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Butte, Glenn, Lassen, Plumas & Tehama Counties

Carbon Capture From Our Atmosphere

By Ed Schilling



Klaus Lackner's faux trees convert CO₂ to O₂ (source phys.org)

CO₂ levels in our atmosphere have risen at the predictable rate of about 2 parts per million every year since 1990, when they stood at 350ppm. We are now at 417ppm, and we all know what that means as the years tick by: more extreme weather—wildfires, flooding, hurricanes, tornadoes, and more.

The solution? More electric cars and trucks of course, wind energy, solar panels, and a very rapid end to the fossil fuel industry. None of these measures, scientists tell us, will happen soon enough. The solution of going from emitting 50 billion tons of carbon today to zero emissions by 2050 is a tall order. The United Nations has stated that a steady 7.6% annual reduction in emissions is necessary in this decade to hold global temperature rise below 1.5 degree Celsius. With up to 80% of flights canceled during the pandemic, and car traffic slashed by 35%, global carbon dioxide emissions in 2020 fell by only 6.4%. (2.3 billion tons).

CO₂ removal, or direct carbon drawdown from the ambient air, offers both biological and technological solutions. Cover crops, planting trees, exposing crushed silicate rocks to weathering, and even seaweed farming are some biological approaches. In "Atmosphere of Hope," Australian scientist Tim Flannery ("The Weather Makers") mentions seaweed farming. Seaweed farming "covers hundreds of miles off the coast of China," but would have to be tremendously scaled up, according to Flannery.

Several companies use a variety of technological methods to remove atmospheric carbon. Climeworks, located in Switzerland, uses direct air capture technology to sequester carbon for soda drinks and greenhouses. It also stores carbon in rock formations. Blue Planet, located in Los Gatos, California, creates aggregate rock from sequestered carbon using a less energy intensive method.

Many carbon capture companies receive some funding from the oil industry. The oil industry has always thrown its enormous wealth around just about everywhere, however. For example, ARCO was the first to mass produce solar panels in the 1980's. Similarly, many "petrodollars" are invested in carbon capture methods, some good, some bad. One very bad and extremely expensive example: Exxon/Mobil recently proposed the world's largest

100 billion dollar carbon removal facility near Houston. Although Exxon says the sequestered carbon would be pumped under the Gulf, they would no doubt use some of that captured CO2 for new drilling projects in the Southwest. Exxon/Mobil, unlike its European counterparts Shell and British Petroleum, has stated it has no intention to “transition” away from fossil fuels. But who can trust Exxon/Mobil anyway?

Blue Planet appears to employ a simpler, and less expensive carbon capture method. Imagine a tiny grain of sand coated over and over with atmospheric carbon (a process used by ocean shell fish is similar) until it becomes aggregate, or the small rocks used for making cement. The cement industry is one of the most carbon intensive industries, contributing upward of 16% or more carbon dioxide into our atmosphere. Blue Planet wants to make cement making carbon neutral.

A recent article in “The Guardian” (April 18, 2021) talks about an exhibition at London's Science Museum which shows just how far carbon capture from the atmosphere has, well, “materialized”. Appropriately titled “Vodka, toothpaste, yoga mats...the new technology making items out of thin air” talks about an exhibit that demonstrates how to make all sorts of things using direct air carbon capture. So much for carbon neutral cement! Well, carbon neutral cement has at least gone far beyond the idea phase. For example, Blue Planet's aggregate was used to make terminal B, at SF International, in 2016.

Klaus Lackner, a Columbia University physicist, was the first to pioneer CO2 direct air capture from the ambient air back in 1999. Lackner's “synthetic trees” are artificial trees coated with a sorbent that passively removes one thousand times more CO2 from the atmosphere than a regular tree.

Most scientists agree that we need to do more than build electric cars or plant trees to stop the relentless pace of CO2 emissions. Carbon capture, if done correctly through either natural or technological approaches, offers much promise.



Executive Committee Appoints Ed Schilling as New Member

Yahi Group ExCom in February appointed Ed Schilling as a new member of the Yahi Board. Ed is a long time Sierra Club member who was editor of the Yahi Newsletter between 1993 and 1995. He also edited a booklet called “Yahi Trail Guide”, originally a fundraising idea for the club, which Allan Mendoza later turned into the book we sell today, “Hiking Butte County”.

