

# CANYON ECHO

## THE IMPACT OF DROUGHT & OVERUSE ON THE COLORADO RIVER

In this article, I briefly go through some history, statistics, management policies and impacts that the Colorado River eco-systems have undergone in the last 100 years. I have added hyperlinks that I hope those who are reading this online will click to get more information.

The Colorado River Basin includes over 246,000 sq. miles and encompasses part of 7 U.S. States (Wyoming, Utah, Colorado, New Mexico, Nevada, California, Arizona), and 2 Mexican states (Baja California, Sonora).

The Colorado River has been dammed, diverted, and over-allocated to the detriment of the health of the river. These dams, reservoirs, and aqueducts divert most of the water for agricultural use and sustain about 40 million urban dwellers. Numerous agreements, laws, decisions, decrees, contracts, and regulatory guidelines, both national and international, govern the river's use and are collectively called "**The Law of the River.**"

Indigenous communities have inhabited the Colorado River basin for at least 8,000 years. These tribes have shared a reverence for the river that encompasses all aspects of their lives. Their ways of life have been stressed since European settlers began diverting water from the Colorado and Gila Rivers. There are 10 major tribes that have formed a partnership called **The Ten Tribes**

Drought is a complex phenomenon that results from significant interactions between natural weather and climate variability, climate change, the ecosystem, and human management and use of water resources.

**Partnership.** However, there are 47 **tribal groups** that have legal water rights. Many of these agreements remain unsettled which makes these tribes vulnerable as pressure is put on the river through over-use and drought, at least partly attributable to climate change. **The tribal agree-**



Invasive Phragmites australis, Wetland Trail Lake Mead

NOAA Drought Task Force

Photo Wikimedia Commons

**ments vary** from being modified to increase their water allocation and allowing leasing, auctioning or marketing their water to a tribe that has an agreement with no further allowances. This latter situation is the case with the Cocopah Tribe.

The **Cocopah** tribe, also known as the River People, lives along the lower Colorado River and delta. They represent one of the tribes with the least flexibility in their agreement. An allocation of water can be added to lease agreements for agriculture, they cannot lease any of their water rights.

In an **article** published by the Audubon Society, the author details the scarce resources the tribe have to restore their environment: remove invasive species, and plant native plants important to them like cottonwood, willow and mesquite trees. Invasives like phragmites threaten the tribes access to water and other environmental and cultural resources. A bill, S.3308, has been introduced in the U.S. Congress. A settlement has not yet been reached. If the Cocopah are permitted to lease their water, the money would contribute to increased resources for them to restore their traditional way of life and lift families out of poverty. If this agreement is settled, it could allow for even more pressure being put on the ailing ecosystem.

Continued on page 11

by Toni Malcolm



Images courtesy of NASA





## Canyon Echo

Fall 2022  
Vol. 58 No. 4

Canyon Echo © 2022. Canyon Echo (ISSN 0164-7024) is published quarterly for Sierra Club members by Sierra Club Grand Canyon Chapter, 514 W. Roosevelt St., Phoenix, AZ 85003. Phone: 602-253-8633. Printed at Valley Newspapers.

Front page banner designed by Erika Gronek.

 Printed on 100% recycled paper with soy ink.

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

**SUBSCRIPTIONS:** Annual dues to Sierra Club are \$39 (including \$1 for Canyon Echo). Subscription rate for non-members is \$10. Send check payable to Sierra Club - Canyon Echo, 514 W. Roosevelt St., Phoenix, AZ 85003.

**ADVERTISING:** Advertising is sold on a first-come, space-available basis. The editor reserves the right to refuse any advertisements, and inclusion of advertisements does not imply endorsement by Sierra Club. All interactions between advertisers and consumers are solely the responsibilities of those parties.

**SUBMISSIONS:** Send electronic or hard copies to the editor (include a self-addressed stamped envelope for return of hard copies). Indicate copyright or Creative Commons preference. We are not responsible for lost or damaged items. Writer's guidelines can be obtained by contacting the editor. All rights to publication of articles in this issue are reserved. The deadline is the first day of the month preceding the issue. Opinions expressed in Canyon Echo are those of the contributors and do not necessarily reflect the official views or policies of Sierra Club.

**POSTMASTER:** Send address changes and postage due to Sierra Club Member Services, c/o Canyon Echo, P.O. Box 421041, Palm Coast, FL 32142-6417. Periodicals postage paid at Phoenix, AZ.

## Chapter Staff

### Chapter Director

Sandy Bahr 602-253-8633 [sandy.bahr@sierraclub.org](mailto:sandy.bahr@sierraclub.org)

### Conservation Program and Communications Assistant

Ana Gorla 602-253-9140 [ana.gorla@sierraclub.org](mailto:ana.gorla@sierraclub.org)

### Grand Canyon Conservation Program Manager

Alicyn Gitlin 928-774-6514 [alicyn.gitlin@sierraclub.org](mailto:alicyn.gitlin@sierraclub.org)

### Border Program Coordinator

Erick Meza 520-254-6401 [erick.meza@sierraclub.org](mailto:erick.meza@sierraclub.org)

### Water Sentinels Program Manager

Jennifer Martin 602-254-8362 [jennifer.martin@sierraclub.org](mailto:jennifer.martin@sierraclub.org)

### Southwest Local Outdoors Coordinator

Sergio Avila 520-624-7080 [sergio.avila@sierraclub.org](mailto:sergio.avila@sierraclub.org)

### Southern AZ Energy Program Coordinator

Catalina Ross 520-312-2849 [catalina.ross@sierraclub.org](mailto:catalina.ross@sierraclub.org)

### Energy and Public Lands Coordinator

Katie Del Castillo 602-284-4374 [katherine.delcastillo@sierraclub.org](mailto:katherine.delcastillo@sierraclub.org)

## Chapter Executive Committee & Chairs

### Chair\BIPOCC\at large:

Oscar Medina 520-903-8005 [omedina@changemakerhighschool.org](mailto:omedina@changemakerhighschool.org)

### Vice-Chair\Wilderness\Pub Com\At large

Jim Vaaler 602-553-8208 [jimvaaler@msn.com](mailto:jimvaaler@msn.com)

Secretary: Rotating

### Political:

Chris Gehlker 602-370-0128 [canyonrat@icloud.com](mailto:canyonrat@icloud.com)

### Awards/at-large:

Kathy Mohr-Almeida 480-329-8503 [kathylynn626@yahoo.com](mailto:kathylynn626@yahoo.com)

### Water Chair\at-large\Pub Com:

Gary Beverly 928-308-1003 [gbverde99@gmail.com](mailto:gbverde99@gmail.com)

### CCL Delegate\At-large:

Stephanie Vazquez Salas 623-302-6889 [stephanie.vazquez03@gmail.com](mailto:stephanie.vazquez03@gmail.com)

### At-large:

Cyndi Tuell 520-272-2454 [cctuell@hotmail.com](mailto:cctuell@hotmail.com)

### Membership Chair\At-large

Rebecca Hinton 602-405-1779 [rahinton@hotmail.com](mailto:rahinton@hotmail.com)

### At-large:

Amritha Kathikeyan

### CCL Alternate\At-large:

Anna Mohr-Almeida

### Conservation Chair:

Don Steuter 602-956-5057 [dsteuter@hotmail.com](mailto:dsteuter@hotmail.com)

### Outings:

Jenny Cobb 928-925-1320 [cobbsrun@msn.com](mailto:cobbsrun@msn.com)

## Group representatives to the Ex Com

Palo Verde Group Rep.	Don Steuter	Flagstaff N. AZ. Group Rep.	Kay Bordwell
Saguaro Group Rep.	Jo Sylvester	Yavapai Group Rep.	Tom Slaback
Rincon Group Rep.	Vacant		

## Chapter Announcements

### Wildlife Activist Group Meetings

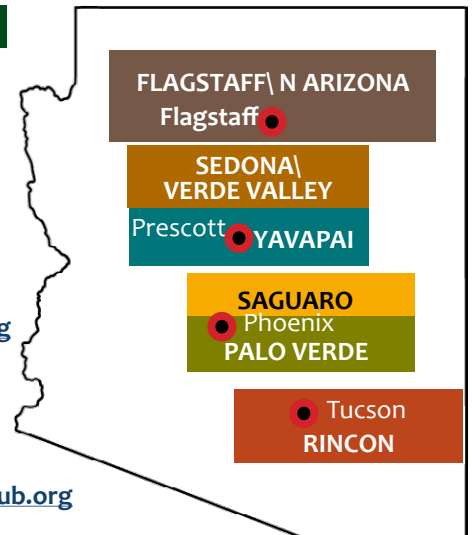
**OCT 10, NOV 14, DEC 12 (MON) 6pm.** Wildlife Activist Group meetings (virtual). Interested in making a difference for wildlife? Want to help protect habitat, gather important research data on wildlife, or watchdog the Arizona Game and Fish Commission? Please consider joining our Wildlife Activist Group For more information, please contact [sandy.bahr@sierraclub.org](mailto:sandy.bahr@sierraclub.org).

