

CANYON ECHO

<http://sierraclub.org/arizona>

Grand Canyon Chapter

Winter 2022

WHAT YOU CAN DO ABOUT CLIMATE CHANGE

Our existence and survival depend on exploiting our environment for air, water, soil, minerals, and energy, which inevitably disturbs the natural order. Thus we, as human beings living on earth, are responsible for sustainably managing our environmental impacts. That shared duty is independent of your background, although those with low incomes have the least impact.

Climate change is the most serious environmental issue on the planet, and unless we immediately cut our greenhouse gas (GHG includes methane, refrigerants, and oxides of nitrogen, sulfur, and carbon) footprint the entire planet will be – already is! – in deep, deep trouble. Reducing GHG requires both political and personal changes.

Although national political changes

are bottled up in irrational denial and partisan disfunction, local government also needs to act – citizens have an important role in a political solution. Your personal actions won't solve the problem, but you will feel like you are contributing to a better future.

To get started, set a goal to reduce your family GHG emissions (annually, 20 tons per person) by 20% this year – cutting about 4 tons per person. How do you do that? Echo will dive deep into the details in upcoming issues, but here is the roadmap.

Transportation is the largest (28%) personal contribution to climate change. You should use carbon-free transportation. This means more carpooling, riding a bike (electric bikes are great!), and switching to an electric vehicle for local travel. Minimize air travel. When you need to fly or drive

long distances, you can purchase carbon offsets to compensate for unavoidable travel.

Purchasing consumer goods accounts for 26% of your family's GHG contribution. Reduce consumption and waste by buying less stuff. For necessary purchases, select durable and repairable goods, ideally from recycled material. Avoid buying throwaway products and packaging, especially single-use plastic. Reuse or repair what you can. Compost green waste. Recycling is a weak strategy.

Home energy use accounts for about 20% of your family's GHG contribution. Install LED lights and EnergyStar® certified appliances. Generate your own electricity by installing a grid-tie rooftop solar photovoltaic system.

Food accounts for about 14% of your family GHG, but it is far more

important than that number suggests. Transitioning to a whole food plant based (WFPB) diet has enormous benefits for the planet, and for personal health and well-being.

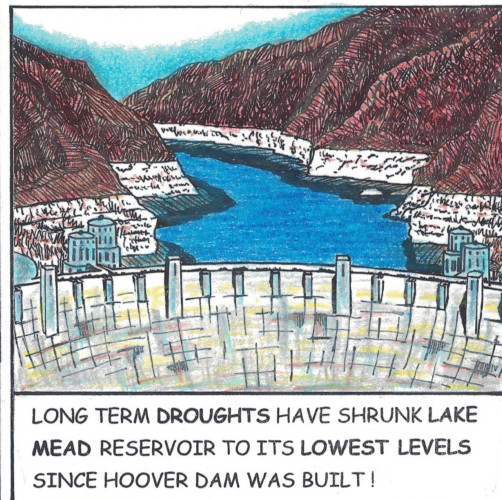
Finally, follow the money! Do not allow your money to support the fossil fuel industry. Chase Bank, Wells Fargo, and Bank of America are the largest US investors in fossil fuels. Change your banking and credit cards to firms that invest in local business. Reallocate your investments to avoid fossil fuels – a safer and more profitable strategy.

Reducing your personal contribution to climate change is a process requiring consistent effort over time, but it is comforting to know that you are doing your part. To learn more, download “What You Can Do” from

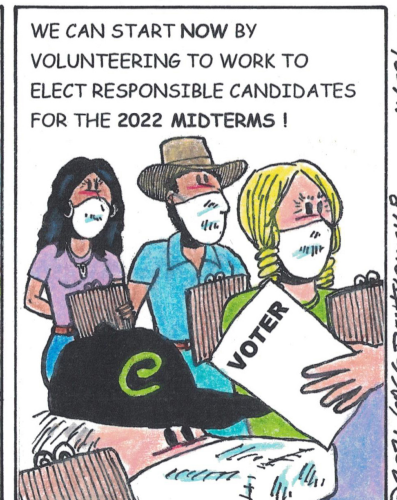
www.sierraclub.org/arizona/yavapai.

