



Newsletter

The Alamo Sierran e-Newsletter - October, 2014

* General Meetings *

Tuesday, October 21st: Texas Parks and Wildlife Department

Jessica Alderson, Urban Biologist, Texas Parks and Wildlife Department, will give a presentation that will cover common wildlife species you may encounter in your city. From coyotes and bobcats to rabbits and opossums, this presentation will provide facts about common urban wildlife species, teach you how to live amongst them and provide ways to change the future of traditional nuisance wildlife management.

Tuesday, November 18th: Solar Update

Lanny Sinkin, Executive Director of [Solar San Antonio](#), will give an update on progress made in solar energy, particularly distributed energy. *Solar Fest*: The William R. Sinkin Eco Center Building at 1802 N. Main, is the site of Solar Fest on Saturday, October 4. See *Solar Fest* details [here](#).

Times, maps and speaker bios are on our Events page.

A Word from the Alamo Group Chair

[Vista Ridge plans need more scrutiny](#)

While SAWS rushes to sign the Vista Ridge Water Project, a \$3.4 billion project to pipe and pump 50,000 acre feet of water a year from Burleson County, and city leaders and the media line up in support, there is a critical need to pause and review the potential downsides of Vista Ridge.

The project's carbon footprint should be a consideration, since San Antonio is committed to the Mission Verde policy and becoming a Top Ten Green City. San Antonio has not estimated nor has a plan to address our carbon footprint.

Vista Ridge plans will move up to 50,000 acre feet of heavy water uphill and over 142 miles for 30-plus years that will require prodigious energy and produce un-quantified carbon emissions. How can San Antonio leaders justify this added climate burden and that from the resulting development and population growth it enables without knowing the impacts?

The project claims on water availability also challenge us to question assumptions, risks, and fairness. The huge Carrizo-Wilcox aquifer arcs across the state from the Rio Grande to the NE corner border, its water moving within and between some of the aquifers above and below (cross-formational flow). This means impacts in one area may affect other areas. The Carrizo Sand and Simsboro Sand formations are the proposed sources of Vista Ridge water. They can provide base flow to springs and rivers—in this area to the Brazos and Colorado Rivers—from surface outcroppings, which also receive recharge. The ground water is used for mining, agriculture, livestock, rural homes, manufacturing, power and municipalities. [A key 2002 Texas groundwater recharge study](#) suggests that in this segment, the major rivers will continue to receive groundwater discharge even with certain assumptions about increased pumping and drought conditions. Are those assumptions justifiable, and what climate change data was used, if any? Any reductions in river base-flow and the magnitude should be answered before large projects such as Vista Ridge are allowed to proceed, as should impacts on existing wells and other uses that will need addressing.

It is well known that surface and groundwater is over-allocated in Texas, so as we get hotter and drier, growth advances and demand rises, therefore the risk of cutbacks will grow. The Post Oak Savannah Groundwater District's (POSGD) [Director Westbrook claims](#) they have 125,699 acre-feet annually permitted, with average production in the past five years at 13,080 acre-feet, with a peak of 20,296 in 2011, but its modeled available groundwater is only 61,020 acre-feet annually. [A 2005 ground water assessment](#) (Wade, 2005) indicated that the recharge in Burleson County's segment of the POSGD Carrizo Wilcox aquifer averages just 13,000 acre feet per year—only about one fourth of the 50,000 acre feet Vista Ridge promises to deliver to SAWS from Burleson County. Where will the other 3/4ths come from? It will flow in from neighboring properties, unless prevented by equally heavy pumping in neighboring districts. This and other studies commissioned by the Texas Water Development Board, show the major impact will be the permanent and significant drawdown of aquifer levels. The prospect is already spurring a water war. A busload of citizens from the Burleson County area plans to descend on our city hall under a campaign with the battle cry "Remember the Ogallala".