### Energy & Climate Action Team Meetings

**OCT 25, NOV 22 (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. (No December meeting.) For more information, please contact [sandy.bahr@sierraclub.org](mailto:sandy.bahr@sierraclub.org).

### Arizona Sierra Club Conservation Meetings

**OCT 6, NOV 3, DEC 1 (THU) 6:30pm** This is the monthly conservation meeting of the Arizona (Grand Canyon) Chapter and Palo Verde Group (Phoenix area), where we discuss a broad range of environmental issues. Come learn more about issues or bring an issue you care about and share what you know. For more information, please contact Don Steuter at [dsteuter@hotmail.com](mailto:dsteuter@hotmail.com).



BIPOCC: Black Indigenous  
People of Color Committee

CCL: Council of Club Leaders

## 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.

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

**Contact** Kay Bordwell 928-779-3517 [kbordwell4@gmail.com](mailto:kbordwell4@gmail.com)

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.

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

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

Yavapai group programs & Executive Committee meetings are held on the **first Wednesday of the month**.  
WED OCT 5, NOV 2, DEC 7 6pm

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

<b>Chair:</b>	Jo Sylvester	602-292-6806	<a href="mailto:stitchinjo@yahoo.com">stitchinjo@yahoo.com</a>
<b>Vice-Chair:</b>	Ronda Frost	208-743-1006	<a href="mailto:junefrost@gmail.com">junefrost@gmail.com</a>
<b>Secretary\Programs:</b>	Sally Howland	602-663-2889	<a href="mailto:sally_howland@yahoo.com">sally_howland@yahoo.com</a>
<b>Treasurer:</b>	Jim Wikley	480-649-2836	<a href="mailto:nvrgvup@gmail.com">nvrgvup@gmail.com</a>
<b>Social Media:</b>	Ronda Frost	208-743-1006	<a href="mailto:junefrost@gmail.com">junefrost@gmail.com</a>
<b>Membership:</b>	Sue Barsky		

The next Saguaro Group quarterly meeting will be held on **November 17th at 5:30 pm**. Potluck dinner before the meeting. For details email [stitchinjo@yahoo.com](mailto:stitchinjo@yahoo.com)

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

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

Palo Verde Group executive committee meetings are the **second Thursday of each month** and programs are the **fourth Thursday of each month**.  
Ex Com THU Oct 13, NOV 10, 6:30 PM Programs THU Oct 27, 6:30 PM

### 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](mailto:grand.canyon.chapter@sierraclub.org) or (602) 253-8633 for questions on events and issues.



## See Sustainable homes & Community Spaces Up Close at the Desert Living Home Tour

We're excited to announce this year's Desert Living Home Tour on Saturday, October 22nd from 10:00a.m. - 3:00p.m.!

We're teaming up with Watershed Management Group to showcase creative and sustainable yards, homes, and community spaces for all experience levels and budgets in the Phoenix Valley and Tucson.

[Learn more about this event](#)

## Table of Contents

Colorado River.....	1	Donors.....	10
Chapter Directory.....	2	Env. Report Card.....	11
Happenings.....	3	Book Review:	
Elections.....	4,5,6	A Blizzard of Polar Bears.....	12
Autumn Walk.....	7	Recreation.....	13
The Slab.....	8	Arizona Rivers.....	13
In Memoriam:		Explore & Enjoy AZ.....	14
Bev Full.....	8	Cast of Characters:	
Lydia Wilson.....	9	Katie Del Castillo.....	15
Student Poetry:		Wildlife.....	16
Daphne Lopez.....	9	San Pedro River.....	16



# Sierra Club Elections

**Who can vote?**

All current Sierra Club members in good standing (dues paid) who belong to the Grand Canyon Chapter.

**How do I vote?**

**\*NOTE:** You can now vote online! Please go to [sierraclub.org/arizona](http://sierraclub.org/arizona) for details.

- 1) Review the candidate biographies on pp. 7-9.
- 2) Mark whether you have a Single or Joint (household) membership.
- 3) Vote by marking the box space(s) beside the candidates of your choice. Vote for no more than the number of candidates indicated for the Chapter or Group.
- 4) After voting, photocopy or cut out your ballot and place it in an envelope with your **name, membership number** (if not known, call 602-253-9140 and leave a message), and **address** as the return address. Your membership number is the 8-digit number above your name on your newsletter mailing label. **Deadline: December 1. Ballots postmarked later than December 1 OR without a name and address on the envelope will not be counted.**

**Why are there two boxes following each candidate's name?**

The second vote column is for joint memberships (two people living in the same household who are members). If you fill in the "S" box, your vote will count **once**. If you have a joint membership, fill in the "J" box and your vote will count **twice** for one household. If you have a joint membership and the two members want to vote for different candidates, check two "S" boxes in the same section. **Do not check both the S and the J boxes.**

**What do I need to remember when marking the ballot?**

**Do not put your name on the ballot.** Before counting, names and joint memberships will be verified from your return address on the outside of the envelope. Ballots will be counted after the deadline (December 1). All members may vote for Chapter Executive Committee candidates, but members may only vote for the candidates in the Group in their respective residential location. If you are unsure of which Group you're in, contact 602-253-9140 or [grand.canyon.chapter@sierraclub.org](mailto:grand.canyon.chapter@sierraclub.org).

Rather than voting by mail, you can vote electronically by visiting this link: <https://www.sierraclub.org/arizona/2022-elections-for-chapter-and-groups>



Postmark deadline for ballots is Dec. 1

Be sure to include your name and address on the envelope (not on the ballot). Any envelopes without this information will be discarded and the ballot will not be counted. Mail to:

Sierra Club Elections  
514 W. Roosevelt St.  
Phoenix, AZ 85003

## 2022 ELECTION BALLOT

Is your membership Single  Single or Joint? Joint

**GROUP EXECUTIVE COMMITTEE:  
Vote ONLY for Your Group**

If you are not sure which group you're in, contact 602-253-9140 or [grand.canyon.chapter@sierraclub.org](mailto:grand.canyon.chapter@sierraclub.org).

**SAGUARO (N. Maricopa County)  
Vote for no more than 4**

_____	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)

**YAVAPAI (Prescott)  
Vote for no more than 2**

Stan Bindell	(S)	(J)
Gary Beverly	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)

**FLAGSTAFF/NORTHERN AZ  
Vote for no more than 2**

_____	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)

**RINCON (Tucson)  
Vote for no more than 3**

_____	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)

**PALO VERDE (Phoenix)  
Vote for no more than 5**

Greg Clark	(S)	(J)
Rebecca Hinton	(S)	(J)
Lisa Vaaler	(S)	(J)
Don Steuter	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)

**CHAPTER EXECUTIVE COMMITTEE  
All Members Vote**

Vote for no more than 5 candidates	Single (Membership Type)	Joint
Amritha Karthikeyan	(S)	(J)
Anna Rose Mohr-Almeida	(S)	(J)
Gary Beverly	(S)	(J)
Chris Gehlker	(S)	(J)
Oscar Medina	(S)	(J)
Stephanie Vazquez Salas	(S)	(J)
_____	(S)	(J)
_____	(S)	(J)



## Meet the Chapter Executive Committee Candidates

[Candidate statements are presented as written. They are not edited in any way.]

### **Amritha Karthikeyan (Membership Number: 53860905)**

My name is Amritha Karthikeyan (she/her). I am currently a Junior at Arizona State University majoring in Sustainability and Data Science. I have been involved with climate activism in Arizona for about four years. My involvement started with the Arizona Youth Climate Coalition, with my first course of action being helping plan a strike at the State Capitol in March of 2019. Over the years the organization has collaborated with other organizations, including Sierra Club, to host strikes, art builds, and summits. As I've come into college my role in the organization has also evolved, and it's been empowering meeting and working with other people in the environmental community to advocate for change. I want to be a part of this committee to learn more about environmental activism and organizations while meeting other people in the local community. Seeing as I've mostly been involved with youth organizations it would be extremely beneficial and educational to be involved with an organization that is multi-generational and a part of one of the longest standing organizations in the U.S.

### **Anna Rose Mohr-Almeida (Membership Number: 43413679)**

I would like to continue to serve on the Grand Canyon Sierra Club Chapter Executive Committee because I care deeply about the conservation of wild places throughout Arizona. Preservation of the Rio Verde, the San Pedro, Oak Flat and Grand Canyon must continue in tandem with the protection of Arizona's threatened and endangered species. I am particularly concerned with water conservation and air pollution. I recognize that influencing and monitoring state, federal and corporate activities is extremely important to the environmental health of Arizona. As a continuing member of the GCSC Executive Committee, I will help GCSC achieve our inclusion and equity goals, as I am a 19 year old Engineering student at Arizona State University. I have worked with multiple climate-focused organizations since age 11; I am very experienced with climate activist endeavors. As a member of the GCSC Executive Committee, I will continue to organize Arizona's youth to advocate and lobby for Arizona's environment and design and participate in activism projects with enthusiasm and commitment.