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

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



By Greg Pentkowski



Explore, enjoy, and protect the planet



Arizona Chapter Action Directory

Canyon Echo

Winter 2022
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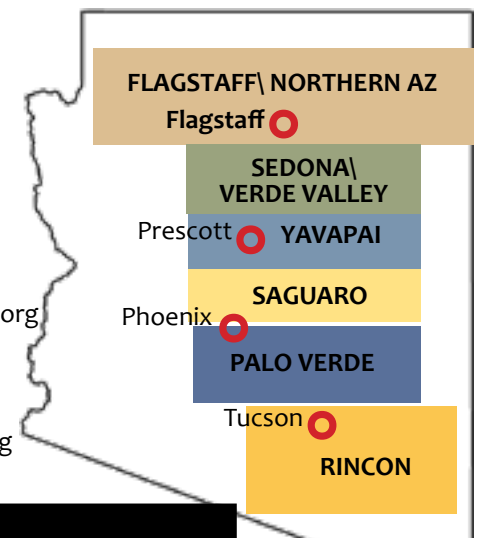
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(xc) 2021 Chapter Executive Committee (ExCom) members

BIPOCC: Black Indigenous People of Color Committee

Note: new ExCom members will take office on January 23rd, 2022

Chapter Announcements

JAN 23 (SUN) Chapter Conservation and Executive 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. For more information, please contact sandy.bahr@sierraclub.org.

JAN 12 (WED) 6:30 p.m. 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 political.chair@grandcanyon.sierraclub.org.

JAN 10, FEB 14 MAR 14 (MON) 6:30 p.m. 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.

JAN 25 , FEB 22, MAR 22 (TUE) 6:30 p.m. 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.

FEB 15 (TUE) Publications Committee meeting (virtual). Have an idea? Help plan future issues of Canyon Echo! Also, we have a volunteer opportunity available for the publications chair position. Contact Sandy Bahr at sandy.bahr@sierraclub.org.

MAR 1 (TUE) Copy deadline for Spring 2022 Canyon Echo. Articles, art, photographs, poetry, essays, and brief epiphanies are welcome. Contact Sandy Bahr at sandy.bahr@sierraclub.org.

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THERE'S A CLIMATE CRISIS!

Join us for Environmental Day at the Capitol, Virtually or in Person

Join us for Environmental Day at the Capitol where we will be hearing from several speakers, including one mayor, and meeting with our legislators. This year's theme is Act Now! There's a climate crisis. We're offering our lobby day both in person and virtually due to COVID-19 and travel issues. Our gathering will be outdoors with limited indoor activities. Join us and please indicate how you plan to participate when you RSVP. If you plan to participate, please do register so we can send you details ahead of time. You can [register here](#)

Leading up to Environmental Day at the Capitol, we will hold a legislative briefing, volunteer lobby workshops, and issue briefings on climate, environmental justice, water, democracy, lands, and more. Contact us or check out the calendar [here](#) for details.

For more information, contact Sandy Bahr at (602) 253-8633 or sandy.bahr@sierraclub.org.

New Nuclear Reactors - A Fool's Errand

By Russell Lowes

Can you imagine having two grocery stores, one where you pay the regular price for your groceries, and another store that has the same groceries for three times the price? That is the situation with new nuclear energy.

Unfortunately, some have said that nuclear power should be part of the future energy mix, some even saying that it can help save the planet. They miss the mark by a mile.

The cost of nuclear energy is so high that it actually forces utilities to produce more fossil fuel electricity, increasing global warming dramatically. Here is how.

New nuclear energy is very expensive, at a total delivered cost of about 28.5¢/kilowatt-hour (kWh). In other words, you get 3.5 kWh per dollar that you spend on new nuclear energy. Instead of paying your current 13¢/kWh, if you bought nothing except new nuclear electricity, your bill would more than double.

So, with that in mind:

- Each \$1 spent on new nuclear electricity gives you 3.5 kWh.
- Each \$1 spent instead on solar, with battery backup, provides 10 kWh.
- 3.5 minus 10 kWh gives a deficit of 6.5 kWh per dollar spent on new nuclear electricity.

How do you make up for that 6.5 kWh deficit? Ratepayers will have to buy more energy from their utility—75% of that from fossil fuels. That is because 75% of all U.S. grid energy is generated by fossil fuels.



Anti-Nuclear Protest by Alicin Gütlin

Hence, for every dollar spent on new nuclear energy, 4.9 kWh will be produced by fossil fuels (75% of 6.5). If you buy new nuclear energy, then you will buy more fossil fuel energy.

In other words, this deficit of 6.5 kWh is called “opportunity cost” in economics. It is what you did not get because you spent your money on the wrong option. One person's loss is another person's gain. Opportunity indeed—it's about big money for the greedy profiteers who build these polluting plants.

It would be like buying groceries for triple the normal cost at an overpriced grocery store, but you get only one third the groceries. Why? Because you went to the wrong store.

It is a fool's errand to pay triple the cost of your groceries, or new nuclear energy.

On top of that—never forget this—there is the nuclear waste, toxic for millions of years. Add the much higher water use, the production of nuclear-weapon ingredients, uranium mining contamination of the Navajo Nation and elsewhere, the massive nuclear subsidies, and more. The list goes on, but I'll stop there.