To be sustainable, aquifer drawdown should be no greater than recharge. Yet Texas policy is "managed drawdown," meaning we are allowing our aquifers to drop to support ever greater populations, thus putting more people at higher risk. Wade's 2005 study reported that by 2050 the draw down in the Simsboro aquifer will be more than 200 feet, with significant drawdown mapped in most areas of that and the Carrizo Sands formation. Other [modelling requested of the Texas Water Development Board in 2003](#) by the POSWD showed dramatically

greater drops in the Simsboro by 2030, based on a possible scenario that pumps 20% less than the amount permitted there. The [2002 Texas groundwater recharge study](#) estimated the highest recharge rate in the Carrizo-Wilcox aquifer to be 5.8 inches per year, with much less in some areas. We must be assured that current consensus on Texas climate change precipitation and evaporation projections be added to modeling and that we apply precaution to the large availability discrepancies that such an inexact science produces.

SAWS estimates Vista Ridge costs will add 16% to rates over 5 years. We must question this figure and the assumptions it is based on. If VR water will be one fifth SAWS' supply at about \$2200 an acre foot—about 4 times the highest cost water of Edwards Aquifer—which is 90% of our supply now—then a quick calculation shows this will raise acre-foot costs by about 60%. SAWS promises a special "lifeline" rate for certain low-income clients, but other low and middle income sectors, suffering under stagnant income and rising inflation, will be hurt too. Vista Ridge advocates also claim SAWS can mitigate this rate hike by selling the extra water early on, but who would buy this expensive water as anything but for temporary, high value or stop gap purposes, as buyers can lose access to the water and might not have it when it is most needed—in drought or as necessary supply for a now larger, dependent population.

\$3.4 billion, or \$110 million per year (or whatever the final bill), will largely flow out of the local economy toward a foreign company, its sub-contractors, and Bureson County landowners, costing San Antonians and our local economy. What might San Antonio accomplish if that money were redirected here toward sustainable development?

Business interests, led by the Chamber of Commerce, insist we need this water, in addition to other desalinated and fresh water projects, to keep and attract jobs to meet the growing population, and that we need minimal government regulation and all benefit from growth these expanded utilities foster. No one has challenged these assertions. City, county, and utility leaders appear in thrall to this claim and an inevitable, desirable, and manageable high population growth, estimated at about 20,000 per year. Continuing to engineer our way around natural limits to growth without adequate critical evaluation is a tailor-made, high-cost gamble. More water and high resource input and cost will feed already high and unsustainable population growth driving the Alamo Region into the downsides of sprawling, large urban areas: environmental degradation, higher costs, pollution, congestion, crowding of schools and parks, alienation, crime, and need for more planning, infrastructure, administration, and ever further reaching and risky efforts to control vital resources and waste sinks. That runs up against the growing Texas movement for small government and low regulation and taxation.

Have we learned nothing from the history of water wars and society collapses over water resources? Is San Antonio blind to all the cautionary tales, such as that of Los Angeles and its desertification of Owens Valley and other cases, documented in *Cadillac Desert* and other sources?

The City recently set a precedent on costly, controversial projects by withholding its \$32 million for the streetcar and promising a broad-based committee study, public education, and a vote on the project. The Vista Ridge deal, at more than 100 times that cost, and with many glossed-over downsides, needs the "pause button."

by Margaret Day, Executive Committee Chair

The Executive Committee of the Alamo Sierra Club Needs Candidates

Are you interested in helping the Alamo Group or do you know of someone who is? We must elect at least three new volunteers for three-year terms on the Executive Committee to begin serving in January 2015. If you are interested in being considered as a candidate, please send us a 100-word statement by October 15 on why you would like to be on the committee. Please send nominations and statements to nomination committee member [Libby Day](#).

ExCom responsibilities as described by the Sierra Club are:

- Understand and promote the mission of the Sierra Club
- Attend Executive Committee meetings and General meetings
- Lead and provide educational training and/or conservation opportunities to the general membership
- Promote the Outings Program
- Participate in long range planning
- Actively assist in fundraising activities or contribute financially
- Ensure financial stability and solvency
- Modify and allocate resources; must be consistent with the opportunities, the abilities, and the commitment of the chapter/group
- Monitor, question, and evaluate club activities
- Provide Leadership and Vision within the chapter/group
- Contribute a sense of camaraderie and teamwork

We meet about 10 times a year for about 1 to 1 1/2 hours, currently at EcoCentro at SAC, N. Main at Locust Sts., every third Thursday (except July and Dec.), at 6:30, to discuss the administrative issues facing our Group. We are currently looking into possibly doing some meetings by Skype.