### **Gary Beverly (Membership Number: 11123716)**

I have been a member of the Sierra Club for four decades and have been active in the Yavapai Group ExComm since 2006 as vice-Chair, Outings Chair and Publications Chair. My primary project is to protect the base flow and riparian environment along the Verde River. This can in part be achieved through Congressional designation of the Upper Verde Wild and Scenic River. My other interests are in air and water quality, the Grand Canyon, forest management, and in trails. If re-elected, I will continue my efforts with increased vigor. These are the most challenging times for environmental interests in the last century, so now is when we should redouble our efforts by speaking loudly and clearly to defend the earth that sustain us.

### **Chris Gehlker (Membership Number: 5335455)**

Lithium mining has the potential to be more harmful to the natural environment and indigenous cultures than copper mining. Lithium-ion battery technology will not take us to a renewable energy future because Li+ batteries simply don't store enough energy. A 100 MW Li+ battery coupled to a 100MW solar generator only provides maximum power for 4 hours. SRP has already used the inadequacy of Li+ storage to try to justify the need for gas peaking plants, as if Li+ were the only technology for firming renewable power. In Scotland and Eastern Europe they back up renewable power by simply raising and lowering heavy weights in abandoned mine shafts. In Nevada they haul railroad cars full of rocks up hills to store energy. These technologies are much cheaper than Li+ batteries, are scalable, and don't catch fire if you charge them too fast. Arizona does not lack for hills or abandoned mine shafts.

If I'm elected to the Chapter ExCom I'll work hard both within the Club, at the legislature and the Corporation Commission to promote technologies for energy storage that actually work without damaging the natural world or native societies. Thank you for your consideration.

### **Oscar Medina (Membership Number: 48105903)**

I have served on the executive committee for five consecutive years. I have been part of Sierra Club's cultural transformative initiative and served an integral role in building our chapter's equity trail map. I will continue to work on our three equity goals 1) create a welcoming and inclusive chapter that centers the communities most impacted by climate and environmental degradation in Arizona, 2) engage in ongoing equity learning and practice for self-transformation and accountable, just relationships, and 3) center equity and justice in our campaigns and organizing and establish more inclusive and just relationships with our partners. I envision a chapter where people who have been historically and perpetually excluded and marginalized from the work of Sierra Club, feel welcome, supported, represented, and hold leadership positions within the chapter.

*Oscar currently serves as chapter chair. He uses he/him/el pronouns. He lives in Tucson, AZ, and acknowledges that they are the ancestral homelands of the Tohono O'odham, Yoeme, (Yaqui), and other indigenous tribal communities. He works for Prescott college and directs the Tucson center.*

### **Stephanie Vazquez (Membership Number: 47348942)**

My name is Stephanie Vazquez, and I seek re-election to the Sierra Club Grand Canyon Chapter Executive Committee. A graduate of Arizona State University, I hold a B.A. in Political Science with a minor in Sustainability and a Master's in Public Policy. Being part of the ExCom over the last several years has allowed me to expand my knowledge of dire environmental issues in Arizona, and I will continue to work to protect our water, lands, and wildlife. Additionally, I was a key member in the creation of our Chapter's Equity Trail Map, and I will continue to advocate for justice, equity, diversity, and inclusion in our Chapter.

*Mi nombre es Stephanie Vazquez, y busco reelección para la Comité Ejecutiva de Sierra Club Grand Canyon. Una graduada de Arizona State University, tengo un B.A. en Ciencias Políticas con concentracion en Sustentabilidad y una Maestría en Leyes Públicas. Ser parte del Comité Ejecutiva durante los últimos años me ha permitido ampliar mi conocimiento sobre los problemas ambientales en Arizona, y continuaré protegiendo nuestro ambiente. Adicionalmente, ayudé con la creación del Equity Trail Map de nuestro Capítulo, y continuaré abogando por la equidad, diversidad e inclusión en nuestro Capítulo.*

Candidates continued on p. 8

## Meet the Group Executive Committee Candidates

Candidates continued from p. 5

### PALO VERDE GROUP

#### **Greg Clark (Membership Number: 55082849)**

Greg Clark has been engaged with the conservation of Burrowing Owls for over 20 years. This has involved habitat creation, relocation, and public education about the challenges that owls and all wildlife face. With climate change and drought, all elements in the environment are under accelerating pressure, especially migratory birds. To obtain critical data about bird migration stops, routes, and success, the Motus radio network of monitoring stations was created and established, primarily in the eastern part of North America.

It is in the West where drought is dramatically affecting all the birds, and impact information is needed soon. Greg built the first station in Arizona and is working with a new group of non-profit, state, and federal partners to help establish more stations quickly. Declines in migratory bird populations can inform the status of soil, water, and plants on continental scales. The use of this information can scientifically drive the priority of land management for where to make changes and how to spend the money.

#### **Rebecca Hinton (Membership Number: 47513854)**

I've been a member of the Palo Verde Group (PVG) since 2014, serving on the Executive Board for the past four years, and as the Chair for 2022.

One of my roles on the board is helping to organize our monthly programs. I appreciate this opportunity to hear from other organizations and experts to learn about other organizations and environmental, justice, and democracy issues.

I am an active member of the Grand Canyon Chapter Political Committee. On this Committee, we work to identify those candidates who support our values, let our members know about these endorsed candidates, and support these candidates in their elections.

#### **Lisa Vaaler (Membership Number: 41890553)**

Hello, I am Lisa Vaaler ICO (Inspiring Connections Outdoors) chair for the last 10+ years. I would like to be nominated for the PVG ExComm and feel my involvement in ICO, hikes, trail maintenance, and wilderness over the years with the Sierra Club and with my father, Jim Vaaler, has given me the skills and credentials for this position. Thank you for your time and consideration.

#### **Don Steuter (Membership Number: 23812444)**

My main interest with the Sierra Club, since joining in the late 1980's, has been protection of public lands, in particular fighting to stop irresponsible mining across our most special landscapes, and preventing destructive cattle grazing in our hot deserts and biologically important riparian areas.

My history with the Sierra Club includes chairing the Palo Verde Group Conservation Committee (1990 to the present) and the Chapter Conservation Committee (2001 to present).

I have worked on several campaigns and projects over the years including organizing, with others, the Conferences on Conservation of State Lands (COSTL – 1998-99), and as a steering committee member for the Citizen's Growth Management Initiative in 2000.

I also worked on the Grand Canyon Campaign Protection Committee, am on the steering committee for the Arizona Mining Reform Coalition, represented the Chapter at Council of Club Leaders, and serve as secretary for the Chapter Political Committee.

Working with the oldest and most influential conservation organization and its many hard working and committed members has been an honor. With your vote I'll continue the effort to keep our air and water clean and our wild places wild.

### YAVAPAI GROUP

#### **Stan Bindell (Membership Number: 47066215)**

I am seeking re-election to the Executive Committee of the Yavapai Group of the Sierra Club.

I moved to Arizona in the 1980s, and for more than 40 years, I have worked to protect the environment. Even as a teenager, I worked for the League of Conservation Voters in New Jersey, urging voters to support candidates who were strong on the environment.

As a retired professional journalist, I have written about many environmental issues including protecting the Grand Canyon from uranium, and for the need to clean up uranium on the Navajo and Hopi Reservations. I have written hiking columns for over 20 years with the intent of getting people to appreciate nature and protect important areas. My hiking columns can be found in 5 Senses newspaper in Prescott or the Navajo Hopi Observer based in Flagstaff. I am writing a book about Arizona's 90 wilderness areas, why these areas are special and the need for them to be protected. I have also written and remain concerned about endangered species such as the black-footed ferret and the Ramsey Canyon leopard frog. I serve on the Chapter Publications Committee.

I am an outings leader for the Sierra Club, and I recently became a trail monitor for the Arizona Wilderness Coalition, monitoring wilderness trails, to let the coalition know the amount of traffic the trails get and their condition.

Thanks for all you do for the environment.


#### **Gary Beverly (Membership Number: 11123716)**

I have been a member of the Sierra Club for four decades and have been active in the Yavapai Group ExComm since 2006 as vice-Chair, Outings Chair, and Publications Chair. My primary project is to protect the base flow and riparian environment along the Verde River, which can in part be achieved through Congressional designation of the Upper Verde Wild and Scenic River.

My other interests are in air and water quality, the Grand Canyon, forest management, and in trails. If re-elected, I will continue my efforts with increased vigor. These are the most challenging times for environmental interests in the last century, so now is when we should redouble our efforts by speaking loudly and clearly to defend the earth that sustains us.



# Autumn Walk: Bill Williams Mountain

by Steve Dudley 

Arizona's special season, autumn. The days are moderate in temperatures, the air is clear with the cumulative scent of summer growth...and the nights! So clear and crisp, one can reach for the sky and grasp at the heavens populated with stars. Bill Williams Mountain in northern Arizona spans multiple life zones with its lofty 9000+ foot elevation.