Let's get all the groceries we need for a decent price, and all the electricity we need for a decent price.

Russell Lowes is on the Advisory Board of www.az4cc.org. He is the primary author of a book on the Palo Verde nuclear plant, which was used to stop the financing of Units 4 and 5 at that nuclear plant, west of Phoenix.

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.

(x) Group ExCom members

Palo Verde Group (Phoenix)

<http://sierraclub.org/arizona/palo-verde>

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

Palo Verde group programs are **on the fourth Thursday every month at 6:30 p.m.** Meetings will be held virtually via Zoom and are open to the public. Contact Rebecca Hinton for more information.

Jan 21 (Thur) Learn How to Be a Volunteer Lobbyist! 6:30pm. Interested in learning more about the Arizona Legislature? How a bill becomes law? Tips on advocating for issues you care about? Join us for this workshop to learn more and also how you can plug in for Environmental Day at the Capitol. We will also update you on bills that have been introduced. [Details](#)

Yavapai Group (Prescott)

<http://sierraclub.org/arizona/yavapai>

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

JAN 20 (THUR) What's up with the AZ Legislature and how can I get involved? Join Sierra Club's Yavapai Group and Grand Canyon Chapter Director, Sandy Bahr, for a briefing on the 2022 Legislative Session. Learn more about the issues and legislation that has been introduced, tips on volunteer lobbying, and how to engage in our lobby day, Environmental Day at the Capitol. There will be opportunity for questions and answers, as well as discussion. [Details](#)

Flagstaff-Northern AZ Group

<http://sierraclub.org/arizona/plateau>

Chair:	Joe Shannon (x)	928-380-9537	jshannon278@gmail.com
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Outings:	Vacant		
Wildlife:	Kay Bordwell (x)	928-779-3517	kbordwell4@gmail.com
Communications:	Sarah King (x)	602-576-6054	garbageldy@hotmail.com
Political Liaison:	Anthony Garcia		
Public Lands:	Emma Benenati (x)	928-527-3116	emmap.benenati@nau.edu

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

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:	Doug Murphy (x)	602-329-3690	dbmurphy@cox.net
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Secretary/Programs:	Sally Howland (x)	602-663-2889	sally_howland@yahoo.com
Treasurer:	Peter Weinelt (x)	623-388-2209	vitalpaw@yahoo.com
Outings:	Bev Full (x)	480-221-2554	bfull@cox.net
Service/Membership:	Urb Weidner (x)	602-300-8505	northwoods@cox.net
Ex-Com (At-Large):	Vacant		

FEB 5 (SAT) Saguaro Group General Meeting 8:15 a.m. at the Holland Center Community Center, Scottsdale 34250 N. 60th St. #B. Our presenter will be Sandy Bahr, Chapter Director of the Arizona Chapter of Sierra Club, discussing legislature issues at the State Capital. Followed by a hike at Apache Wash Trailhead. Easy 3 mile "C" level hike. Contact Sally Howland 602-463-9729 or sally_howland@yahoo.com

MAR 5 (SAT) Saguaro Group General Meeting 8:15 a.m. at the Holland Center Community Center, Scottsdale 34250 N. 60th St. #B. Our presenter will be Juanita Armstrong-Ullberg, Natural Resource Specialist for the Maricopa County Parks and Recreation Department. Followed by a hike at Desert Hills Trailhead. 4-mile easy hike to hopefully find some wildflowers. Sally Howland 602-463-9729 or sally_howland@yahoo.com

Keep up to date with our Chapter



Chapter: bit.ly/gcc_fb
 AZ Water Sentinels: bit.ly/azsentinels_fb
 Borderlands Campaign: bit.ly/border_fb
 Grand Canyon Campaign: bit.ly/protectgc_fb
 Rincon Group: bit.ly/rinconfb
 Flagstaff/N AZ Group: bit.ly/flagstaff_fb
 Yavapai Group: bit.ly/yavapai_fb
 Saguaro Group: bit.ly/saguaro_fb



Chapter: bit.ly/gcc_insta
 Borderlands Campaign: bit.ly/border_insta
 Grand Canyon Campaign: bit.ly/protectgc



Chapter: bit.ly/gcc_meetup
 Palo Verde Group: bit.ly/pvg_meetup
 Rincon Group: bit.ly/rincon_meetup



Chapter: twitter.com/SierraClubAZ
 Borderlands Campaign: bit.ly/scb_twitter
 Grand Canyon Campaign: bit.ly/protectgc_twitter
 AZ Energy: [@AZBeyondCoal](https://twitter.com/AZBeyondCoal)

Requirements for 2022 Winter Outings

Updated 12/28/2021

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.



Grand Canyon by Alicin Gilin

- 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.

