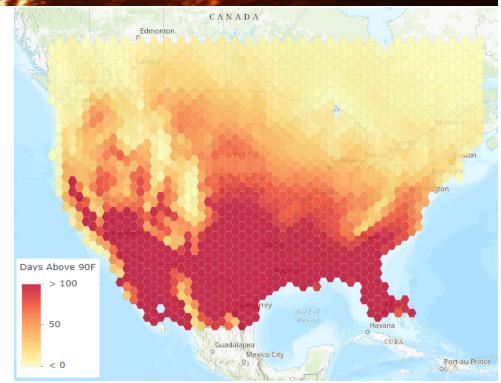
Unless we immediately and drastically reduce greenhouse gas emissions, severe impacts to human health, landscape, wildlife, and plants are inevitable.

High temperatures directly affect human health through heat-related illness, cardiopulmonary illness, food and water-borne diseases, heat stress, population displacement, and reduced air, food, and water quality. Vulnerable populations include pregnant people, those with preexisting conditions or disabilities, older adults, and low-income, and racial and ethnic minorities in underserved communities. This is an enormous social justice issue that demands our caring attention.

We now suffer from the most extreme drought in the last 1,200 years. Heat magnifies the effects of drought: soil moisture decreases, plants are stressed, aquifer recharge is reduced, and essential groundwater supplies are threatened. Reduced snowfall melts sooner, reducing year-

round streamflow. Intense storms generate runoff surges that cause flooding and erosion. Reduced stream flow and higher water demand will cause water providers to pump more groundwater, further stressing our aquifers and rivers. Wildlife, food production, and people are forced toward better habitats. This interconnectedness is relentless physics, which doesn't care about us.

There is an alarming synergy between increased temperatures and forest health. Higher temperatures make piñon, juniper, and ponderosa pine trees significantly more sensitive to drought mortality. Warmer winters favor bark beetle survival and reproduction, increasing pest populations. Drought weakens the ability of trees to resist bark beetles, so lots of trees die. Dead trees burn easily. Intense thunderstorms with dry lightning may start more fires. Fueled by standing dead and dry trees, intense firestorms can slash across landscapes, followed by floods and siltation of streams and reservoirs. These fires are so hot and intense that the soil is baked, seeds are destroyed, and the forest will likely not regrow. Instead, forest researchers fear a "type conversion" from forest to chaparral, which can regrow from root crowns and is more fire tolerant. A projected hotter and drier climate may cascade into an Arizona public



USA Climate Model Thresholds last modified December 11, 2021 feature layer by ESRI. For detailed information about this map click **here**

lands disaster: we may lose our forests, streams, and wildlife within a century.

This outline of impending climate disaster has been known for many years, but politics, ignorance, and greed continue to prevent implementing the global solutions we need. We need to elect leaders that will act. The 2022 midterm elections are critical for the future of our planet. Your political work can create a sustainable climate future.

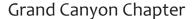
Your **personal actions** to reduce your family's greenhouse gas emissions are important too.

Together, we can mitigate climate change by creating a movement: "Movements are what take five or ten percent of people and make them decisive – because in a world where apathy rules five or ten percent is an enormous number." (Bill McKibben)

Gary is Water Co-Chair , and Chair of the Publications Committee

Explore, enjoy, and protect the planet







Canyon Echo

Summer 2022 Vol. 58 No. 3

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Guest Editor: Toni Malcolm **DEDICATED VOLUNTEERS**

Outings Editor\Mailing Organizer: Jerry Nelson

602-550-0282, peakbagger2@gmail.com

Copyeditor: Kurt Florman

Publications Chair: Gary Beverly 928-309-1003, gbverde99@gmail.com

Publications Committee:

Sandy Bahr, Stan Bindell, Gary Beverly, Benjamin Downer, Ana Gorla, Kurt Florman, Chris Gehlker, Toni Malcolm, Jerry Nelson, Stephanie Vazquez, Urb Weidner, Vivian Kim

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Arizona Chapter Action Directory

Chapter Director Sandy Bahr sandy.bahr@sierraclub.org 602-253-8633 **Conservation Program and Communications Assistant** FLAGSTAFF\ NORTHERN AZ Ana Gorla ana.gorla@sierraclub.org 602-253-9140 Flagstaff • **Grand Canyon Conservation Program Manager** SEDONA\ Alicyn Gitlin alicyn.gitlin@sierraclub.org 928-774-6514 **VERDE VALLEY Border Program Coordinator** Erick Meza 520-254-6401 erick.meza@sierraclub.org YAVAPAI Water Sentinels Program Manager Jennifer Martin 602-254-8362 jennifer.martin@sierraclub.org **SAGUARO** Phoenix **Southwest Local Outdoors Coordinator** Sergio Avila 520-624-7080 sergio.avila@sierraclub.org **PALO VERDE** Southern AZ Energy Program Coordinator Catalina Ross catalina.ross@sierraclub.org 520-312-2849 **Energy and Public Lands Coordinator RINCON** Katie Del Castillo katherine.delcastillo@sierraclub.org 602-284-4374

Chanter Officers, Committee Chairs & Group Reps.