Yellow flowers photo by Steve Dudley

The aspen clones in the upper elevations begin their transitions to a brief burst of spectacular yellow, set off by the backdrop of deep forest green by ponderosa pines and firs. Bill Williams Mountain hosts a splendid network of trails that access the east, north and west sides. Trails that traverse the headwaters of diverse watersheds, home to unique and thriving wildlife and plant populations.



Bobcat photo by Mike & Kathy Benham

The same critical drainages supply abundant clean water for nearby communities. So critical and sensitive are these watersheds, the City of Williams, Coconino County, and the Kaibab National Forest have entered into an expensive, but needed, restoration project designed to protect this mountain, its watersheds, and natural environments.



Trail Sign photo by Steve Dudley

Historically situated and used on the east side of the mountain is the Benham Trail. The trail was laid out and used in 1908 by Willard Sevier and Henry Benham as a route to the top of the mountain to spot forest fires eastward. The trail remained established and utilized by Mr. Benham as a route to the top for purposes of maintaining a kerosene warning beacon atop the mountain. In 1976 the trail was taken over by the USFS, improved, and opened as a recreational trail for public use. The trailhead is only a few miles south of Williams, and easily accessible. It's a beautiful autumn hike

Today, we stand on yet another edge of losing another stellar Arizona trail and its surrounding environment. In March of 2022, South American-owned Drake Cement LLC began staking open pit mining claims over 850 acres of national forest lands, directly over the Benham trail and the eastern slopes of Bill Williams Mountain. With the aid and cover of the General Mining Law of 1872 and the disastrous manipulations by



Grey Fox photo by Mike & Kathy Benham

foreign interests of our free trade agreements, there is a strong probability the Benham Trail will disappear, catastrophic changes will be made to important watersheds, and all the well intentioned restoration work will be stripped from the land as useless overburden to "open pit mine" away yet more American heritage.



Goshawk photo by Mike & Kathy Benham

This is but a small sliver of the injustices wrought upon US citizens, both native and contemporary, by mining interests that mis-utilize the General Mining Law of 1872. Perhaps at one time the intent of that law served useful purposes, but it is dramatically in need of complete overhaul and change. Add Bill Williams Mountain and Benham Trail to a



Turkey photo by Mike & Kathy Benham

very long list of abuses heaped upon the American public by an industry that refuses to even consider viable alternatives, and complicit federal agencies that rationalize away their responsibilities by saying these corporate interests have a right under that law to degrade public lands.

If you wish to add your support

to this small local opposition effort amongst the countless others that have been hard fought, please consider visiting our website: <https://protectourmountain.wixsite.com/protect-bill-william>

Perhaps fire off a letter or two to your congressional representatives and implore them to get busy and do something about the outdated and iniquitous Mining Law of 1872. It is not serving the American people nor our beleaguered environment in a meaningful way. Just another bag of cement and money in Peruvian pockets is not what's needed. It must be changed, or better yet repealed.

Steve Dudley is with Bill Williams Mountain Community Action Partnership.



**Canyon Echo encourages contributors to use Creative Commons licensing**

This work is licensed under the Creative Commons Attribution-NonCommercial-ShareAlike License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-sa/2.5> or send a letter to Creative Commons, 543 Howard Street, 5th Floor, San Francisco, California 94105.

All other contributions, including photos, cartoon, and written work, fall under standard copyright restrictions

## Electronic Newsletter



To sign up for the e-newsletter, send an email with your full name and membership ID (8-digit number found on your mailing label) to [CanyonEchoSub@gmail.com](mailto:CanyonEchoSub@gmail.com). You will receive an email when the new issues become available online.

~The trees will thank you~



# Two Friends remember Bev Full

## In Loving Memory

She was so much to all of us and a true adventurer! She was a career teacher, student, world traveler, writer, artist, dancer, skater, skier, scuba diver, mountain climber, private pilot, environmentalist and so much more!.

For those who have never been on one of Bev's river trips, there are dozens of details to be attended to. There are outfitter forms for permits, liability forms, and more to safely launch a group of 10-14 people on a multi-day river trip. Beyond that there are tons of logistical details, such as food, water, cooking equipment, camping equipment, tables, ice chests, and more, to have a successful river journey.

On my first trip I didn't have a clue about all that Bev did to pull together a river trip. Later, I would begin to recognize her abilities as a kind of logistical and organizational genius! She made it look easy!

At the first opportunity I eagerly signed-up for her next trip. When Bev mentioned that with all the stuff to do on the river she could use the help of an assistant to throw canoes on-and-off trailers, pack-unpack equipment, light the stove and

be up at dawn to make coffee, and the last one to tie and check the canoes each night. I quickly said call me "gopher."

Somehow the years went too quickly and after that first trip, I am proud to say I was her assistant for 36 more!

How many people were introduced by her to the beautiful river places on the Green, the Colorado, and the San Juan in Arizona, Utah, and Colorado?

But given she was planning our 38th river trip together this year, it was many dozens, possibly hundreds.

Bev will never be forgotten, and, who knows, I think the rivers will remember her too.

Jim Wilkey



To many of us, the name Bev Full is synonymous with the Sierra Club Saguaro Group. Bev founded the Group, which covers north Maricopa County, in 2004, after having been very active in

the Sierra Club in California and with the Grand Canyon Chapter. Since then, she has been its guiding light and mentored the Group leadership over the years.

It will be difficult to hike, paddle, and actively participate in the community at any level without thinking of Bev's contributions. She was

Saguaro Group Chair many years, organized and led river trips and outings at both the Group- and Chapter level, actively headed Group membership resulting in the involvement of many of

our past and current leaders, led political support activities for Sierra Club, supported candidates, and represented the Group on the Grand Canyon Chapter executive committee.

Many of us think about doing something to support our Group or community; however, have trouble getting started or cannot figure out how to do it. Bev was of the "action conquers fear" school of thought. If it seems difficult and complex, do something. And, with Bev that something always resulted in the intended results. Whether meet/greet the candidates' events, postcard writing sessions, membership socials, or myriad other activities, she always moved forward to accomplish the objective. And we all marveled at her ability to articulate the rules/bylaws of the organization as the need arose.

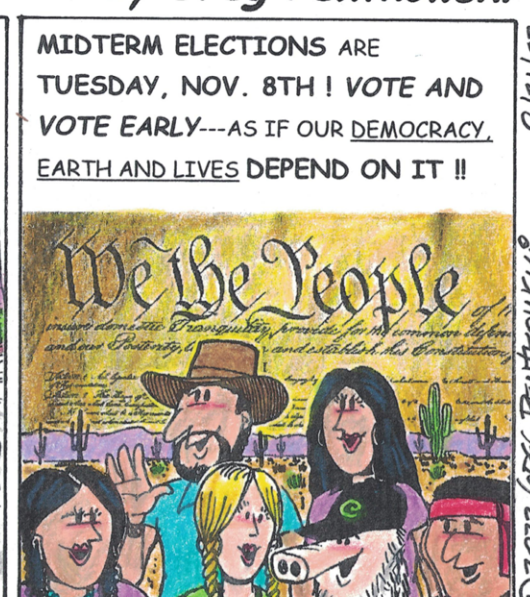
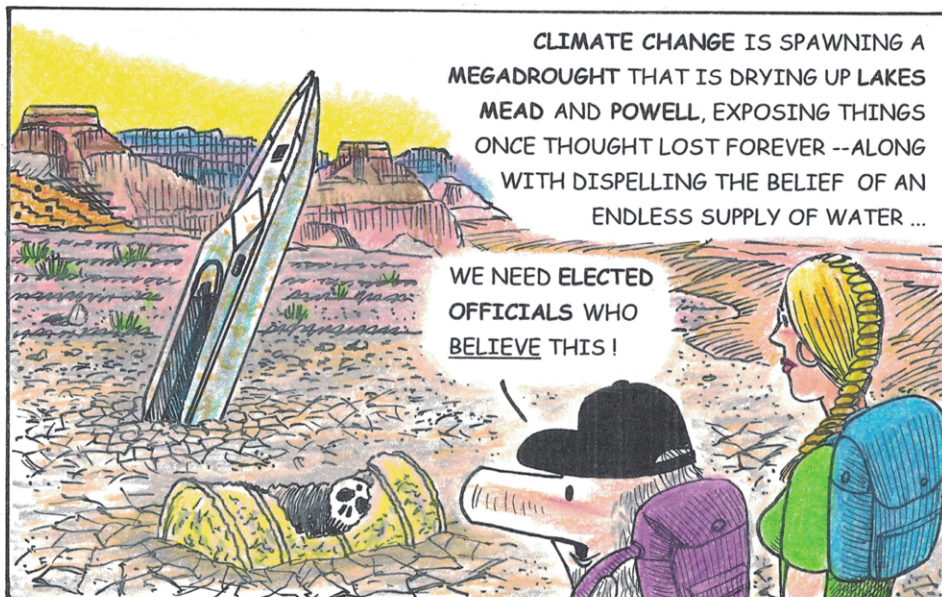
The Saguaro Group and the entire Sierra Club community will miss, but never forget her. We will forever picture her paddling on the river while looking for the perfect campsite and finding it.