If you have any questions, or if you are interested in serving in some other leadership position or as a volunteer, please feel free to contact me.

Lion's Field Events

Monthly films and presentations for your edification and enjoyment

Wednesday, October 22nd: **Introduction to Native Plants of Bexar County**

John Nikolatos and Joan Miller, from the [Native Plant Society of Texas](#), will discuss growing native plants to conserve water. John will give an introduction and Joan will present ten native plants recommended for San Antonio.

Our Lion's Field events are **free** and open to the public. They occur on the fourth Wednesday of each month at the Lion's Field Adult Center, 2809 Broadway @ Mulberry. Programs begin at **6:30 p.m.**.

Visit our Lion's Field Events page for a map and additional information.

High-level Radioactive Waste: What San Antonio Needs to Know NOW

High-level Radioactive Waste: What San Antonio Needs to Know NOW is the title of a public lecture by Dr. Arjun Makhijani, President of the [Institute for Energy and Environmental Research](#). This event is free and open to the public.

Thursday, October 2nd

7 p.m.

Fiesta Room (CUC111) of the Trinity University Coates Center. (Nearest public parking is on the Orange Level of Laurie Auditorium)

Dr. Makhijani (PhD, Engineering, U.C.-Berkeley) is a recognized authority on energy and environment-related issues, of which one of the most relevant to San Antonio is the safety and public health problems posed by nuclear power plants, e.g. CPS' STP 1 & 2, as well as the proposed STP 3 & 4 in which CPS still owns 7% interest. Although the proposal to build two more reactors was stalled about 6 years ago – thanks partly due to a local coalition of which the Alamo Group of the Sierra Club was an active part), the coalition continues to press for withdrawing the proposal altogether and for closing the old reactors as soon as possible, without allowing a proposal for extension of their termination date. The crisis at the Fukushima nuclear power plant highlights the risks of San Antonio's reactors.

Dr. Makhijani returns to San Antonio to raise awareness about a new concern that the City faces – proposed State legislation that would allow high-level radioactive waste to be transported through Texas communities en route to West Texas.

Some Background About Radioactive Waste in Texas

First, low-level radioactive waste

In the 1980s, the federal government encouraged states to develop repository sites and to enter compacts with other states for dealing with radioactive waste. In 1993, Texas entered such a compact with Vermont and Maine to dispose of their low-level radioactive waste. Later the compact was expanded to allow the waste disposal site to take waste from 36 other states.

In 2011, Waste Control Specialists was allowed to build the waste dump in Andrews County near the New Mexico border. The entire process was rushed through state approvals, despite the fact that the TCEQ technical team unanimously recommended against approval. For more details about the WCS problems and likely issues for further concern, see the report, [The Repository and the Risk](#) (2011), by watchdog NGO Public Citizen.

The Lonestar Sierra Club took the State to court over the improper rushing of the deal, but has not prevailed in any of the appeals. See [Court thwarts Sierra Club's hazardous waste challenge](#).

In August of this year, the TCEQ voted 3-0 to allow WCS to more-than-triple its capacity to 9 million cubic feet. But, worse, the commission allowed WCS to reduce by \$50 million – to only \$86 million the amount of money the company must have to cover liabilities, such as a leak into the aquifer or an explosion leading to radioactive emissions. As the Public Citizen report shows, the initial liability assessment was way too low, so lowering it further virtually guarantees that taxpayers will foot the bill. Texas law requires environmental monitoring of radioactive materials for 1000 years, but WCS could shut down after a few years and leave the State responsible for further care or cleanups.

Medium-level radioactive waste and “just-visiting” waste

Definitions of what could be allowed at the WCS facility are, apparently, flexible, and the State is considering officially expanding to medium and high-level radioactive waste. Even though not approved for its storage, considerable amounts of higher-level radioactive material have been “temporarily” stored at WCS. Currently, some 100 containers from Los Alamos National Laboratory that were headed for the Waste Isolation Pilot Plant in New Mexico (the country's only permanent repository for waste from several decades of making nuclear bombs), but an explosion and fire at that facility closed it for the foreseeable future. There is now concern about 5 containers of transuranic waste from LANL that are now at WCS, because the 6th container of that shipment is believed to be the source of the chemical reaction causing the WIPP explosion.