chapter Officers, co	illillittee Cilalis	<u>a di oup</u>	veha.
Chair\BIPOCC\at large:	Oscar Medina	520-903-8005	omedina@changemakerhighschool.or
Vice-Chair\Wilderness\Pub Com\at large	Jim Vaaler	602-553-8208	jimvaaler@msn.com
Treasurer:	Chris Gehlker	602-370-0128	canyonrat@icloud.com
Secretary:	Rotating		
Conservation\Palo Verde			
Group Rep\Mining & grazing:	Don Steuter	602-956-5057	dsteuter@hotmail.com
Political:	Vacant		
CCL Alternate\ at-large\Awards:	Kathy Mohr-Almeida	4803298503	kathylynn626@yahoo.com
Outings:	Jenny Cobb	928-925-1320	cobbsrun@msn.com
Water Chair\ at-large\Pub Com:	Gary Beverly	928-308-1003	gbverde99@gmail.com
at-large:	Cyndi Tuell	520-272-2454	cctuell@hotmail.com
CCL Delegate\at-large:	Stephanie Vázquez Salas	623-302-6889	stephanie.vazquezo3@gmail.com
Member\at-large:	Anna Mohr-Almeida	480-329-8503	mmlkm02@gmail.com
Membership Chair\at-large	Rebecca Hinton	602-405-1779	rahinton@hotmail.com
Flagstaff N AZ Group Rep.	Kay Bordwell	928-779-3517	kbordwell4@gmail.com
Rincon Group Rep.	Vacant		
Saguaro Group Rep.	Jo Sylvester	602-292-6806	stitchinjo@yahoo.com
Yavapai Group Rep.	Tom Slaback	928-778-4233	theprescottkid@cableone.net
BIPOCC: Black Indigenous People of Color C	ommittee CCL: Council of Clu	b Leaders	

Chapter Announcements

JUL 9. AUG 4. SEP 8 Chapter Conservation Committee meetings (virtual). Club leaders meet to consider matters related to statewide conservation efforts, share experiences across groups, and coordinate strategy to align our Chapter mission and goals with our equity values. JUL 9 is also the quarterly chapter executive committee meeting. The meeting will be a hybrid meeting in Flagstaff. For more information, please contact sandy.bahr@sierraclub.org.

JUL 19, AUG 16, SEP 20 (TUE) Political Committee meetings (virtual). Help us elect more environmentally-friendly candidates! If you are interested in helping improve the political climate in Arizona, consider being part of our Political Committee! All Sierra Club members are welcome to participate. For information, contact grand.canyon.chapter@sierraclub.org

JUL 26, AUG 23, SEP 27 (TUE) 6:30pm Energy and Climate Action Team meetings (virtual). Discussions and programs encompass renewable energy and energy efficiency campaigns nationally and locally. Everyone is invited to participate, no matter how much or how little you know about energy issues. For more information, please contact sandy.bahr@sierraclub.org.

JUL 11, AUG 8, SEP 12 (MON) 6pm. Wildlife Activist Group meetings (virtual). Interested in making a difference for wildlife? Want to help protect habitat, gather important research data on wildlife, or watchdog the Arizona Game and Fish Commission? Please consider joining our Wildlife Activist Group For more information, please contact sandy.bahr@sierraclub.org.

TBD Publications Committee meeting (virtual). Have an idea? Help plan future issues of Canyon Echo! For more information contact ana. gorla@sierraclub.org

SEPT 1 Copy deadline for Fall2022 Canyon Echo. Articles, art, photographs, poetry, essays, and brief epiphanies are welcome. Contact Ana Gorla at ana.gorla@sierraclub.org.

Happenings Around AZ

Five groups and one regional conservation committee make up the Grand Canyon Chapter. All events and meetings listed below are open to those interested in learning more about Sierra Club. You can find out more at http://www.sierraclub.org/arizona/events-activities. Schedules are subject to change.

Palo Verde Group (Phoenix) http://sierraclub.org/arizona/palo-verde

Chair\Programs:	Rebecca Hinton	602-405-1779	rahinton@hotmail.com
Vice-Chair\Political:	Greg Clark	480-734-0926	greg@btllcaz.com
Secretary:	Chris Gehlker	602-370-0128	canyonrat@icloud.com
Treasurer:	Jerry Nelson	602-550-0282	peakbagger2@gmail.com
Outings/Wilderness:	Jim Vaaler	602-553-8208	jimvaaler@msn.com
ICO:	Lisa Vaaler	602-468-4158	lvaaler1@gmail.com
Conservation:	Don Steuter	602-956-5057	dsteuter@hotmail.com
Membership\Newsletter:	Jim Dublinski	480-532-2285	jdublinski@icloud.com
Ex-Com (At-Large):	Korey Hjelmeir		khkelmeir@hotmail.com
Ex-Com (At-Large):	Kathy Mohr-Almeida	480-329-8503	kathylynn626@yahoo.com

All programs are on the fourth Thursday of every month. The July program is on Perry Mesa

Yavapai Group (Prescott) http://sierraclub.org/arizona/yavapai

Chair\Web\Treasurer:	Gary Beverly	928-308-1003	gbverde@cableone.net
Vice-Chair\Conservation:	Tom Slaback	928-778-4233	theprescottkid@cableone.net
Secretary\Outings:	Jenny Cobb	928-925-1320	cobbsrun@msn.com
Ex-Com (At-Large):	Stan Bindell	928-636-3903	thebluesmagician@gmail.com
Ex-Com (At-Large):	Stephen Cook	575-418-9027	scook@projectworldview.org

Wed, July 6th, 2022; 6:00 PM - 8:00 PM Wed, August 3rd, 2022; 6:00 PM - 8:00 PM Wed, September 7th, 2022; 6:00 PM - 8:00 PM

Support Your Local Sierra Club

When you make a donation to the Grand Canyon Chapter, you support Sierra Club's work in your own backyard. You allow us to continue our efforts to protect wilderness and wildlife, to improve the quality of life in our cities, to curb global climate change, and to promote the enjoyment of nature. If you haven't already, please also consider signing up to become a monthly, recurring donor to support local Chapter efforts!

Contributions to the Sierra Club are not tax-deductible; they support the Sierra Club's citizen-based advocacy and lobbying efforts.

Donate online at: http://www.sierraclub.org/arizona/donate or by mail to:

Sierra Club – Grand Canyon Chapter 514 W. Roosevelt St.