Urb Weidner

## Beyond the Slab

-- CELEBRATING OVER 30 YEARS OF PUBLISHED ECO-AWARENESS !

By Greg Pentkowski



© 2012 GREG PENTKOWSKI 8/21/22



## Student Poetry: Dafne Lopez

**M**y name is Dafne Lopez and I am 16 years old. I was born in Tucson, but I currently live in Douglas, on the border between Arizona and Sonora and where I call home. I fell in love with poetry since the first time it was introduced to me in school. I always loved the colors of the sky, it never fails to bring peace to my heart and mind. However, it was not until the summer of 2020 when I combined these two into a single hobby. It all began as a form of expression to cope with the lockdown. Nowadays, it is still my form of expression, my favorite hobby, and a reminder that there's always at least a little bit of light at the end of every tunnel.



**Artist**  
 She grabbed her brush  
 And painted the sunset  
 So perfectly  
 That scientists tried to explain  
 And viewers tried to recreate.

**Cloudy**  
 There's not always a sun.  
 Cloudy days are a norm.  
 But I know for sure  
 That after every storm,  
 The sun will rise up.  
 So, let the rain pour over me.

**Choices**  
 Our choices are the hands  
 That provides life with a shape.  
 Our destiny is the fire  
 That solidifies it into a final fate.

## Lydia Wilson

by Sandy Bahr & Toni Malcolm

### In loving Memory



### Saying good-bye to Lydia

“What we once enjoyed  
 and deeply loved  
 we can never lose,  
 for all that we love  
 deeply  
 becomes part of us.”

~Helen Keller



**O**ur friend and colleague, Lydia Wilson, passed away on June 29th. Lydia worked with the Grand Canyon Chapter from the fall of 2017 through last July as our Conservation Program and Communications Assistant and since then has been the Communications Specialist for the Loma Prieta Chapter, working remotely from Arizona. Recently, Lydia had also been elected treasurer for the Progressive Workers Union.

While at the Grand Canyon Chapter, Lydia particularly enjoyed working on the *Canyon Echo* newsletter and our online publications. In 2020, the *Canyon Echo* was recognized with a Communications Award that honors the best use of communications by a Sierra Club group, chapter, or other entity to further the Club's mission. Lydia's good work contributed greatly to the newsletter winning this award and while she was always humble, we know she was proud of this.

We will remember Lydia for her kindness and caring – for people, for animals, for the planet. While she often was quieter in meetings, Lydia found her voice at rallies and protests in fighting against oppression and for the rights of those most vulnerable in our communities. Lydia helped organize Martin Luther King, Jr. Holiday Days of Service in the Rio Salado, our Environmental Days at the Capitol, and protests at our senators' offices. She was passionate about many important causes and issues, especially those focused on social justice and equity.

Lydia left this Earth far too soon, but her good work and the impact of her kindness live on.

*Her family encourages support for Sierra Club and animal protection and welfare in her memory.*

*The Grand Canyon Chapter will also be planting a tree in memory of Lydia.*

## Thank You to Our Donors!

### Hitched to Everything Else in the Universe (\$1-49)

Bert Akerboom  
Michael Chehoski  
Julie Dunlap

Dr John W Ferner  
Jules Ketcham  
Lucia and Steven Kisiel

Stephanie Lebhar  
Anne Leonard  
Jerry McCoy

Janos Molnar  
Lisa Royer Nicholson  
Jim Odenkirk

William Shaheen  
E Adele P Swan  
Phillip Wampler

### Keep Close to Nature's Heart (\$50-99)

Jim Consolloy  
John M. Franklin  
Felicia Frontain  
Jeff Peltz  
Kathleen & Douglas Sanders

Mr & Mrs Thomas L Sherman  
Linda Rosato & Thomas Wehr

### Make the Mountains Glad (\$100-499)

Thomas and Grace Cabot  
Mr Stanley Feldman  
Daniel & Shari Hofstadter  
Paul Hoyt  
Pamela Hyde-Nakai

Robert D Cable, Jr  
Laurence N Kolonel  
Dianne and Jose Leis  
Sue Ordway  
Amanda Ormond

Linda Smith  
Jill K Suydam  
Tom Tierney  
William J Craig/Marie Yonkers  
James M Zurich

### Thank you to our Monthly Donors

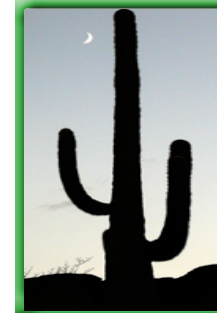
Ray Alfini, PE  
Fannie Allen  
Craig Anderson  
Nancy Atherton  
Sandy Bahr  
Jennifer Baltz  
Joan Batchelor  
Gloria Becker-Rial  
Peter & Betty Bengtson  
Ms Rebecca Berry  
Doug Bland  
Gail Bliss  
Betsy Bolding  
Carolyn Bosserman  
T J Wernette & C Brown  
Victoria Cahill  
David Cardinali  
Christine Carlson  
Ken Collier  
Louise Courtney  
Linda Crouse  
Susanne Durling  
Richard Babin & Jo Eaton

John M Franklin  
Jerry Gless  
Sarah W Gordon  
Stephen E Griffin  
Rebecca Smith Gross  
Harley Halseth  
Tim Hogan  
Bonnie Hughes  
Sandy Hughes  
Janette Huntington  
Howard Johnson  
Laurie Jurs  
Ms Laura Key  
Ms Rosemary Kist  
Tyler and Katrina Kokjohn  
Garvin G Larson  
Joanne Lewis  
Phillip Long  
Harry Lumley  
Hollace Lyon  
Toni Malcolm  
Joan Mason  
Karen McClelland

Gary McCormick  
Amy Meyertholen  
Ms Karen Michael  
Georgine Morris  
Elena Moshinsky  
Mrs Karen Muir  
Sisko Munves  
Janice E. Myers  
Sergio Avila & Jenny Neeley  
Bich Hoa Nguyen  
Shane Nicholas  
Mr Stephen Nunn  
Susan O'Hara  
Abigail Okrent  
Peggy Papay  
Becky Peters  
Julie Pindzola  
Bruce Plenk  
Michael J Pope  
Mark Mulligan & Toni Ramsey  
Paul Rawson  
Mrs Lisa Reyes  
Nyssana Reyes

Sally & Esther Rings  
Leilani Rothrock  
Drs. Tuber & Schechtman  
John Seamon  
Deborah Sebree  
Philip Shea  
Kenneth Smith  
Abby Spotskey  
Alice & Karl Stambaugh  
Dan Stormont  
K M Wyly and A Stumpf  
Ms Marsha Turkin  
Dan Millis & Kate Van Roekel  
Carmen Velarde  
Kendra Vining  
Dale & Christine Volz  
Joy Wall  
Margaret "Meg" Weesner  
Deborah Weir  
Jeff Winkler  
Robert and Ila Wist

### The Morning Stars Sing Together (\$500+)



Zach Brooks

Thank you to Lynn DeMuth & Duke Mertz for donating generously in memory of Don and Barbara DeMuth.

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

### Keep up to date with our Chapter



Chapter: [bit.ly/gcc\\_fb](http://bit.ly/gcc_fb)  
AZ Water Sentinels: [bit.ly/azsentinels\\_fb](http://bit.ly/azsentinels_fb)  
Borderlands Campaign: [bit.ly/border\\_fb](http://bit.ly/border_fb)  
Grand Canyon Campaign: [bit.ly/protectgc\\_fb](http://bit.ly/protectgc_fb)  
Rincon Group: [bit.ly/rinconfb](http://bit.ly/rinconfb)  
Flagstaff/N AZ Group: [bit.ly/flagstaff\\_fb](http://bit.ly/flagstaff_fb)  
Yavapai Group: [bit.ly/yavapai\\_fb](http://bit.ly/yavapai_fb)  
Saguaro Group: [bit.ly/saguaro\\_fb](http://bit.ly/saguaro_fb)



Chapter: [bit.ly/GCC\\_insta](http://bit.ly/GCC_insta)  
Borderlands Campaign: [bit.ly/borderlands\\_ig](http://bit.ly/borderlands_ig)  
Grand Canyon Campaign: [bit.ly/protectgc](http://bit.ly/protectgc)



Chapter: [bit.ly/gcc\\_meetup](http://bit.ly/gcc_meetup)  
Palo Verde Group: [bit.ly/pvg\\_meetup](http://bit.ly/pvg_meetup)  
Rincon Group: [bit.ly/rincon\\_meetup](http://bit.ly/rincon_meetup)



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



# Sierra Club Released 2022 Environmental Report Card for AZ Legislature

A Long Unproductive Session for Environmental Issues facing Arizona

## 2022 ENVIRONMENTAL REPORT CARD

In August, Sierra Club released [its 2022 Environmental Report Card for the Arizona Legislature and Governor](#). The 2022 Legislative Session was again long and unproductive regarding the major environmental issues facing our state-limited action on climate, no action on environmental justice, and another step backward on water, or at least one that continues business as usual. The attacks on democracy accelerated and several bills made it to the governor’s desk and were signed and some made it to the ballot. Importantly, however, a slew of bills to hinder voting and voter registration were held back by a sustained effort from voting rights advocates.