Ed has been interested in environmental issues since the first Earth Day, and has been a Sierra Club member off and on, as the times afforded. In Sonoma County he enjoyed going backpacking and on Sierra Club hikes, as well as more recent hikes in Butte County. He is inspired by original and creative/environmental/humanistic projects such as the Chico “tiny homes”.



Ed would like to be involved in tree planting and other beautification projects for restoring Paradise, where he is currently living and rebuilding his home. He'd like to one day lead short hikes for the Yahi group. He'd also like to see more youth and senior involvement in Sierra Club hikes and activities, and has some ideas about how to make that happen. After the long covid period of isolation and alienation, people could be very interested to get involved.

Forestry News

From Patricia Puterbaugh



Fuels reduction work along Vilas Rd. in Cohasset funded by a California Climate Initiative Grant

Good news - There are several folks around the North State taking on the California private land Timber Harvest Plan (THP) process. Perry Metzgers group is well attended and very informative. We hope they can be effective in looking at and commenting on THPs and making changes to the plans, especially clear cutting. I am not involved in that group, but did attend one of the Zoom seminars and it was excellent. If you want more information regarding private land logging please email me. pputerbaugh@yahoo.com

United States Forest Service (USFS) in the Plumas National Forest near us is mostly focused on salvage and restoration. The area around Berry Creek and Feather Falls in the Feather River Ranger District was burned extensively in the North Complex Fire 2020. The North Complex was practically adjacent to forests burned by the Camp Fire. Staff are working on how to

“rehab” the Feather Falls trail, Dome Trail (Middle Fork Feather River), Granite Basin area and others. Several wilderness and other local groups are working with the Plumas on a restoration plan in response to the fire severity and sensitivity of this special area.

Lassen National Forest will be starting work on the “West Shore Project” which borders Lake Almanor’s West side. The Almanor campgrounds will be modernized and “hazard trees” removed. Roads will be widened and work will be done on the very popular bike trail along the lake. Parking areas along Lake Almanor will be upgraded and the lakeshore will be protected. Logging and fuels reduction will encompass both sides of Hwy 89 in this area. I have submitted comments, and we also had a face to face resolution meeting. The plan was to reduce the tree canopy cover down to 40% in California Spotted Owl (CSO) habitat. There are no residing spotted owls (they were replaced by barred owls, then the barred owls were removed - a complicated history!) I am hoping the plan will keep at least 50% canopy cover in the area designated as CSO habitat. The entire plan is within the WUI (wild land urban interface). This makes the focus almost entirely on reducing fire danger to the communities.

I regularly attend South Lassen Watershed Group meetings with dozens of locals and Butte County folks to weigh in on Lassen National Forest planning on the Almanor Ranger District (Deer Creek, Mill Creek, Butte Creek, Battle Creek).

Plans are also starting on a Butte Creek headwaters project, the Jonesville Project, and others on the Almanor Ranger District. Most logging plans are for “rehab”, restoration and fuels reduction. As always, my focus is protecting what is left of our old growth forests, wild rivers, and the wildlife dependent on them.

Another Almanor Ranger District Project, “Robbers Creek”, is near Swain Meadow. Lots of good meadow restoration planned there.

Eagle Lake Ranger District is doing salvage after the huge Sheep Fire near Susanville and on Bizz Johnson Trail.

I continue to attend Burney-Hat Creek Coalition meetings, focused on the Hat Creek Ranger District. This ranger district has many lands surrounding Lassen National Park. The park is doing some thinning and fuels reduction also.

I will start attending CALWILD/wilderness meetings as a Yahli Group representative when I can! I am on the Butte County Fire Safe Council board. Our concentration is work surrounding Butte County communities doing fuels reduction, evacuation route work and home hardening. Home hardening is when you change your vents, windows, maybe change your siding and work on the "first five feet", using non-flammable materials.) Cohasset is a "green ridge" and we are lucky to have work ongoing from the grants we wrote. I am on the Butte County Forest Advisory Committee as the environment and watershed representative. We weigh in on county issues.