Explore and Enjoy Arizona

JAN 8 (SAT) "C" Social Hike at the Tom's Thumb Trailhead (Scottsdale) An easy 4-mile hike. Meet at the Trailhead near the restrooms. Contact Sally Howland 602-463-9729 or sally_howland@yahoo.com.

JAN 15 (SAT) "C" Hike The Verde: Upper Verde River Wildlife Area Starting in the Upper Verde River Wildlife Area, we'll hike down to the Verde River to learn about the natural history of the upper Verde River including wildlife, endangered species, geology, hydrology, and riparian ecology. Also, learn about the conservation issues that threaten the future existence of this extremely valuable desert river. In particular, groundwater pumping threatens to reduce the upper Verde to a dry wash, destroying the riparian habitat of several threatened and endangered species. You may ask for photos of the area. Limit: 12 hikers. Registration required. For more info, contact Gary Beverly at gbverde99@gmail.com (email preferred) or call 928-308-1003. [Online registration](#)

JAN 22 (SAT) "B" Tanque Verde Dome Dayhike Join us for a moderately strenuous 6-mile hike to a spectacular rock outcrop with expansive views and unusual plant life. We will discuss the unique flora, fauna and geology of the upper Sonoran Desert on this perfect winter hike. Contact Mitch Stevens at 520-991-1199 or texmitchell81@msn.com.

JAN 29 (SAT) "A" Gaan (Devil's) Canyon Day Hike 5 miles round trip. Oak Flat and Gaan Canyon have been mired in controversy during the last 15 years. A foreign mining company, Resolution Mining, will build a massive blockade style mine in the region, which may dewater this spectacular canyon. We will discuss conservation issues relating to this place. Even though the hike is only 5 miles it is all off trail through rugged terrain, rendering it a strenuous hike. We enjoy lunch overlooking a fantastic clear pool. Contact Mitch Stevens at 520-991-1199 or texmitchell81@msn.com.

FEB 5 (SAT) "D" Beautiful easy walk/hike at Sabino Canyon Recreation Area Get up close to the desert. Lots of good views and up-close to saguaros and other cacti. The route is about 2.5 miles RT, with a 150 ft. elevation change. Meet in front of the main




tram stop near the visitors' center after parking. No dogs. Bring water, hiking boots recommended. Contact Randall Krause for details, randallcoach@gmail.com or 818-714-0063. Tucson

FEB 19 (SAT) "C" Hike The Verde: Upper Verde River Wildlife Area Starting in the Upper Verde River Wildlife Area, we'll hike down to the Verde River to learn about the natural history of the upper Verde River including wildlife, endangered species, geology, hydrology, and riparian ecology. Also, learn about the conservation issues that threaten the future existence of this extremely valuable desert river. In particular, groundwater pumping threatens to reduce the upper Verde to a dry wash, destroying the riparian habitat of several threatened and endangered species. You may ask for photos of the area. Limit: 12 hikers. Registration required online at. For more info, contact Gary Beverly at gbverde99@gmail.com (email preferred) or call 928-308-1003. [Online registration](#)

MAR 5 (SAT) "D" Easy group walk with your dog at Catalina State Park Get a taste of the desert and mountain scenery on this easy hike at Catalina State Park. Learn about the Saguaro and other nature with beautiful views of Mt. Lemon in the distance. Dogs on a maximum 6-foot leash are welcome. The walk will be 1.7 miles RT with a 127 ft elevation change and includes the Sutherland and Nature trails. Contact Randall Krause for details, randallcoach@gmail.com or 818-714-0063. Tucson

MAR 19 (SAT) "C" Hike The Verde: Upper Verde River Wildlife Area Starting in the Upper Verde River Wildlife Area, we'll hike down to the Verde River to learn about the natural history of the upper Verde River including wildlife, endangered species, geology, hydrology, and riparian ecology. Also, learn about the conservation issues that threaten the future existence of this extremely valuable desert river. In particular, groundwater pumping threatens to reduce the upper Verde to a dry wash, destroying the riparian habitat of several threatened and endangered species. You may ask for photos of the area. Limit: 12 hikers. Registration required online at. For more info, contact Gary Beverly at gbverde99@gmail.com (email preferred) or call 928-308-1003. [Online registration](#)

Workman Creek Road FR487

By Jim Vaaler   



Erosion by Dave Mowry of Undercut Jersey Barriers

#160, upper Moody Point Trailhead #140, Murphy Ranch Trailhead #141, upper terminus of the Reynolds Creek Trail #141, and all of the Tim Trail #139. The only access permitted is for the owners of the Murphy (Hal) Ranch.

Back in the 1980s the road was closed in the same area and

it took Tonto National Forest six years to repair the road. We don't want this scenario repeating itself. Campers, hikers, and hunters make regular and frequent use of this road above the closure point.