Bills to address climate resiliency, limit groundwater exploitation or even meter it or sustain flowing rivers were again stopped, most without a hearing, while bills to weaken groundwater protections advanced through the House of Representatives but were stopped due to a lack of votes in the Senate. Even the modest bill, to establish Rural Management Areas for groundwater, could not make it out of the House. While the Sierra Club thought [HB2661](#) needed to be much stronger, it is telling that not even this voluntary measure could advance.

The session’s major water legislation, [SB1740](#), continues water business as usual in Arizona, heavily investing in water augmentation that can include desalination and other infrastructure that is harmful to the environment, expensive, and energy intensive. There was no regulatory element to this bill and no other bills to regulate and protect ground and surface water advanced.

The budget included numerous harmful proposals, including funding for border infrastructure, big water augmentation projects such as desalination, and funding to continue with studies on the harmful I-11 freeway. There was a small amount-\$2.5 million-appropriated for the State Parks Heritage Fund. This was far below the \$10 million annually the voters had approved for it. There was also funding for the Arizona Trail and some needed dollars for the Arizona Department of Environmental Quality (ADEQ) to address the backlog of water quality issues identified in its [2021 performance audit](#).

Fewer legislators received an “F” on the Environmental Report Card for the 2022 Legislative Session, but still far too many: 33. There were no “A+” grades, but there were 18 senators and representatives who earned an “A.” House members were graded on 12 bills, one referendum, and two resolutions. Senators were graded on 16 bills, one referendum, and two resolutions. Governor Doug Ducey was graded on 10 bills and again earned an “F” on the report card. His legacy on environmental issues is dismal.

The Sierra Club report card is available on the chapter website in [English](#) and [Spanish](#).

Sandy Bahr is the director of the Grand Canyon Chapter.

Continued from page 1



Hoover Dam Las Vegas.gov

<b>F</b>	<b>Governor Ducey</b>
----------	-----------------------

### SENATE GRADES

### HOUSE GRADES

<b>A+</b>	
<b>A</b>	Bowie, Contreras, Gabaldón, Hatathlie, Marsh, Otondo, Quezada, Stahl Hamilton, Steele, Terán
<b>B</b>	Rios
<b>C</b>	Alston, Gonzales
<b>D</b>	Barto, Boyer, Pace, Petersen, Rogers, Shope
<b>F</b>	Borrelli, Fann, Gowan, Gray, Kerr, Leach, Livingston, Mesnard, Townsend, Ugenti-Rita
<b>I</b>	Mendez

<b>A+</b>	
<b>A</b>	Butler, DeGrazia, Epstein, Jermaine, Ligouri, Powers Hannley, Schweibert, Solorio
<b>B</b>	Abraham, Andrade, Bolding, Cano, Dalessandro, Espinoza, Fernandez, M. Hernandez, Longdon, Mathis, Pawlik, Quiñonez, Shah, Tsosie
<b>C</b>	Blackwater-Nygren, Chávez, D. Hernandez, Meza, Sierra
<b>D</b>	Bolick, Burges, Carter, Grantham, A. Hernandez, Finchem, Kavanagh, Parker, Pingerelli, Chaplik
<b>F</b>	Barton, Biasiucci, Blackman, Bowers, Carroll, Chaplik, Cobb, Cook, Diaz, Dunn, Fillmore, Griffin, Hoffman, John, Kaiser, Martinez, Nguyen, Osborne, Payne, Toma, Udall, Weninger, Wilmeth
<b>I</b>	Salman

The drought and the introduction of invasive species along with all the unsettled agreements has put pressure on endemic species and add to the salinity and sediment and silt deposits that have plagued the Colorado since the creation of the reservoirs and management of the river.

The current drought started in about 2020. The alarming reduction in water flow led the Bureau of Reclamation to announce a water shortage in August 2021 and published an [update](#) on September 1, 2022. Current trends indicate that it is conceivable that Lake Powell could drop to

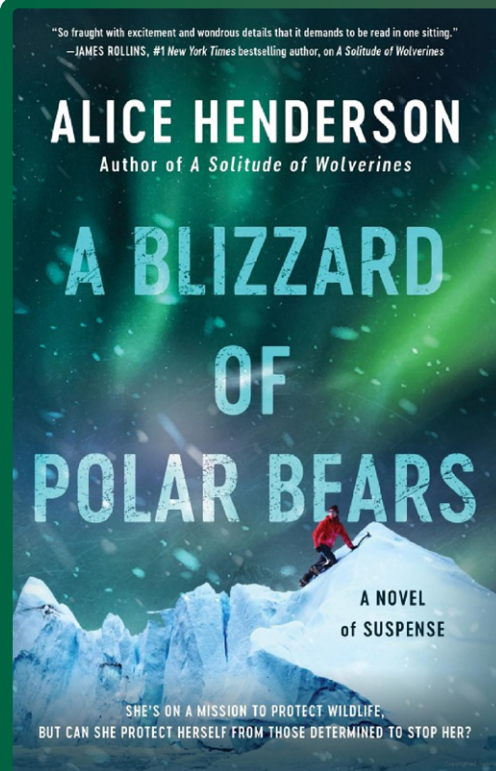
“[deadpool](#)” level.

Electricity generated by both Glen Canyon Dam and Hoover Dam will fail if the water drops below the intake pipes, leaving 5 million people without electricity.

The impact on Lake Mead, also at a critical level, would reach deadpool unless there is some intervention. Such an event will have dire consequences for everything that relies on the basins and water for their existence.

Toni Malcolm is a Sierra Club volunteer, Member of the Publications Committee and Canyon Echo Guest Editor





Alice Henderson's book "A Blizzard of Polar Bears" is a great read for those interested in endangered species, the impact of climate change and suspense.

Henderson is a real-life wildlife sanctuary monitor; she has surveyed grizzlies, wolves, wolverines, jaguars and endangered bats. She lives in Lake Tahoe, but was in Glacier National Park when I spoke with her; it is not unusual for her to be traveling and checking out wildlife. In Lake Tahoe, she is studying the American pika.

Writing an environmental thriller is unique, but too often environmental thrillers are about hunters whereas her books are about a love for wildlife, especially endangered species.

Her main character, Alex Carter, is out in the field fighting off poachers and getting into dangerous suspenseful situations.

Henderson wants her books to inspire people to act. In the afterword of "A Blizzard of Polar Bears" she writes about how people can learn more about polar bears and how they can volunteer to help them, whether it's working with Polar Bear International or writing letters to

## a book review by Stan Bindell

legislators.

"I hope the suspense gets people to act. There is so much you can do from your home computer," she said.

Henderson, a Sierra Club member, thought it would be better to tell about polar bears in a thriller rather than as nonfiction. It's not so much about her trying to persuade as showing the amazing part of wildlife.

"It's so important to protect them, but I hope people can come to their own conclusion," she said.

While she has been surveying wildlife, she has thankfully not been put in danger's way, but she has seen remote cameras stolen because poachers would have been caught on screen. "I could see the evidence that they stole the cameras. They are always fun[?] and expensive to replace," she said

Henderson said that dangerous situations are always on her mind, and when she was on a preserve in Texas she could hear poachers' guns going off.

Henderson said studying polar bears showed her the importance to push for climate change solutions. Polar bears are listed as an endangered species, but oil and gas companies are exempt from their impact on polar bears.

"Isn't that horrible?" she asked.

Henderson said climate change is the number one threat to polar bears and addressing climate change would also help other species. She said climate change is causing the ice to shrink earlier in the season and form later in the season, which is starving bears and causing them to go into communities seeking food.

Henderson wanted to write about polar bears because of the impact climate change is having on them, and because they are a species that people know about. Her first book was about wolverines

and many people didn't know they existed.

But it was an article in the *New York Times* that motivated Henderson to write about polar bears; the article stated that by 2080 all 19 subspecies of polar bears could be extinct.

"That lit a fire under me," she said. "Polar bears are in such a dire situation."

Canadian writer Ben Gadd, who wrote "Handbook of the Canadian Rockies," is among the environmental writers who motivated her. She also loves to look at those who write environmental journaling on Instagram, with Clare Walker Leslie and Liz Clayton Fuller as her favorites.

The sense of place remains important in Henderson's books as she wants the reader to feel like they are there. Alex Carter also loves the places she's at as she enjoys the solace of nature and place of peace.

"A Blizzard of Bears" takes place in Hudson Bay, where the ice is continually impacted by global warming. The polar bears have to wait longer for the ice to form and that causes

more conflict with humans. Hudson Bay has a polar bear holding facility to keep them from conflicting with humans.

Henderson said her audience is anyone who likes a thriller even if they haven't thought about wildlife.

Her advice to environmental writers is to keep their spirits up as it is important not to get down because that can cause writer's block.

"So that means taking action even if it's just looking at wildlife on your computer," she said. "If you want people to care you have to do it in a way that's approachable rather than confrontational. You have to find common ground in a friendly way."