Rincon Group (Tucson)

http://sierraclub.org/arizona/rincon

The Grand Canyon Chapter is currently deciding on how to reorganize the Rincon Group or utilize an alternative structure to serve our members in Southern Arizona. In the interim, please contact the chapter office at grand.canyon.chapter@sierraclub.org or (602) 253-8633 for questions on events and issues.

Saguaro Group (North Maricopa County) http://sierraclub.org/arizona/saguaro

Chair:	Jo Sylvester	602-329-3690	stitchinjo@yahoo.com
Vice-Chair:	Ronda Frost	208-743-1006	junefrost@gmail.com
Secretary\Programs:	Sally Howland	602-663-2889	sally_howland@yahoo.
Treasurer:	Jim Wikley	480-649-2836	nvrgvup@gmail.com
Outings:	Bev Full	480-221-2554	bfull@cox.net
Service\Membership:	Urb Weidner	602-300-8505	northwoods@cox.net
Ev-Com (At-Large)	Vacant		

Flagstaff-Northern AZ Group http://sierraclub.org/arizona/plateau

Chair:	Emma Bennati	928-527-3116	emmap.benenati@nau.com
Treasurer:	Darryl Colebank	928-554-5222	dcole61@hotmail.com
Outings:	Vacant		
Wildlife:	Kay Bordwell	928-779-3517	kbordwell4@gmail.com
Political Liaison:	Anthony Garcia		
Public Lands:	Emma Benenati	928-527-3116	emmap.benenati@nau.edu

Flagstaff group programs & Executive Committee meetings are held **on the second Thursday of the month.** Contact Kay Bordwell for more information about events in Northern AZ.

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■ By Rev. Katie Sexton @08@

has begun. Arizona is one of the hottest places on earth from May to September. Heat-related illnesses are common during the summer. Nearly 3,000 people visit Arizona emergency rooms yearly because of heat-related illnesses (Maricopa County Public Health Department 2022).

The Arizona Faith Network, an interfaith organization dedicated to bringing people together to promote peace and understanding through interfaith education and dialogue, and healing of the world through collaborative social action, has launched a community-based response to our rising temperatures.

In partnership with the Heat Relief Network, faith-based organizations, and community partners, AFN is working to establish new cooling centers throughout Maricopa County

The 2022 Extreme Heat season during the summer of 2022. Providing heat relief during the extreme heat season saves lives and allows us to serve our neighbors.

> So how can you help? Encourage your community to become a Cooling Center, Cooling Space, or Hydration Station; Donate Funds, Water, or Supplies; or Volunteer!

> Click/tap here for more details about how you or your community can help with this critical program.

> Learn more about extreme heat, AFN s work, and how to get engaged by watching our 2022 Extreme Heat Webinar. Please connect with our staff with any questions or discuss how to get involved.

Rev. Katie Sexton is the Executive Director of the Arizona Faith Network

AZ Corporation Commission Rejects SRP's Massive Gas Plant Expansion;

Recognizes impacts on Randolph residents and its environmental injustice

By Sandy Bahr

 GOSO





Coolidge Generating Station photo by Caryn Potter

On Tuesday, April 12th, the Arizona Corporation Commission voted 4–1 to deny a certificate of environmental compatibility for Salt River Project's (SRP) proposal to nearly double the size of the Coolidge Generating Station, a fossil gas-fired power plant. This plant expansion would have locked in decades of new fossil-fuel use, all while Arizona sits in the bull's eye of climate change. Key concerns about the plant are its impacts on air quality, emissions of additional climate harming carbon dioxide, the fact that SRP did not seriously consider cleaner, more environmentally friendly alternatives,

and that the facility expansion will disproportionately impact the community of Randolph.

The Coolidge Generating Station is right across the street from the unincorporated town of Randolph, a historic Black community since the end of World War II. African Americans from primarily Oklahoma and Texas founded the town when they moved to the area to pick cotton, but were not allowed to live in Coolidge due to segregation and racism. Sadly, in the last couple of decades Randolph has been subjected to significant environmental racism as the town of Coolidge annexed around

Beyond the Slab -- CELEBRATING OVER 30 YEARS OF PUBLISHED ECO-AWARENESS!

BEWARE EXTREME HEAT! CLIMATE CHANGE

IS CAUSING LONG TERM DROUGHTS AND IS

RAISING TEMPERATURES IN SUMMER, WHICH CAN BE LIFE THREATENING! 10am 2pm AVOID HIKING IN MIDDAY!

FOR MILLENNIA...BUT MEGA-DROUGHTS ARE DRYING OUT THE LANDSCAPE CAUSING MORE DESTRUCTIVE WILDFIRES!

FIRE HAS BEEN A PART OF NATURE



By Greg Pentkowski



Summer 2022 Canyon Echo

Southwestern Research Station - Studying the Diverse Species of the ● By Jenny Cobb & Roz Switzer 😡 👀 🗐

Chiricahua Mountains

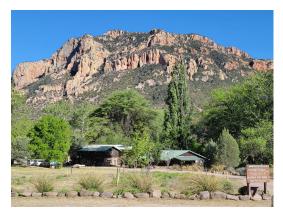


photo by Jenny Cobb

The diversity of wildlife species draws researchers to the American Museum of Natural History's Southwestern Research Station in the Chiricahua Mountains near Portal, Arizona. Established in 1955, the facility sits between soaring spires nestled in two arms of a creek amidst stately cottonwoods, poplars, and junipers. This Sky Island, the largest of seven in Southeastern Arizona, rises to 9,795 feet. Temperature, oxygen, and precipitation changes result in great biodiversity.