We are encouraging folks to send letters to the Tonto Supervisor Neil Bosworth (neil.bosworth@usda.gov) or to Matthew Paciorek, district manager for the Payson Ranger District (matthew.paciorek@usda.gov). You may also send your comments to Tyna Yost (tyna.yost@usda.gov). Please ask that they expedite this road repair as quickly as possible.

Jim is the Wilderness Chair of the Grand Canyon Chapter



Road Closure by Dave Mowry of Undercut Jersey Barriers

Perkinsville Bridge

By Stan Bindell   

Led by Gary Beverly, the Sierra Club's Yavapai Group held a cleanup day Nov. 20 at the Perkinsville Bridge section of the Verde River.

The main idea is to restore the riparian habitat that was destroyed by careless campers.

Beverly said closing the bridge to camping and vehicles is the start of a new management effort by Prescott National Forest (PNF). PNF and Sierra Club are working together to monitor and restore the riparian habitat.

Aside from picking up trash, about 12 Sierra Club volunteers removed rope swings, removed graffiti, and cleared illegal fire rings.

"The area has been severely abused for decades with litter, human waste, cutting trees, compacting stream banks, obliterating riparian vegetation, and putting up rock dams," Beverly said.

The Sierra Club complained to PNF for 14 years about the situation.

"Last June, I escalated the issue with the Forest Supervisor and District Ranger, who finally acted to close the area to overnight use," he said.

Beverly said this section of the upper Verde River is eligible for Wild and Scenic River designation and must be managed as such to prevent degradation of flow, habitat, wildlife, fish and other outstanding remarkable values as defined by the federal Wild and Scenic Rivers Act.

Beverly credits PNF

Superintendent Dale Dieter and Deputy District Ranger Tony Papa for the closure order and installing two locked gates. He credits two PNF staff for assisting with the cleanup day.

Beverly said the Sierra Club is planning a restoration ceremony in the spring where they would bless the river and begin revegetation of the denuded riverbank.


Beverly said everyone can support public lands by helping Prescott National Forest with maintenance and cleanup. He said this is good fun as people learn about the natural environment and conservation issues.

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



Human Abuse of the Environment by Stan Bindell

Condor Release at Vermilion Cliffs

By Kay Bordwell   



Condors by Bob Wick

My friend and I left Flagstaff early in the morning of September 25th to arrive in time to witness the release of condors near the Colorado River. Our excitement escalated seeing the Vermilion Cliffs rising before us as we joined the gathering of the 26th annual condor release for 2021. Five new female condors could be seen in a large cage high above the cliff face about a mile away from the gathering. Many other condors swirled around the cage in anticipation. A representative from the Peregrine Fund spoke about the history of the release and how, over the years, the numbers of condors have increased due to the tireless work done by so many to bring them back from extinction.

Gary and Sydney were there from Tucson, having spent most of the last two years in isolation due to COVID but wanting to see the release. Gary, a former hunter, is now, urging others to use non-lead ammunition; the #1 killer of condors, lead bullets. After studying the condors, scientists found they were increasingly dying off after the fall deer hunt and experts correlated their deaths with stomachs full of deer meat poisoned from lead shot.

At the release site, the group of about 100 observers, Peregrine Fund supporters, Bureau of Land

Management, Grand Canyon and Vermilion Cliffs Park Rangers, along with vendors and many long-range scopes for viewing, waited as the countdown began. A family from Flagstaff—Joseph, Jody and young Avery—wanted to be part of the annual event and show Avery what these huge birds were like. Little Avery was excited to show off her self-made mountain lion tail as part of her costume to celebrate the release.

Condors thrive in the dry and isolated lands of the Vermilion Cliffs since they are scavengers, and the death of other species allows them to live another day. Their wingspans of over 9 feet are built for them to soar for hours, searching out decaying carrion. These newly released condors came from the Oregon Zoo. Surprisingly, condors are more closely related to storks than other raptors.

As the last hesitant condor flew out of the cage, we all sighed in relief and happiness that, once again, there are more condors in the wild than in captivity. The efforts of many have ensured those condors will continue to be part of the ecosystem in this spectacular home where they have lived for thousands of years.

Kay Bordwell is on the Sierra Club Wildlife Activist Group

Reduce, Mitigate Climate Change with Gardening

By Jackie Rich   

As Phoenix becomes hotter and drier, residents can adapt and fight back through gardening. What you plant in your yard, where you plant it, and how you care for it can capture carbon, benefit wildlife, conserve water, and reduce your energy footprint.

Carbon capture in your yard begins with composting. When organic matter decomposes in an anaerobic environment (like a landfill), methane, an extremely potent greenhouse gas, is produced. Composting your food and yard waste eliminates methane production at the landfill and stores carbon in your compost. When added to our native soils, compost increases the water holding capacity and is beneficial for growing food. You save money and reduce your carbon footprint when you make your own compost!