Prescribed fire burn in Forest Ranch. Prescribed fire is exciting work many folks are learning to do with the Butte County Prescribed Fire Association. We are hoping to grow this group so we can begin to put "good fire" back on the ground throughout the county.

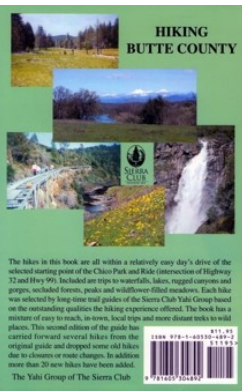
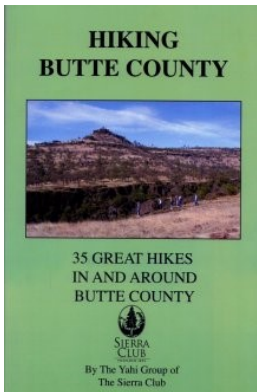
It is a blessing to have all these meetings on Zoom! I do not have to travel as much and can spend more time in Cohasset! However, I do miss visiting the beautiful forests surrounding and in Butte County.

Thanks everyone for all your contributions to our earth! Trish



Hiking Butte County

Coordinated by Alan Mendoza



Hiking Butte County is a wonderful field guide to hikes in and around Butte County. It was assembled by the outings leaders in the Yahli Group under the direction of Alan Mendoza. In it you will find descriptions directions, distances and difficulty information for 35 hikes. This is the only book of its type for this area.

You can purchase it for \$11.95 at **Mountain Sports, The Bookstore** in Chico (118 Main Street) and the **Lake Oroville Visitor Center** (917 Kelly Ridge Road). Or you can order one directly from Alan for \$10 plus shipping. Contact Alan Mendoza, 891-8789 or ajmendoza777@comcast.net.

Are You Warm Enough, Already? Then Let Others Know!

Examples of efforts to help address climate change

From Grace Marvin, Yahi Conservation Chair



Are you in the mood for some climate activism? Consider letting people know how you much appreciate President Biden signing the Paris Climate Accords and related proposals, including ensuring people can find jobs in industries promoting sustainability. Why not build solar panels instead of mining for dirty energy? He is certain to find opposition to many of his industry/job/social goals for our country. Let people know your opinions, including your friends, neighbors, and relatives as well as our representatives on all levels of government. Many of our local, state, and federal leaders strengthen their efforts after hearing from constituents. Your messages could become part of the pressure that some politicians say is necessary to their

demonstrations of support for controlling climate change.

- ⇒ To contact your member of Congress: go to the website of the U.S. House of Representatives: www.house.gov/representatives/find-your-representative. Or call the following general U.S. House number: 1-202-224-3121 to get connected to your Representative. Doug La Malfa's number is 202-225-3076; locally (530) 878-5035. Or you could write your Representative: Honorable [Full Name] U.S. House of Representatives, Washington, DC 20515.
- ⇒ How to contact the two U. S. Senators from California? Go to the website, www.senate.gov, or call directly: Dianne Feinstein 1-202-224-3841 and Alex Padilla 1-202-224-3553. You can also write: The Honorable (Full Name), United States Senate, Washington, D.C. 20510.
- ⇒ To contact the President, write him at: The White House 1600 Pennsylvania Avenue NW Washington, DC 20500. Or call to give *Comments* at: 202-456-1111.

You may already be learning about policies of companies from which you purchase products. Write them if they are violating climate change goals, or at least avoid buying their products whenever possible. For example, there are banks that are grossly funding fossil fuel mining and otherwise promoting dirty energy. Some automobile companies produce far less fuel-efficient cars than others but check their other environmental policies at the same time. (Note transportation and agriculture are among the biggest sources of GHG's, *i.e.*, Green House Gas emissions.)