We visited in May 2022 and spoke with Director Geoff Bender about the research station's role in the environmental community. "They [researchers, educators, and students]

make a beeline to our facility as soon as the academic year ends," Geoff says. He believes that we must make a collaborative effort to marry research with land management agencies. A diversity of wildlife has been studied over the years, but now the three most prevalent are the spadefoot toad, bats, and many invertebrates. Twenty-one species of bats have been studied for over 30 years within a 5-mile radius of the station. Eight-hundred species of

Southwestern Research Station bees live in the vicinity. This range may be the raptor capital of the world. There are workshops offered and an on-site collection of hundreds of specimens.

Geoff's major emphasis is on the Chiricahua leopard frog, listed by U.S. Fish & Wildlife Service as an



Chiricahua Leopard Frog photo by Jenny Cobb

endangered species in 2002. Water is of utmost environmental concern. Amphibians—frogs in particular—are indicators of water health. They feed on algae, maintain food chains, and control insects. Frogs live in ponds, and are threatened by groundwater pumping, long-term drought, climate change, and catastrophic wildfire. "The species is also being eradicated by chytrid fungus, which is linked to global warming." Even though the warmer waters of the station counter the fungus, the frogs have disappeared from their ponds, believed to be victims of snake predation. A population remains on private land nearby. All the Chiricahua leopard frogs within this range are descended from 22 tadpoles from which 13 founder frogs survived. A range-wide genetic study is currently being conducted to determine the level of genetic diversity within the population. When species disappear, the ecosystem diminishes.

One of the largest groups of recreational visitors to the station are bird watchers. There are 375 species of birds found in the Chiricahua Mountains. We were lucky to photograph a Mexican Jay, flycatcher, and the magnificent Gould's Turkey.

The station is reopening following the recent pandemic restrictions. If you plan to visit, come before the summer rush of researchers. There are cabins,

camping, and dormitories. Meals are included in the spacious dining hall. Walk trails on the 53 acres, or nearby National Forest, where you can find two waterfalls. Visit their website for more



Top Left: A dragonfly posed for us at the ponds Top Right: The magnificent Gould's Turkey Bottom Left: A Mexican Jay Bottom Right: Flycatcher photos by Jenny Cobb

Jenny and Roz are volunteers with Great Old Broads for Wilderness and Sierra Club

contd. from p. 4

it and located various industrial facilities next door to Randolph, which the residents opposed, but their voices were not heard. This time they were.

Randolph residents fiercely opposed the Coolidge expansion and mounted a campaign to stop it, gathering petitions, providing public comments, meeting with media, and several residents intervened and were represented pro bono by attorney Dianne Post. The plant was also opposed by many other Pinal County residents, public health, consumer, and clean energy advocates. Sierra Club and Western Resource Advocates also intervened in opposition to the plant.

Last fall, the SRP board approved the project in a close 8–6 vote and in February the Power Plant and Line Siting Committee approved the certificate of environmental compatibility 7-2, so when the case went to the ACC, there was concern that commissioners might rubber stamp it. They did not. In voting no, several commissioners noted the environmental injustice imposed on Randolph as a key consideration and Commissioners Kennedy, Marquez Peterson, O'Connor, and Tovar all voted no. This was extremely good news for the Randolph residents, and our air, water, and climate. It was not over, however, as SRP sought to have the decision reversed. While Commissioner Marquez-Peterson flip-flopped on her vote, the other three did not and denied a rehearing to SRP, so if SRP is going to challenge the decision, it must do so in court. We will continue to monitor and engage if that comes to pass. There is also still a lot of work to do to ensure

environmental justice for Randolph and to get SRP on track with clean energy, but this is a good start.

Thank you everyone who signed petitions, sent letters, spoke public meetings, and

more, and special thanks to Randolph residents who, despite the odds, fought hard to keep their community intact and to stop this plant expansion.



Randolph residents celebrate AZ Corporation Commission decision to deny Goolidge gas plant expansion photo by Ana Gorla

Sandy Bahr is director of the Grand Canyon Chapter

Sierra Club

Earth Day (in person) was back

Grand Canyon Chapter

By Sandy Bahr @080

After two years of virtual Earth Day activities, in April we were able to celebrate the day with friends, make new friends, and learn from each other. We participated in Earth Day activities throughout April, but the premiere events occurred on April 23rd. We started out the day at an Earth Day Festival at El Oso Park organized by Chispa Arizona. The focus was on having tablers provide activities for kids, so we offered opportunities for coloring and making nature journals in English and Spanish. There were wonderful speakers, music,

We followed up with a rally at the state Capitol featuring Congressman Raúl Grijalva, former Havasupai Tribal Council Member; Carletta Tilousi; Pastor Warren Stewart, and many other wonderful speakers. The key message was "Climate Can't Wait, Fight for our Future!" We were calling on Senator Mark Kelly and Senator Kyrsten Sinema to bring home a climate package in the U.S. Senate. Volunteers also gathered comments on a rule to clean up heavy duty truck emissions. We followed up with a rally at the state Capitol featuring Congressman Raúl Grijalva, former Havasupai Tribal Council Member; Carletta Tilousi; Pastor Warren Stewart, and many other wonderful speakers. The key message was "Climate Can't Wait, Fight for our Future!" We were calling on Senator Mark Kelly and Senator Kyrsten Sinema to bring home a climate package in the U.S. Senate. Volunteers also gathered comments on a rule to clean up heavy duty truck emissions.

Thank you to all of our great partners for your work to put together these events, to all of the wonderful speakers, and to the staff and volunteers who helped before and the day of the events.