Growing food in your yard is the most obvious way to eat locally and reduce food transportation.

No-till agriculture minimizes the release of carbon into the air and instead keeps it in the ground where it can nourish plant roots. No-till means leaving your spent plants on the surface of the

soil and adding compost or mulch to the soil surface rather than rototilling it in. This is one feature of regenerative agriculture, which, if adopted by farmers worldwide, is considered one of the most effective strategies for achieving carbon neutrality.

Trees can capture and store carbon as well as provide shade for your home and yard. Planting deciduous trees will allow the sun to warm your house in the winter but provide shade in the summer when you need it most.

A shaded yard is not only cooler than one in direct sun, but all the surfaces in the shade are also cooler. There are many desert and low-water-use trees to choose from. Be careful that your trees are placed so they don't shade current or future solar panels. However, if they shade an air conditioning unit without adversely affecting air flow, they could increase its efficiency up to 10%.

Wood chips are a great alternative to water-intensive grass lawns or heat-intensive decomposed granite. They can keep your yard cooler, act as water conserving mulch, and reduce erosion. Many tree trimmers will provide you with wood chips for free.

As temperatures increase and water becomes scarcer, our native plants and wildlife are more at risk.

You can offset this by planting and nurturing native plants and pollinator gardens. A yard that is natural, not manicured, supports birds who are looking for food or materials to build nests. A small water feature also is essential to sustain birds and other wildlife.

Finally, minimize your water use through plant selection, drip and targeted watering systems, mulch, and garden

design. Capture and use good quality water from alternative sources, including rainwater, air conditioning condensate, cooking water, and greywater. Group plants with similar water needs together for greater efficiency. For healthy plants, water early in the day in warm weather.

Together we can make a difference, one yard at a time.

Jackie has been a master gardner in Phoenix since 2001



Composting in your garden by Jackie Rich

Thank You to Our Donors!

The Grand Canyon Chapter is also thankful for the generous support from those who chose to remain anonymous.

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Donors continued on p. 9

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Donors continued from p. 8

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Jeff Augustine

Thank you to the Vern Meyer Charitable Fund at the Chicago Community Foundation for the Grant to the Grand Canyon Chapter of the 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
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Book Review

By Jim Vaaler



A RATTLER'S TALE

When Wild Animals Encounter Humans


This book follows the changing of the seasons from an Arizona blacktail rattlesnake's perspective. The snake is personified and "speaks" about some of the different animals that inhabit the forest. From the snake's point of view humans are viewed as animals also. The setting for this book is a cabin located on a private inholding within Prescott National Forest. The snake narrates encounters with various wild animals such as a skunk, black bear, raccoon, red tailed hawk, and many others, but also narrates encounters with the family dog and a horse. The book is viewed through the eyes of a snake, so we have a "snake-centered" universe. In this book humans are viewed as the invasive species. It is pointed out that we humans need to learn how to mind our own business and interfere as little as possible in the lives of other animals. The book teaches lessons about predator-prey relationships. One also learns that Arizona has a state animal, but you will have to read the book to learn what it is. The audiences for this book are children from 3rd through 7th grade. The book is an enjoyable and thoughtful read for adults also.

NANCY MARSHALL

ILLUSTRATED BY LAUREN SARANTOPOULOS

Jim is the Wilderness Chair of the Grand Canyon Chapter

Thank you volunteers and partners!

By Sandy Bahr 



Craig Johnson & partner by Dr. Kathy Mobr-Alameida

On Sunday, December 5th, Sierra Club volunteers, staff, and partners gathered for a picnic at Papago Park on the ancestral lands of the Akimel O'odham and Peeposh people to recognize some of our outstanding volunteers and partners.

Craig Johnson was presented the **Ansel Adams Award for Film**, an award from the Sierra Club nationally that honors an individual who has made superlative use of film or video to further an environmental cause. He was recognized for his work on the Save Oak Flat films that have helped enormously with raising awareness about the efforts to protect this area from mining giant Rio Tinto and why this area is important to the Apache, among other Indigenous people.

Ron Weeden has worked hard to advance the work of the Arizona Water Sentinels for the last several years, including helping with monitoring, clean ups, and various other projects. He consistently

showed up and helped with leading our work in the field. Ron was recognized with our **Outstanding Service Award**.

The **Behind the Scenes Award** recognizes the work of people who have worked hard, behind the scenes, to advance the mission of the Sierra Club to explore, enjoy, and protect the planet. **Rebecca Hinton** is just such a person. She works tirelessly to advance environmental justice and democracy, chairs the Sierra Club's Palo Verde Group and organizes all of their programs, serves on the Chapter Political Committee and helps with drafting and evaluating questionnaires, conducting candidate interviews, and organizing outreach. Rebecca participates in and helps with organizing Environmental Day at the Capitol, and a bunch more.