New proposals for high-level radioactive waste storage and/or reprocessing in Texas

Andrews County and nearby Loving County are being proposed as destinations for high-level radioactive waste, primarily the byproducts of nuclear power plants. At least two corporations are hoping to get lucrative contracts to operate a new waste dump or a reprocessing facility for this extremely dangerous form of radioactive waste. "Spent" (i.e., no longer efficiently producing) fuel rods from a nuclear reactor are far more dangerous than before they were used; nuclear reactions cause the fuel to become both highly radioactive and thermally hot, making them nearly impossible to move or store safely.

According to the U.S. Nuclear Regulatory Commission's [*Background on Radioactive Waste*](#):

*Since the only way radioactive wastes finally become harmless is through decay, which for some isotopes contained in high-level wastes can take **hundreds of thousands of years**, the wastes must be stored in a way that provides adequate protection for very long times. (Emphasis added).*

Governor Perry announced these Texas proposals cheerily, as though he was arranging a wonderful blessing for the State. But transporting high-level radioactive material across Texas would also bring considerable danger that would remain for centuries.

San Antonio is located on some of the transportation routes (mainly rail, but also trucking), so we need to know WHAT COULD GO WRONG?

Please attend this lecture and share your reactions and opinions with the Conservation Committee Co-Chairs, Meredith McGuire and Terry Burns. We need to decide soon how to respond to this issue before the next legislative sessions

by Meredith McGuire, Co-Chair of the Conservation Committee

Global Warming: Methane, the 2nd Most Important Greenhouse Gas

This is the third article in a series on global climate change. See the Alamo Sierran newsletter archives page for the previous ones in the July and August issues.

Atmospheric methane, a rather bad boy

Methane, CH₄, is a far more effective greenhouse gas than CO₂, as is apparent from the chart below, which was also included in the prior articles, [from Wikipedia](#):

Key Greenhouse Gases		
Gas	Current concentration	Greenhouse effect contribution
Water vapor, H ₂ O	0-4%	36-72%
Carbon dioxide, CO ₂	400 ppm (0.04%)	9-26%
Methane, CH ₄	2 ppm (0.0002%)	4-9%

Luckily the atmospheric concentration of methane has been low, but there are a number of sources that are causing that to increase now. Namely, in historical order, animal husbandry, the oil industry, and now melting of methane clathrate deposits.

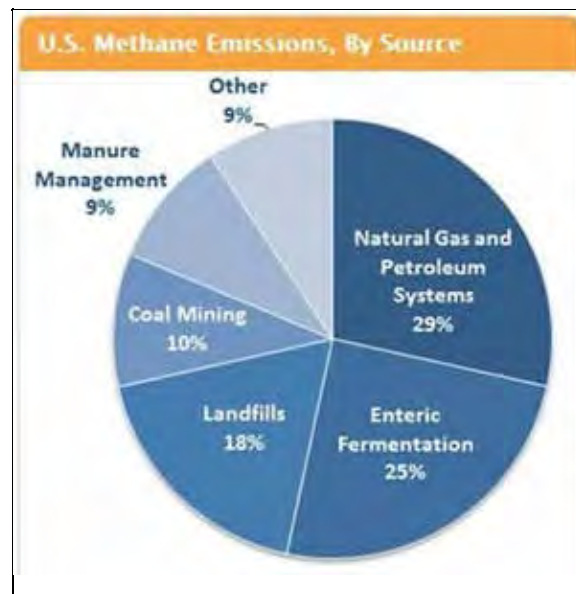
The concentration in the atmosphere is now 2.5 times higher than anytime in at least 800,000 years, based upon Antarctic ice core data. About the same as CO₂, as shown by the startling graphs in the August edition of this newsletter. Atmospheric methane has a half-life of 12 years (EPA; the Wikipedia article below says 7 years) due to reaction with hydroxyl radicals (OH). That's a little bit of good news; but this means less OH waiting around to react with other pollutants.

[Wikipedia has an article](#) on atmospheric methane. This article includes data on where it comes from. 45% is from natural sources; mostly wetlands, though that includes rice paddies, and a little fraction from methane clathrates (the latter could be increasing sharply, see below). 55% is directly due to human activities; of that about 1/3 comes from energy industries, 1/3 from livestock, and 1/3 from composting in landfills and water treatment plants and burning of cleared forests and waste wood materials. Methane leakage from improperly maintained gas pipelines and facilities at oil wells were discussed in the August article. Methane produced by livestock is discussed in a section at the end of this article. A possibly rapidly growing source of atmospheric methane is the melting of methane clathrate deposits.