Earth Day 2022 photos by Ana Gorla

Subscribe to Current News & Action Alerts



We send two Chapter email updates per month, including upcoming events & activities, action items and more bit.ly/gcchapter



Borderlands email updates are sent every month bit.ly/borderemail



Arizona Water Sentinels email updates are sent once every other month bit.ly/azwateremail



Grand Canyon Protection Campaign email updates are sent once every other month bit.ly/grandcanyonemail



Energy email updates are sent once every other month bit.ly/azenergyemail



Wildlife email updates are sent once every other month bit.ly/wildlifeemail



Legislative updates are sent weekly during the legislative Summer 2022 Canyon Echo 7

Hiking Guidelines

Requirements for 2022 Spring Outings

The Sierra Club is a nationwide organization with active local outings for members and non-members. Please join us as we make friends and explore life- enriching in-terests. Simply find an outing by date and contact the leader for directions, reserva-tions, time, and additional information. RESTRICTIONS: NO FIREARMS, RADIOS, OR PETS (unless noted otherwise). Outings are by reservation. Call early (group limit 20)

Each hike is rated for degree of difficulty and risk by the leader.

"A">16 miles or>3,000 ft. elevation change (EC)"D" <3 miles and 500 ft. EC
"B" 8-16 miles and 1,500-3,000 ft. EC
"C" 3-8 miles, 500-1,500 ft. EC

OW One Way

The trip leader has absolute authority to question trip participants as to their equipment, conditioning, and experience before and during the trip. All participants on Sierra Club outings are required to sign a standard liability waiver. If you would like to read the liability waiver before you choose to participate in an outing, please go to http://content.sierraclub. org/outings/ local-outdoors/resources or contact the National Outings Dept. at 415-977- 5528 for a printed version. Sierra Club liability covers leaders only. Each person is responsible for his/her own first aid equipment. If you are injured, notify the leader immediately. If you leave the trip, with or without the leader's permission, you are considered to be on your own until you rejoin the group. Hikers are encouraged to carpool and share the driver's fuel expense. Donations are accepted from all participants at \$1 (member) and \$3 (nonmember). Money is col- lected by the leader and deposited with the group treasurer. For more information, contact the Sierra Club Grand Canyon office at 602-253-8633. Hikes and outings are also listed online at https://www.sierraclub.org/arizona/events-activities. CST 2087766-40. Registration as a seller of travel does not constitute approval by the State of California.

Sierra Club Grand Canyon Chapter Outings are happy to be back on the trails! We look forward to seeing you and encourage you to recommend Sierra Club Outings to your friends, family, associates, and others. Some new rules are outlined below.

- If you are experiencing possible COVID symptoms or are sick, you should not be attending the outing.
- You are responsible for contacting the Outings leader to report a positive COVID test.
- Group sizes may be limited for safety and to allow for social distancing.
- Masks are optional for adults outdoors.
- Unvaccinated minors must wear a mask.
- Masks are required for indoor close quarters such as vehicles, restaurants, visitor centers, etc. regardless of local mandates or vaccination status. In close quarters such as vehicles, it is recommended that you open windows for ventilation when possible.
- You are welcome to wear a mask outdoors if it makes you more comfortable.
- No vaccine or tests are required for day events.
- Be aware that there may be participants in your group who are vaccinated or not vaccinated.
- You will not be identified as to your vaccine status and cannot be turned away if you are not vaccinated.
- Vaccination is required for multi-day trips that involve staying overnight indoors.
- Exemptions are allowed with a negative PCR test 72 hours before trip departure.
- A Medical Form is not required for front country outings.
- A Medical Form is required for the back country for leader review and is confidential.

Grand Canyon by Alicin Gitlin

Explore and Enjoy Arizona

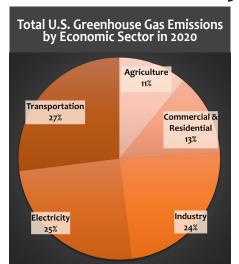
JULY 13 (WED) "D" Camp Wood Large/Old Growth Tree Survey Join us on a timber cruise to the Camp Wood area of the Prescott National Forest to see the results of recent timber cutting of 366 acres and what is planned in the near future for another 360 plus acres. We will discuss the importance of our large and old-growth Ponderosa trees in relation to global warming and climate change resulting in desertification. We will meet in the morning at the Safeway in Prescott on Iron Springs Road to carpool (40 miles on graded dirt roads). This is an all-day event. Wear your hiking shoes, bring your lunch and drinks, sunscreen, cameras, and hats. Contact us for details. Co-Leaders Thomas Slaback (theprescottkid@mail.com) and Jenny Cobb (cobbsrun@msn.com, 928-925-1320). Prescott

SEPT 24 (SAT) "C" Reynolds Creek Falls Dayhike (3 miles RT, 500 ft. EC) This outing will take place in the Sierra Ancha. This will be an easy outing on the Reynolds Creek Trail #150 and will be suitable for beginners and families. The road into the trailhead will require vehicles with high clearance, no 4WD will be necessary. The leader will discuss the fire history of the area as well as the plants and trees we will see as we walk in. For reservations, meeting time and place; contact your leader, Jim Vaaler, at iimvaaler@msn.com or you may call Jim at (602) 553-8208. On the trip back plan on having dinner at a restaurant in Globe or Miami.

OCT 15 (SAT) "B" Knolls Hole Dayhike (6 miles RT, 1200 ft. EC) This outing will take place in the Sierra Ancha Wilderness Area. This will be a moderately strenuous outing on the Reynolds Creek Trail # 150. The road in will require vehicles with high clearance, no 4WD will be needed. The Fall colors should be at their maximum. Aspen, maples, and oak trees will provide a beautiful array of color as we ascend up the trail. The leader can talk about the wilderness history of this area, as well as the biology and wildlife of the area. For reservations, meeting time and place; contact your leader, Jim Vaaler, at jimvaaler@msn.com or call Jim at (602) 553-8208. Plan on having dinner in Globe or Miami on the return trip.

NOV 5 (SAT) "B" Center Mountain Dayhike (7 miles RE, 1200 ft. EC) This outing will take place in the Sierra Ancha Wilderness Area. This will be a moderately strenuous outing on the Reynolds Creek Trail # 150 and the Center Mountain Trail # 142. The road will require high clearance vehicles, no 4WD will be necessary. The leader will talk about why the western boundary of the wilderness area is so jagged. For reservations, meeting time and place, contact your leader, Jim Vaaler, at jimvaaler@msn.com or call Jim at (602) 553-8208. Plan on having dinner in Globe or Miami on the way back home.