Tim Flood was recognized for his work to advocate for Arizona rivers and streams. He has worked for decades to protect flowing rivers in Arizona and to stop projects that would do them harm, including a multitude of mining projects. He frequently participates in coalition efforts to advocate for water quality and seek to hold agencies accountable for protecting our waters. He was recognized with the **Steve Pawlowski Memorial Award for Protecting Rivers**, named after our first Arizona Water Sentinels Coordinator.

This year we recognized three organizations as **outstanding environmental partners**. **Mi Familia Vota, Moms Clean Air Force, and AZ Interfaith Power and Light**. Each of these organizations worked with us for the past several years to help defend against the Trump administration actions

to undermine climate actions and over the past year to help advance Build Back Better and positive appointments by the Biden administration. They all did enormous amounts of work to educate and inform people about the threats posed by the climate crisis and actions we can take to reduce emissions and mitigate the impacts of a changing climate. We worked together as part of the Climate Action Campaign, but also on a variety of other projects, including Environmental Day at the Capitol. Sierra Club appreciates their collaboration, their support, and their partnership.

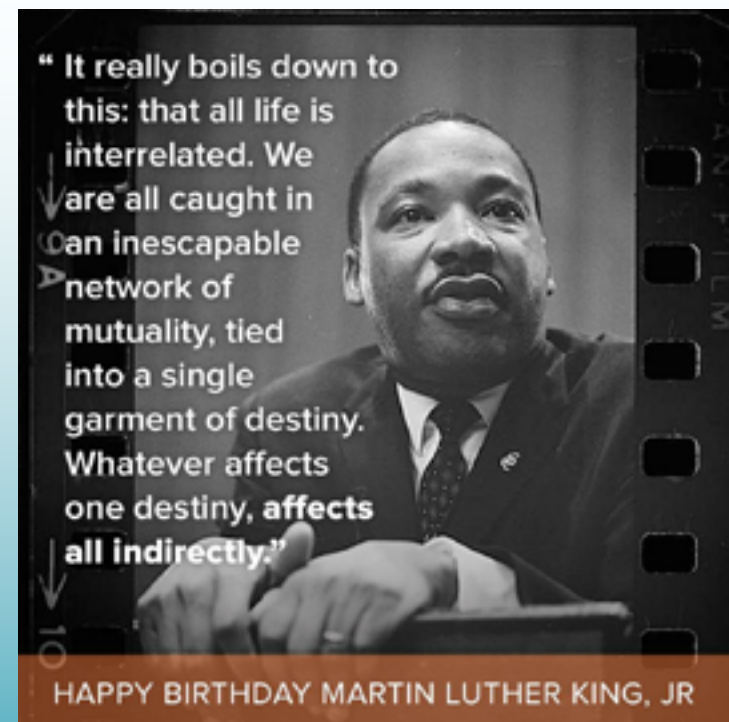
Thank you, Sierra Club volunteers and partners, for all of your wonderful work advocating for protection of people and the planet, including for environmental and climate justice, protection of



Don Steuter & Tim Flood by Dr. Kathy Mobr-Alameida

flowing waters and streams, Oak Flat, Grand Canyon, wolves and other wildlife, and so much more this year and every year.

Sandy is the Grand Canyon Chapter Director



JOIN US ON MONDAY, JANUARY 17TH TO CELEBRATE MARTIN LUTHER KING, JR. WITH A DAY OF SERVICE. WE WILL BE WORKING IN THE RIO SALADO TO PICK UP TRASH, DIG OUT INVASIVE WEEDS, AND REVEGETATE THE AREA. CONTACT SANDY BAHR AT SANDY.BAHR@SIERRACLUB.ORG FOR MORE DETAILS

Time to Give Arizona's Customers Local Energy Choice

By Shelly Gordon & Kyle Kline 

If you think cell phones have nothing to do with your utility, think again. Not too long ago cell phone plans came locked up in a veritable jail cell of restrictions, placing callers behind bars of roaming charges, peak calling times, and provider-specific phone numbers. Today, we would never consider a phone plan with constraints that make it so hard to connect.

Yet utilities like Tucson Electric Power (TEP) and Arizona Public Service (APS) are like the cell phone companies of old. They require Arizonans to buy into energy plans that eliminate any customer choice. As such, homeowners are forced to purchase electricity generated predominantly by coal, nuclear and gas power plants, the main components of the two utilities' energy portfolios.

On average, energy delivered by CCAs comes from renewable sources at a rate 25% higher than energy sourced directly from TEP or APS, exceed their carbon reduction goals, and reduce costs for ratepayers? What if cities and counties could provide clean energy to homeowners and businesses while bringing money into local economies to be reinvested in accessible renewable energy infrastructure?