One example, she said, is talking to skiers about the impacts they see from global warming.

Henderson's next book, which is about caribou, will be out Nov. 15. Her following book will take place in the Southwest. "A Blizzard of Polar Bears" is already out in hardcover, but will come out in paperback on Oct. 11.



Henderson Glacier photo courtesy of Alice Henderson



## Drought & Pollution affect Recreation

By Vivian Kim 

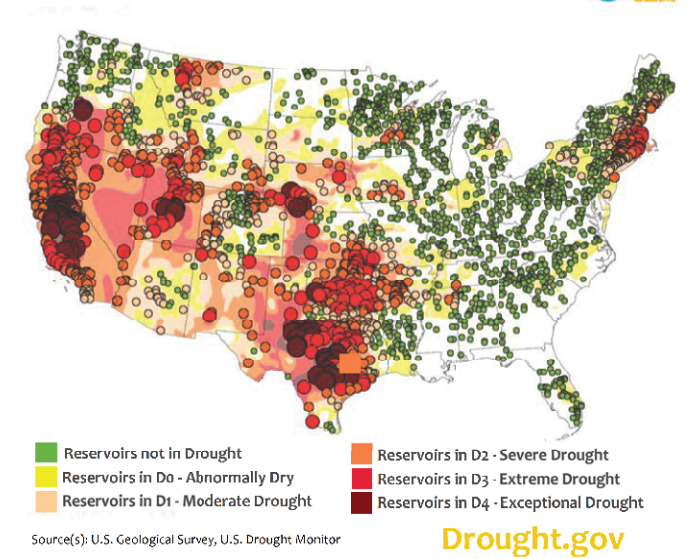
Water is an essential part of life and many people think it will always be in abundance. Many of our water systems that once provided for an entire community have dried up or become too polluted to use for a myriad of reasons. Climate change, rising ocean temperatures, changes in local landscapes, etc. have affected weather patterns leading to changes in snow- and rainfall, which cause streamflow and water levels in lakes and reservoirs to decline. On top of this, many of our freshwater sources have been severely polluted due to a lack of stewardship and rapid increases in industrial agriculture and other nonpoint source pollution, as well as activities such as mining. The current water crisis has many outcomes, but a frequently overlooked aspect is the effect it has

on recreational activities.

The amount of water that is available to us is at the heart of outdoor recreation and directly affects both winter and summertime activities. Less snow leads to people not having the opportunity to ski or snowboard. Lower levels of water means people are not able to enjoy their summertime activities such as boating, fishing, and swimming. On top of not having the same access to their summer activities, people are a lot more susceptible to waterborne diseases during times of drought. “Lower water quality during drought conditions can increase risk for contracting waterborne disease, and lower water levels can result in increased risk for injury during recreational activities,” stated the National Integrated Drought Information System.

Our current water supply is extremely vulnerable and susceptible to more intense droughts, so please remember to practice stewardship when you go out to enjoy your outdoor activities. Whether you are going on a hike or swimming in a lake, remember to treat these outdoor sites with the same love and care you would for your own home. Because at the end of the day, this earth is our home.


Recreation and Tourist Attractions in Drought: Reservoirs 



[Drought, Recreation & Tourism Drought Implications](#)

Vivian Kim is a member of the Grand Canyon Chapter's Publication Committee

## Growing Threat to Arizona Rivers: Climate Change

By Gary Beverly 

Arizona is currently dealing with the effects of climate change and overuse of groundwater pumping and surface water diversions for capitalistic economic gain. This in turn has severely impacted major groundwater basins and five of Arizona's major perennial rivers: Colorado, Gila, Salt, Santa Cruz, and much of the San Pedro. Perennial flow in the Verde River is diminished, and the future base flow of the upper Verde River is deeply threatened.

For decades, the Grand Canyon Chapter has fought to protect and restore Arizona's degraded rivers, a task now more difficult due to the growing impacts of climate change.

Climate research projects that the Colorado Plateau will become increasingly hotter and drier, with erratic and intense storms. Already, we see the effects of warmer-than-normal temperatures: a growing decline in Colorado River flow and major stress on Arizona's water supply.

Although the Colorado River gets all the press, other Arizona rivers are affected. The Gila, Salt, and the lower

Verde depend on snowpack and mountain springs. Skimpily snowpack and higher temperatures cause peak flow to occur earlier in the spring but reduced annual flow can create dry spots in summer. Intense and irregular rainstorms generate floods, erosion, and sedimentation. This is happening now: Salt River Project proposes raising Bartlett Dam on the lower Verde for increased flood control and storage. During dry periods, as

natural recharge diminishes, water users will increase groundwater pumping. This leads to rapid draw-downs in aquifers,

dry wells, land subsidence, and ecological damage.

The base flow of the San Pedro, Santa Cruz, and upper Verde rivers is principally groundwater released through springs and seeps, not snowpack. Here we have a double whammy: hotter and drier conditions reduce aquifer recharge while growing cities and expanding agriculture increase groundwater pumping.

Aquifers are depleted, reducing the base flow of these threatened rivers and intermittent streams (Little Colorado, Agua Fria, Babocomari, and others). Low flow plays havoc with riparian

vegetation and wildlife. Even one day without water is a terrible day for Arizona's 19 ESA-listed native fish.

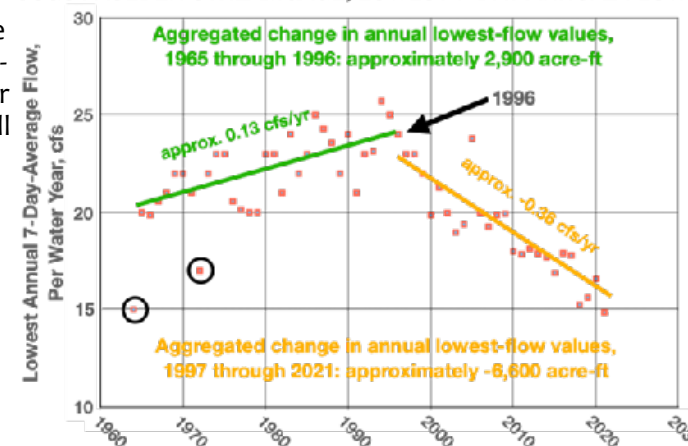
The plight of the upper Verde River is a perfect example.

Beginning in 1996, the watershed experiences increasing heat and drought—the most extreme in 1,200 years. In 1996, the base flow began a steady decrease caused by groundwater pumping in the Big Chino Valley and climate change. Both threats will grow as temperatures increase. Groundwater pumping for expanded irrigation, population growth, or export to Prescott are existential threats—anyone will dry the upper Verde.

The November elections are critical. Vote for candidates that support rivers and sustainable water policy. Commit to mitigating climate change by personal, regional, and national action. Work to protect and restore our rivers and modernize Arizona's water law with an emphasis on conservation, reuse, and the environment.

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

USGS PAULDEN STREAMGAGE, LOWEST 7-DAY ANNUAL FLOW



If the declining trend continues unchanged, the upper Verde River will be briefly dry annually through the upper 25 river miles beginning in the 2060s. Graph courtesy of Ed Wolfe.



## Explore and Enjoy Arizona

**OCT 15 (SAT) "B" Knolls Hole Dayhike** (6 miles RT, 1200 ft. EC) This outing in the Sierra Ancha Wilderness Area 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 will 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.

**Oct 10 (Mon) 8:30am Hands-on Assistance to Southwest Wildlife Conservation Center** - 27026 N. 156th St., Scottsdale - SWCC rescues native wild animals that have lost their homes to development, or are found injured, orphaned, or abandoned. When possible, the animals in their care are rehabilitated and released, healthy and wild, back where they belong. This interesting 3-hour event will involve landscaping or anything that needs to be done. We will also tour the facility. For more information, please contact Urb Weidner at northwoods@cox.net.



Catalina & Rocket photo by Toni Malcolm

*Catalina, on the left, was born in 2017. She was picked up by a well-meaning person when she was a kitten. She was turned over to authorities within months of her birth but she will never be released because she lost her ability to survive in the wild. She will live out her life at the Southwest Wildlife Conservation Center*

**Oct 28 (Fri) 8:30am Spur Cross Ranch Conservation Area Trail Maintenance** - 44300 N. Spur Cross Rd., Cave Creek - Spur Cross Ranch could use some help in maintenance of the trails. This scenic park is home to archaeological sites, Sonoran Desert, and riparian areas along Cave Creek. For more information, please contact Urb Weidner at northwoods@cox.net.



Dragonfly Trail, Spur Cross Ranch

photo courtesy of Wikimedia Commons

**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 in 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.

**NOV 19 (Sat) 9:00am Planting Milkweed for Monarch Butterflies in Tonto National Forest.** - Specific location in Cave Creek TBD - Join the Sierra Club Saguaro Group and Friends of the Tonto National Forest as we plant Milkweed plants to provide foraging and reproductive habitat for migrating Monarch butterflies. For more information, please contact Urb Weidner at northwoods@cox.net.