Why you should Electrify your Transportation By Robert Bulecheck @080



Source: United States Environment **Protection Agency**

Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment reports that if we continue to emit carbon at current rates, we have a 50% chance of exceeding 1.5C of warming in just 10 years.

In the US, transportation greenhouse gas emissions are almost a third of total emissions.

Whether you drive a car, or ride a bike or bus, there are electric vehicles available today that are much cleaner, healthier, and more affordable than the legacy fossil vehicles of yesteryear.

We have had excellent, reasonably priced, electric cars for 10 years now. Used electric vehicles, with ranges sufficient for your daily errands, are available starting at around \$5,000.

Cars with 200 miles of range start at around \$20.000. Electric cars average 25% lower maintenance costs, and are significantly less expensive to fuel. With their excellent acceleration, they are much more fun to drive.

An electric vehicle can be charged anywhere there is electricity available near the parking spot. Even an ordinary 120V outlet is useful for places you are parked 8-12 hours, like all day at work, or all night at home. You will add 40-50 miles of range while you sleep. A study by AAA found that Americans on average drive less than 30 miles a day. So, even an ordinary outlet is sufficient most of the time.

Nice to have, is a 240V outlet. (NEMA 14-50, same as an electric stove or RV park). With a 240V outlet you can add 25 miles of range per hour of charging. Most cars come with a portable charging cable capable of using a 240V outlet. If yours didn't, they are available for around \$350.

For long trips, a fast charger will let you charge from 10% to 90% while you get a meal or snack. I joke that the biggest dilemma you face on a long trip is choosing between pie, cobbler, cake, or ice cream.

By far it's most convenient feature is when you can charge at home or work. Multi-family and rental properties can be a problem if you don't have an outlet near where you park. Having outlets at parking spaces should be considered

an ordinary amenity, like having a pool, barbecue grill, or air conditioning. Those apartments, rental properties, and workplaces that have EV charging are more attractive to customers and employees.

If we want to power our world with clean renewable energy, we need to power our vehicles, water, and space heating with clean renewable electricity. Energy storage, along with demand management and residential, commercial, and utility-scale renewable energy projects can get us to a carbon free world.

We are in the midst of an energy technology transition, from the old polluting fossil age, to the new clean renewable energy future. If we make the transition quickly, we can avoid severe climate disruption, and enjoy clean, comfortable, efficient, and healthy homes and vehicles along the way.

See below for further current information about the positive impact of EV's, energy efficiency and climate

CarbonBrief: Analysis: What the new IPCC report says about when world may pass 1.5C and 2C

https://www.carbonbrief.org/ analysis-what-the-new-ipcc-reportsays-about-when-world-may-pass-1-5c-and-2c/

Zeke Hausfather: Remaining Carbon

my next trip. Most of

my trips are less than

When a trip is, say, 50

miles, I drive the first

25 miles on battery

power only. Then

Budget to 1.5C

https://twitter.com/hausfath/ status/1204460008538136576/photo/1

EPA: US GHG Emissions by Economic Sector in 2020

https://www.epa.gov/ghgemissions/ sources-greenhouse-gas-emissions

MYEV.Com Used EV Prices https://www.myev.com/cars-forsale?page=1&sort=price-asc

PIA: Electric Vehicle Guide https://pluginamerica.org/takeaction-2/promotional-materials/

AAA: New Study Reveals When, Where and How Much Motorists Drive https://newsroom.aaa.com/2015/04/ new-study-reveals-much-motoristsdrive/

NEMA 14-50 40A Portable Charging Cable

https://www.evseadapters.com/ products/zencar-40a-adjustable-evcharger-evse-with-timer-and-wallmount/

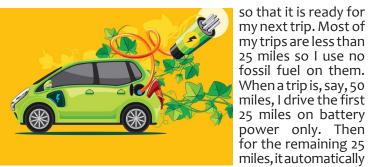
Robert Bulechek is an energy efficiency consultant. He lives in an all electric house. drives an all electric car, has solar, and negative utility bills.

The UNDERRATED plug-in Hybrid

believe that a plug-in hybrid is the lideal vehicle to transition from gasoline to electric. A Toyota Prius Prime is a hybrid mid-size car that you can plug in to charge the traction battery. I plug mine into a standard 120 Volt electrical socket to fully charge in approx. 6 hours. All plug-in hybrids are designed so that you can drive 25 to 40 miles on electric only. A Prius Prime will enable you to drive 25 miles without using any gasoline. My first impression was, "What's so great about 25 miles without using fossil fuel?" For most people, most of their trips are less than 25 miles, so 25 miles become significant. I bought my Prius Prime in June 2021,

and it came with a full tank of gas. I filled the gas tank in July, again in September, and again in February. fill was approx. 8 gallons of gas so counting the original gas in the tank, I used 4 tanks of gas at

8 gallons per fill. So last year, I used a total of 32 gallons of gasoline and the increase in my electric bill was negligible. Not bad, huh! Whenever I use the car, I plug it in when I get home



Graphic courtesy of <u>Vecteezy.com</u> switches to gasoline.

A Prius gets 55 MPG, so I use less than a 1/2 gallon of gas for that 50-mile trip. The Toyota RAV4 Prime is a hybrid SUV that will go 30 miles on electric before it automatically switches over to gasoline

and will then get approx. 30 MPG on

My Toyota Prius Prime cost \$31,000 and I received a \$4,000 tax rebate, so the total cost to me was \$27,000 and I only used 32 gallons of fossil fuel in the first year. So, a plug-in hybrid will drastically reduce your carbon footprint while reducing your operating cost.