Community Choice Aggregation (CCA) is the answer. CCA transforms

local clean energy with customer choice by allowing cities and counties to combine their electric load, buy clean energy at a bulk discount, and pass the cost savings on to ratepayers while also earning a profit. Utilities no longer provide the energy but maintain a functional partnership with the CCA by continuing to deliver power, manage the grid, handle power outages and bill customers. CCAs already serve more than 30 million people in opt-out programs across 10 states with several other states entertaining enabling CCA legislation.

On average, energy delivered by CCAs comes from renewable sources at a rate 25% higher than

energy sourced directly from utilities. In fact, CCAs are so effective in supporting renewable energy growth that California CCAs doubled their renewable energy goals from 25% to 50% in 2019 and have produced enough renewable energy to exceed the state's mandates.

CCAs would help Arizona cities and counties expedite their new climate action goals by providing the opportunity to buy 100% renewable energy and increase energy efficiency while simultaneously generating surplus revenues. This is made possible because the CCA can purchase from the wholesale energy market or enter into long term power purchase agreements

with solar developers.

Arizona cities cannot expect to reach their climate action goals if they are forced to rely solely on APS and TEP. We need more affordable clean energy on a timetable that exceeds the two utilities' plans in order to protect those on the frontlines of the climate crisis and to invest in our energy future. By switching to CCAs, we can keep fossil fuels in the ground and allow innovation beyond TEP's and APS's one-size-fits-all programs.

CCAs are able to deliver clean energy and provide ratepayers an average of 3 to 10% savings across the country. Surplus revenues build over time and remain in the community, funding projects such as electrifying public transportation, increasing electric vehicle charging stations, and adding solar panels to low-income rooftops. The possibilities are limitless.

It's time we start thinking about our electricity the same way we think about modern day cell phone plans. The two utilities significantly lag behind global emission reduction standards. CCAs are a pro-consumer strategy for Arizona and a necessary path forward.

Kyle Kline is a current Udall Scholar at University of Arizona and a co-founder of the Tucson Division of the Arizona Youth Climate Coalition.

Shelly Gordon is the State Director of Arizonans for Community Choice.



Solar Array by Lauren DiFilippo

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Glendale Conservation Society: “He that plants trees loves others beside himself”

By Lesly Castillo Colin 



Glendale Conservation Society by Lesly Castillo Colin

OVERVIEW | With a t-shirt quote inspired by Thomas Fuller—“He that plants trees loves others beside himself”—the Glendale High School Conservation Society (GCS) focuses on conserving the natural landscape of Arizona. GCS is a student-led club founded by English teacher Gregory Brooks. He provides the necessary guidance for the students to successfully organize a conservation group while giving them the liberty to experiment with their unique ideas, teaching the students valuable lessons in leadership, organization, and even finance management. Above all, however, students have the opportunity to learn more about the environment, from the effects of human waste to the dangers of invasive plant species. The club currently has 50 members with four senior officers: Lesly Castillo Colin as the President, Jenny Gonzalez as the Treasurer, Jahaira Villa-Urrutia

as the Vice President, and Jaime Saldivar as the Secretary.

WHAT WE’VE DONE | In the past years, GCS has worked closely with the Sierra Club, Natural Restorations, and the Tonto National Forest to provide its members with volunteer events on the weekends. These events offer a variety of conservation opportunities such as trash pick-up, water testing, buffelgrass and castor bean removal, and milkweed planting. GCS values the network established with outside organizations who are more than willing to educate our youth on the dangers the environment faces. Much of the club’s hands-on experience is found outside of school hours, however, the effect of GCS is presented inside the Glendale High School (GHS) borders as well. When the club members are not down at the Rio Salado picking up trash, they are at GHS recruiting new members and

educating the rest of the student body with their gained knowledge. The members proudly wear their GCS t-shirts around campus and enthusiastically answer the question, “Where can I sign up?”

THE STUDENTS | The students at Glendale High School join GCS for various reasons: some look for an opportunity to spend more time in nature while others simply want the community hours for their college applications. Whatever the reason may be, there is no doubt that these students are some of the most inspiring and motivated individuals. As mentioned before, GCS does most of their volunteer work during the weekends. These students wake up at 6AM on Saturday and Sunday mornings to do yard work with smiles on their faces. The club has brought teens of all ages together for the environmental cause, creating new friendships and educating the new generation.

If you would like to connect with this student group, the club president can be contacted through email (lesly.castillocolin@gmail.com).

Lesly is president of Glendale Conservation Society



Club Vice President (left), Sponsor (middle) and President (right) during Future Freshman Night by Lesly Castillo Colin