Butterfly loving milkweed. photo anonymous  
Sierra Club use only

### Hiking Guidelines

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 interests. Simply find an outing by date and contact the leader for directions, reservations, 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) |               |
| "B" | 8-16 miles and 1,500-3,000 ft. EC             | RT Round Trip |
| "C" | 3-8 miles, 500-1,500 ft. EC                   | OW One Way    |
| "D" | <3 miles and 500 ft. EC                       |               |

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 collected 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.



# Cast of Characters

## Meet Katie Del Castillo, Energy & Public Lands Coordinator



photo courtesy of Katie Del Castillo

*What are your hobbies or interests?*

I love to go on bike rides with my kids and husband, hike when the Phoenix weather permits, and I love listening to music! I was an active visual artist for many years so I love art and ideas. I've been a bookworm since I was a kid, I still love to read and I try and make sure my kids will be lifelong bookworms as well. I'm especially fascinated by history, politics, and culture—"Bad Mexicans" by Kelly Lytle Hernandez is one I finished recently.

*Do you have a favorite place to walk, run, hike, bike or watch wildlife? If so, where is it and why is it your favorite?*

My favorite place to escape in nature is up at a close family-friend's property in Cottonwood, AZ, right on the Verde River. Life slows down, worries melt away, and all that matters is not losing my flip-flops in the river.

*What made you want to work for Sierra Club?*

To be honest, to see such an old and established organization making purposeful strides towards accountability and inclusivity made me feel hopeful that the environmental movement is headed in the right direction.

*What do you like most about your new job?*

I feel blessed to be able to meet and collaborate with so many powerful community leaders and passionate activists.

*What are the biggest challenges to this work in Arizona?*

Besides the challenges the pandemic has presented, the biggest challenge to this work in Arizona specifically is the huge amount of growth the state is experiencing, as well as having to confront the powerful special interests that dictate policy and spread misinformation.

*How can Sierra Club volunteers best support you and your work?*

Show up-and bring a friend!

*What one word do you think describes you best?*

Curious!

Check Out Our Volunteer Opportunities

[bit.ly/SCGCvolunteer](https://bit.ly/SCGCvolunteer)



### Canyon Echo Statement of Ownership, Management, and Circulation

- |  |   |
|--|---|
| 1. Publication Title: Canyon Echo<br>2. Publication Number: 0164-7024<br>3. Filing Date: 18 September 2022<br>4. Issue Frequency: quarterly<br>5. No. Issues Published Annually: 4<br>6. Annual Subscription Price: \$10<br>7. Complete Mailing Address of Known Office of Publication: Sierra Club Grand Canyon Chapter, 514 W. Roosevelt St., Phoenix, AZ 85003 Contact Person: Sandy Bahr 6022538633<br>8. Complete Mailing Address of General Business Office of Publisher: Same as #7 | 9. Names and Addresses of Publisher and Editor: Publisher: Sierra Club Grand Canyon Chapter; Editor: Ana Gorla; addresses same as #7; Managing Editor: Sandy Bahr; address same as #7<br>10. Owner: Sierra Club Grand Canyon Chapter; Address as #7<br>11. Known Bondholders, Mortgages, and Other Security Holders Owning or Holding 1% or More of Total Amount of Bonds, Mortgages, or Other Securities: None<br>12. Tax Status: Has Not Changed During Preceding 12 Months<br>13. Publication Title: Canyon Echo<br>14. Issue Date for Circulation Data: Fall 2022 |
|--|---|

15. Extent and Nature of Circulation		Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a) Total Number of Copies (Net press run)		11,323	0
b) Paid Circulation (By Mail and Outside the Mail)	1) Mailed Outside-County Paid Subscriptions	5922	0
	2) Mailed In-County Paid Subscriptions	5126	0
	3) Paid Distribution Outside the Mail	0	0
	4) Paid Distribution by Other Classes of Mail Through the USPS	0	0
c) Total Paid Distribution		11,048	0
d) Free or Nominal Rate Distribution (By Mail and Outside the Mail)	1) Free or Nominal Rate Outside-County included on Form 3541	0	0
	2) Free or Nominal Rate In-County included on Form 3541	0	0
	3) Free or Nominal Rate Mailed at Other Classes Through the USPS	0	0
	4) Free or Nominal Rate Distribution Outside the Mail	100	0
e) Total Free or Nominal Rate Distribution		100	100
f) Total Distribution		11,148	11,148
g) Copies Not Distributed		0	0
h) Total		11,148	11,148
i) Percent Paid		99.10	99.10
16. Electronic Copy Circulation		Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a) Paid Electronic Copies		0	0
b) Total Paid Print + Electronic Copies		11,048	11,048
c) Total Print Distribution + Paid Electronic Copies		11,187	11,187
d) Percent Paid		99.10	99.10

17. Publication of Statement of Ownership: Fall 2020

18. Signature: Ana Gorla; 18 September 2022



## Wildlife in a Hotter, Drier Arizona

● By Walt Anderson 

The trends are clear: Arizona is facing a hotter, drier future, and that future is already here; the current drought of over two decades is the worst in 1200 years. Fortunately, the Sierra Club in northern Arizona is blowing the whistle on the threats to our aquifers, remaining rivers (like the Upper Verde), economies, and human welfare. Clearly, we need policies and practices that slow the trend, even as we must adapt to inevitable changes. Passivity is unacceptable.

Wildlife faces these changes without a direct voice at the table. It's up to us to speak out for native biodiversity, and it's not just a matter of aesthetics. As ecosystems are simplified, basic services of nature are compromised, leading to significant effects that we may not even anticipate.

The 2002–2022 drought in Arizona was a big wake-up call. Ponderosa pines died by the thousands. Simultaneously, increasingly severe wildfires in the West are inhibiting pine regeneration in large areas.

Similar mass die-offs of pinyons and junipers have hit the Southwest

hard; we can imagine a near-total loss of these species as drought conditions intensify. Without pines and junipers, ecosystems would change so drastically that populations of all organisms—bacteria, fungi, insects, birds, and mammals—would all be affected. Losers would surely outnumber winners in the short run, and biodiversity would take a big hit. Interspecific relationships (e.g., predators and prey, herbivores and plants, pollination syndromes, and the like) could be thrown into ecological chaos.

We speak of plant and animal communities as if they were nicely integrated systems, but the ponderosa pine forest, interior chaparral, plains grassland, etc. are hodgepodes of species just happening to co-occur at this point in time. They can't pack up their bags and move as “communities” to the north or higher elevations as climatic changes occur.

Pollen evidence shows that the Sonoran Desert as we envision it today is just a few thousand years old. Ponderosa Pines were isolated

in Mexico during the most recent ice age until expanding rapidly northward starting about 13,000 years ago, reaching Canada in just a few thousand years (“galloping forests”!). Without human help, they could disappear over their vast range even more quickly.

The National Audubon Society analyzed 40M observations (thank you, eBird) and projected changes in bird ranges under different climate scenarios. They determined that 2/3 of North American bird species are vulnerable to extinction. Many species that we enjoy in Arizona today would disappear from the state. And there's no guarantee that all their natural history requirements would be met in the reorganized ecosystems.

The same, of course, applies to mammals (typically less mobile than birds) and many other taxa. Wetland, grassland, and forest species are the most likely to be threatened.

The good news is that we have the science to help us make the best decisions. Sierra Club members can reach out to inform



Pigmy Nuthatch Ponderosa Pine trunk photo by Walt Anderson


and mobilize thousands of citizens to act on their own and to elect responsive, responsible decision-makers. There is no time to waste!

Walt Anderson is a professional wildlife artist, photographer, and expedition guide living in Prescott.



The San Pedro River Then and Now. photos by Jennifer Martin

## Drought & the San Pedro River

● By Jennifer Martin 

In southeastern Arizona, along the border with Mexico, are two rivers that historically flowed north from Mexico into the United States -- the Santa Cruz and the San Pedro. This is an oddity for many of us, including me, who were used to rivers that flowed from the north to the south. In working for San Pedro River protection for several decades now, I had to remind myself periodically at the beginning that this river flowed north, from Mexico into the U.S. It's a simple matter of geology. The water flows from the higher elevation towards the lower elevation.

The San Pedro is renowned worldwide for its avian diversity but the general Sky Island region is renowned for its total biodiversity. We have the most terrestrial mammalian species in the U.S. We have an incredible diversity of plants and insects and birds. There is a coming-together of 4 or 5 different eco-regions that creates all this diversity and water is key to it all. Water is indeed life.

Groundwater created both of these rivers and overpumping of the groundwater has killed or is killing these rivers, just like overpumping of groundwater killed many of the rivers in the Phoenix area. The drought we are experiencing is becoming a major component of the health of all of our rivers and all of the life that depends on them.

What can we do? First and foremost, we can all become educated in how much water we personally use at home. Figure that out from your water bill, if you can, and then compare it to water usage around the world and then water usage in Arizona. Become informed about what the Arizona legislature has done or not done around water issues overall or around river protections. Get involved, get informed, and vote!

Jennifer is the Grand Canyon Chapter Water Sentinels Program Manager