If you have any questions or need additional information, please contact me at: 480-529-5928

4jmoule@gmail.com

Jim Moule is a Sierra Club Volunteer

Global Warming: A First Nations Perspective

By Stan Bindell



Wupatki National Monument photo by Jim Dublinski

Native Americans in Arizona are seeing the impacts of global warming.

Bonnie Secakuku, who works at First Mesa, said the Hopi Reservation is experiencing drought conditions due to climate change. The windmills are monitored by the Hopi Tribe's Range Management department by locking the windmills so the amount of water hauled to the range units to water the cattle is controlled. Otherwise, the windmills would rundry

dry.

"The rains are not coming like they used to and the amount of rain we used to get is less as well. The seasons are off and we have been getting a lot of wind for longer periods of time and for high wind speeds. For

example, wind speeds can reach as high as 60 mph which dries out the soil," she said.

She said due to climate change that the temperature is hotter during ceremonies. She said during the pandemic ceremonies were not carried out due to the inability to gather.

"This could be a result of lack of rain for that is what the ceremonies are for as well," she said.

The Hopi Reservation has not only experienced droughts, but also flooding due to the intense, polarizing effects of climate change. They had one flood last year late during the monsoon season causing flooding in the Polacca area around the wash by

Tewa Village.

Secakuku said her biggest concern is "it seems that no one is concerned about the change in our climate because we hear nothing about how to address it. When I say no one, I mean the Hopi Tribe and probably others that should be concerned such as the farmers and producers. There is a lack of education and sharing of the situation here at Hopi. I get more information from the news channel, such as Channel 12, where the weather lady reports the drought situation and how much rain we would need in our area to address the amount of moisture in the ground."

She said they hear stories about towns and cities implementing water mitigation plans to use less water.

Thus, Secakuku said Hopis need to become aware of and educate themselves about climate change.

"We also need to learn how this has impacted us as Hopis and as humans. Our Hopi customs and ways have mechanisms in place to address this such as conservation of water, dry farming, etc. We are disconnected from the teachings and ways that we are assuming everything will always be OK," she said.

Secakuku wants to empower the younger generation to be ambassadors Native Americans in Arizona are seeing the impacts of global warming.

Bonnie Secakuku, who works at First Mesa, said the Hopi Reservation is experiencing drought conditions due to climate change. The windmills are monitored by the Hopi Tribe's Range Management department by locking the windmills so the amount of water hauled to the range units to water the cattle is controlled. Otherwise, the windmills would run dry. "The rains are not coming like they used to and the amount of rain we used to get is less as well. The seasons are off and we have been getting a lot of wind for longer periods of time and for high wind speeds. For example, wind speeds can reach as high as 60 mph which dries out the soil," she said.

Secakuku said the combination of the lack of rain and winds leave the field dry.

She said due to climate change that the temperature hotter during ceremonies. She said due to climate change that the temperature is hotter during ceremonies. She said during the pandemic ceremonies were not carried out due to the inability Skrelunas said in the long run people have to change the way they live including coming up with different land and home site system that supports moving around to more wet areas, reducing water use, and reducing herd numbers with an emphasis on communally owned/ cared for sheep herds, reduction of cattle numbers, using water reuse technology, creating a large network of smaller local farms, and using greenhouses for sheep sources.

He said more creativity is needed for community centers and more communal living environments that run on renewable energy and offer cooling architectural design.

Skrelunas said climate change has caused fires and drought and increased heat.

"There is less rainfall, increased temperatures, volatile rainstorms, stronger winds, all result in extreme fire behavior and create fuel for fire," he said.

Skrelunas said people need to think more about how much they travel.

"The goal should be to minimize their carbon footprint. Fly less, drive smaller fuel-efficient or electric cars when they travel, stay in more ecologically minded hotels and inns, and enjoy the sites close to home," he said.

Stan Bindell is an Ex-Com member At Large of the Yavapai group



Some BLM Arizona sites are seeing heavy visitation. As we continue our response to COVID-19, you can do your part when enjoying public lands. We recommend visiting areas close to home. Avoid locations where physical distancing may be difficult. Toilets and trash removal may be limited.

Be prepared.



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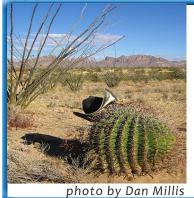
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Contd. p. 11

Summer 2022 Canyon Echo

The dates of these donations range from March 8th 2022 - June 28th 2022

contd. from p. 10

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11

CALL FOR NOMINATIONS

"It is hard to fail, but it is worse never to have tried to succeed" ~Theodore Roosevelt

Nominations for Chapter and Group Executive Committee Elections Due by August 15, 2022

Become a candidate to serve on your group or chapter executive committee! No experience is necessary. If you want to help create a vision, make policy, execute plans to protect and preserve our environment, participate in deepening work on equity and justice, and have fun while doing it, please nominate yourself. If you know of another good person, let us know. Volunteer leadership positions within the Grand Canyon Chapter are an ideal way to deepen your involvement in the issues important to you. There are many opportunities and activities, from advocacy for air, water, and wildlife, to leading hikes and nature walks, and more.

If you would like to learn more about what would be involved, please contact Sandy Bahr, sandy.bahr@sierraclub.org, or one of the current volunteer leaders (see pages 2 & 3). Guidelines for chapter and group executive committee elections are as follows:

- 1) To be listed on the ballot, candidates must submit their names and membership numbers. If you aren't sure what your membership number is, see your Canyon Echo label from last fall or contact the chapter office at 602-253-9140. Be sure to include contact information along with your submission.
- 2) Submit a candidate statement (recommended but not required) indicating the chapter or group executive committee for which you are running to Jim Vaaler at jimvaaler@msn.com and copy sandy.bahr@sierraclub.org no later than August 15, 2022 or use the form below.