Statewide, our Legislators need to be reminded that we strongly oppose funding for oil and gas drilling, especially within 2500 feet of healthcare buildings, schools and homes. Governor Newsom recently announced new fracking permits will not be allowed in California in two more years. Why wait, especially when Newsom, the president, and the Sierra Club already agreed on the **30 by 30** program.... ? As the Wilderness Society explains, "Through an effort to protect 30 percent of U.S. lands and waters by the year 2030, we aim to confront the climate and extinction crises." For example, instead of "dirty energy" many of us environmentalists support offshore wind energy – despite California lagging far behind several Eastern states. Let's push for more wind and less hot air (ho-ho).

If you do not know how to contact your Assembly and State Senate leaders in Sacramento, call a local political party or government office, and get their names and phone numbers. Or go to <http://findyourrep.legislature.ca.gov/>. Then, call or write your ASSEMBLY MEMBER: (Assembly

Member's Name) The State Capitol, P.O. Box 942849, Sacramento, California 94249-0001, and write your STATE SENATOR: (Senator's Name) The State Capitol, P.O. Box 942848, Sacramento, California 94248-0001. Governor Newsom's office can be reached by calling 916-445-2841, or send your request on his website at <https://govapps.gov.ca.gov/gov40mail/>. His office website indicates that it takes longer for letters to be read than email. His address: Governor Gavin Newsom 1303 10th Street, Suite 1173, Sacramento, CA 95814

Energy matters are local as well, of course. Sean Wirth, Conservation Chair of our Mother Lode Chapter, writes that we could set a new standard for renewable energy by working with our local utility district to pass an increase in renewable energy. He says we should build pressure so as to "phase out dirty energy 80% by 2025 and 100% by 2030."

We should also consider contacting our cities and counties about their measures to address climate change. If they have none, let them know that changes would be beneficial and, likely, less costly to both our wallets and our air. Many of us obtain energy service from PG&E, so why not contact them about these energy goals at 1-800-743-5000? Seek information about more local, alternative energy plans in your city or county; see if you want to support them!

There are environmentally threatening development projects in the works which we might ask our county supervisors to address. For example, often housing projects are planned for the wild and urban area (WUI) interface, raising issues not only about fires, but also excessive highway building, *i.e.*, resulting in increased traffic and thus raising GHG's (Green House Gas emissions). Similarly, Butte County Supervisor Debra Lucero has provided many environmental and financial reasons why Butte County residents should oppose the sewer pipeline that is being planned to go from Paradise to Chico. The destruction of open spaces and financial costs for us taxpayers will be enormous. (My questions about the total costs have gone unanswered). For more information about her criticisms, you might want to contact her office at 530-228-2869 or Google related articles. Contact your council members and county supervisors, too, regarding issues of concern to you! Let's make the Young Swedish climate change activist, Greta Thunberg, and ourselves proud!



Treasurer Again Needed for the Yahi Group

By Suzette Welch, Yahi Group ExCom Chair

The volunteer position as Yahi Group Treasurer didn't work out well at this time for Danisa Ramirez. Alan Mendoza has volunteered to take over the position on a temporary basis. So Yahi Group is again searching for someone who would like to volunteer to be the Group's treasurer.

The treasurer should have some bookkeeping skills and be able to balance a checkbook at the end of the month. Responsibilities are as follow-

- Maintain checking account recording all revenues and expenses. (1-2 hours per month)
- Submit month-end reports to the executive committee. (one hour or less per month)
- Access the group's post office at least 2 times per month for mail.
- Track revenue sales and report for tax purposes any taxable income to the chapter treasurer. (1/2 hour per quarter).
- Manage and track any funding from Sierra Club headquarters. We current have two active funds and three closed funds. (From zero time most months to 2-3 hours per month occasionally)
- Submit year end reports to chapter. (About 2-4 hours at year-end).

If you are interested in being Yahi Treasurer please contact Suzette Welch (Chair Yahi Group) bookson-tape@rocketmail.com.

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For submissions, comments, or inquiries, contact:

Louise Casey, Louise.Carol.Casey@gmail.com.

Please include name, phone number, and address with each submittal. Short, single-topic articles are preferred. Deadlines for proposed articles and letters to the editor: February 1, May 1, August 1, and November 1.

Yahi News reserves the right to edit all submissions for reasons of space, clarity and potential libel. The opinions expressed by contributors are not necessarily those of the Sierra Club or the Yahi Group.

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