Candidate statements are limited to 200 words and must be submitted here: bit.ly/SCAZnomination22 You will receive acknowledgment within a few days of submission. (Because much of the executive committee's business is done by email, candidates must have email capability.) The official ballot will appear in the Fall 2022 Canyon Echo.

EXPLORE
ENJOY
PROTECT
GET INVOLVED

So go ahead, nominate yourself or someone else you think would be a good leader.

Thank you for considering this important work!



Grand Canyon Chapter

Verde Celebration



Tree Planting Verde River photo by Stan Bindell

The area by the historic Perkinsville Bridge over the Verde River had been trashed. There had been illegal fires and illegal shooting, and feces were scattered throughout.

Thanks to Prescott National Forest and the Yavapai group of the Sierra Club, the day-use area has been restored. About 50 people celebrated the restoration of the area Saturday, April 30th, with a ceremony, educational speeches, the planting of two willow trees along the river bank, music, and a Native American prayer.

Gary Beverly, chairman of the Yavapai Sierra Club, said this is the beginning of the restoration of an area that has been hammered due to destructive recreation. Prescott National Forest put up gates so motorized vehicles could not drive into areas that had been impacted. Overnight camping is now prohibited in this area so it is now a day-use area where people come to swim, fish, and enjoy the Verde

Beverly said the Verde River needs to be protected because it's one of the most significant cultural resources in the Southwest.

"It's the only surviving living river in Arizona that flows 24/7," he said.

Tony Papa, deputy district ranger for the Bradshaw and Chino Valley Ranger Districts of Prescott National Forest, said this area is now considered under emergency closure as Prescott National Forest works on recreation planning for the Perkinsville Bridge area.

"We want your input," he said. "What does the public, the community, want for this area? We want you engaged in this project."

Volunteers helped clean this area and Beverly said they continue to need the help of volunteers in two areas. First, they By Stan Bindell @080

need site stewards to monitor the area, especially for cattle that are not supposed to be in the river, but sometimes find their way there. Second, they need water sentinels who go out once a month to check the flow of the river.

The Perkinsville Bridge, the only bridge crossing of the Upper Verde River, is 23 miles down Perkinsville Road from Chino Valley. It is 25 miles down the river from the headwaters at Sullivan Dam in Paulden.

Beverly said many people do not know this area exists and people don't move to protect areas they don't know about.

He said the reasons to protect the Verde River include:

- Sustains more than 700 jobs and over \$100 million in economic value;
- Provides recreation through hiking, hunting, fishing, camping, backpacking, kayaking, canoeing, wildlife viewing, horse-riding, nature photography, and birding:
- Scenery with flowing water, red rocks, green plants and blue or cloudy skies;
- Cultural and scenic values with 72 archaeological sites in this area. The river and its springs have great cultural and historical values for the Yavapai Apache Nation;
- Wildlife, as the upper Verde River is visited by over 200 bird species, 16 endangered riparian species, various reptiles, and many types of fish.

The Sierra Club is working with several environmental groups to give a 50mile portion of the Upper Verde River designation as a Wild and Scenic River that would bring federal funds to better protect this section.

Rachel Ellis, associate director for Southwest River Protection Program of American Rivers, spoke in favor of the Wild and Scenic designation, which would have to be approved by Congress. She said the process for this proposal will have public meetings and needs public input.

Beverly said the Wild and Scenic designation does not affect private property. Nor would it prohibit hunting or fishing or access to the river.

Donnie Decker, a Yavapai-Camp Verde Apache elder, provided the prayer saying that all people, regardless of race, have a heart. He said all the people gathered have the same goal.

> Stan Bindell is an Ex-Com member At Large of the Yavapai group

A Connection to the Past & Future **Through Adventure Education**

By Mark Alvarez, Isaiah Azaueta-Catalan & Sindy Sanchez





Students checking out the view photo by Benette Valdillez

Going into the trip we were not really sure what to expect.

Many of us had never experienced the opportunity of sleeping under the stars, sitting around a campfire or experiencing nature around the clock.

This trip was not just about leaving the city and sleeping in a tent. Through this trip we were able to breathe, exercise and get away from the things that stress us and weigh us down. Senior Isaiah Zazueta-Catalan said, "My most memorable experience was talking and



Students checking out the water's edge photo by Benette Valdillez

getting the chance to bond more with my classmates and staff, especially those I don't get to talk to very much."

It was an opportunity to really get to see and hear each other and acknowledge our presence in each other's lives. We learned a lot from this experience about the bond that can be created when we step away from the technology and distractions of modern day life. We were challenged by nature when we went canoeing, an experience none of us had prior, and when we camped out in weather that was not like what we experience in Tucson.

Although much of our trip was spent

camping, hiking and finding comfort in nature, we also had an opportunity to see what else our trip had to offer.

We were welcomed by Prescott College, took a tour, and were offered insight to the many opportunities that the academic institution offers. During our tour we were encouraged to view ourselves in the space, seek adventure and consider a future degree



Students enjoy a hike photo by Benette Valdillez

in adventure education.

reflecting back on our experience we had a few takeaways.

We realize just how important it is for young people to experience nature so they can be connected and able to see and acknowledge everything that is

We need to make an intentional effort to take more moments and reflect on what we see, smell and hear. Young people should go out and see how beautiful mother earth is and embrace how it can support new connections with new people.

Finally, were cognize and acknowledge the amount of time and effort that it took to help us to have this experience.

Thankyoutothe staff at Changemaker Highschool and Prescott College for your support in taking us out there, providing us with gear and welcoming us to the Prescott College Campus.

Thank you to the Sierra Club for affording us this opportunity to take this trip. We understand the investment in our future.

Overall we are just grateful to you all. It was a better experience than we could have imagined. Tlazocamati.

> The authors are Changemaker **High School students**