Methane clathrate: what is this stuff and where is it?

Methane clathrate, or methane hydrate, is solid stuff that looks like ice, but has a lot of methane trapped in the crystalline structure. Wikipedia, of course, has [a good article](#). Methane gas is trapped in the presence of cold water which then solidifies; the result is stable at low temperatures.

There are really big methane clathrate deposits particularly in Arctic



permafrost sediments, both under tundra in Siberia, Alaska and northern Canada, but also under the Arctic sea. Not so “perma” we now know as some areas are thawing with global warming. There is thought to be much more methane in permafrost clathrate deposits than in mapped natural gas reserves now being exploited by the petroleum industry.

From [Methane Emissions at epa.gov](http://MethaneEmissions.epa.gov).
Enteric fermentation is a digestive process in livestock.

The clathrate gun hypothesis

This is the idea that increasing temperature “can trigger the sudden release of methane from methane clathrate compounds buried in seabeds and permafrost which, because the methane itself is a powerful greenhouse gas, leads to further temperature rise and further methane clathrate destabilization – in effect initiating a runaway process as irreversible, once started, as the firing of a gun.” ([Wikipedia](#)).

The largest known mass extinction event, the one at the end of the Permian geologic period, occurred 250 million years ago. A key factor is thought to be global warming due to a massive release of methane from clathrate melting in Siberia, triggered by a wide area of lava flows. This resulted in the extinction of an estimated 95 percent of all species over a period of 80,000 years.

Methane clathrate melting: it is happening now?

In 2013 a mysterious crater was found on the Yamal Peninsula in Siberia (on the Arctic Ocean due north of Kazakhstan). Others have been found since. That first one is around 100 yards wide. Samples taken from air at the bottom contain up to 10% methane. As methane is 45% lighter than air and quickly rises, a tremendous amount of methane must be coming out of the surrounding permafrost into the crater.

The summers of 2012 and 2013 on the peninsula were about 7 degrees Fahrenheit warmer than usual. It seems methane escaping from melting clathrate in the permafrost built up pressure until it erupted, creating the crater. This phenomenon has not been observed before.

A scientist said of the crater “its rims are slowly melting and falling into the crater. You can hear the ground falling, you can hear the water running; it’s rather spooky.”. The above info came from a [Washington Post article](#), which also has nice pictures.

An article in The Nation, [The Coming Instant Planetary Emergency](#), mentions the US Navy prediction of ice-free summers in the Arctic Ocean as early as 2016. This ocean is warming rapidly, and therefore so is the permafrost underwater and under northern tundras. A scientist mentions “The seabed is offshore permafrost, but is now warming and melting. We are now seeing great plumes of methane bubbling up in the Siberian Sea...millions of square miles where methane cover is being released.”.

It is unclear yet how big of a factor in global warming methane clathrate melting will become. This might become a serious factor within some few years. Bears close watching.

Methane from livestock

We might suspect this is emissions from nether ends of cattle, but apparently is mostly eructation (that’s an interesting word), meaning belches. Cows lose about 6% of their ingested energy as methane, which could be reduced by changes in diet.

Cattle versus pigs and chicken

“Production of beef and cattle milk accounts for the majority of emissions [of CO₂ equivalent greenhouse gases by animal husbandry], contributing 41% and 20%, respectively. Production of pig meat and poultry meat and eggs contribute 9% and 8%, respectively”. So cattle is the biggest factor. This comes from an [interesting website](#) with lots of well-presented data about emissions of greenhouse gases by production of our food, and the impact of climate change in general, maintained by the [Research Program on Climate Change, Agriculture and Food Security](#), University of Copenhagen.

Vegetarian diets

We should mention, as our vegan colleagues will interject, a vegan diet has a much lower greenhouse gas footprint (from CO₂, CH₄ and nitrous oxide, N₂O) than one involving animal protein. The [Vegetarian Society](#) has lots of info.

by Kevin Hartley, Newsletter Editor

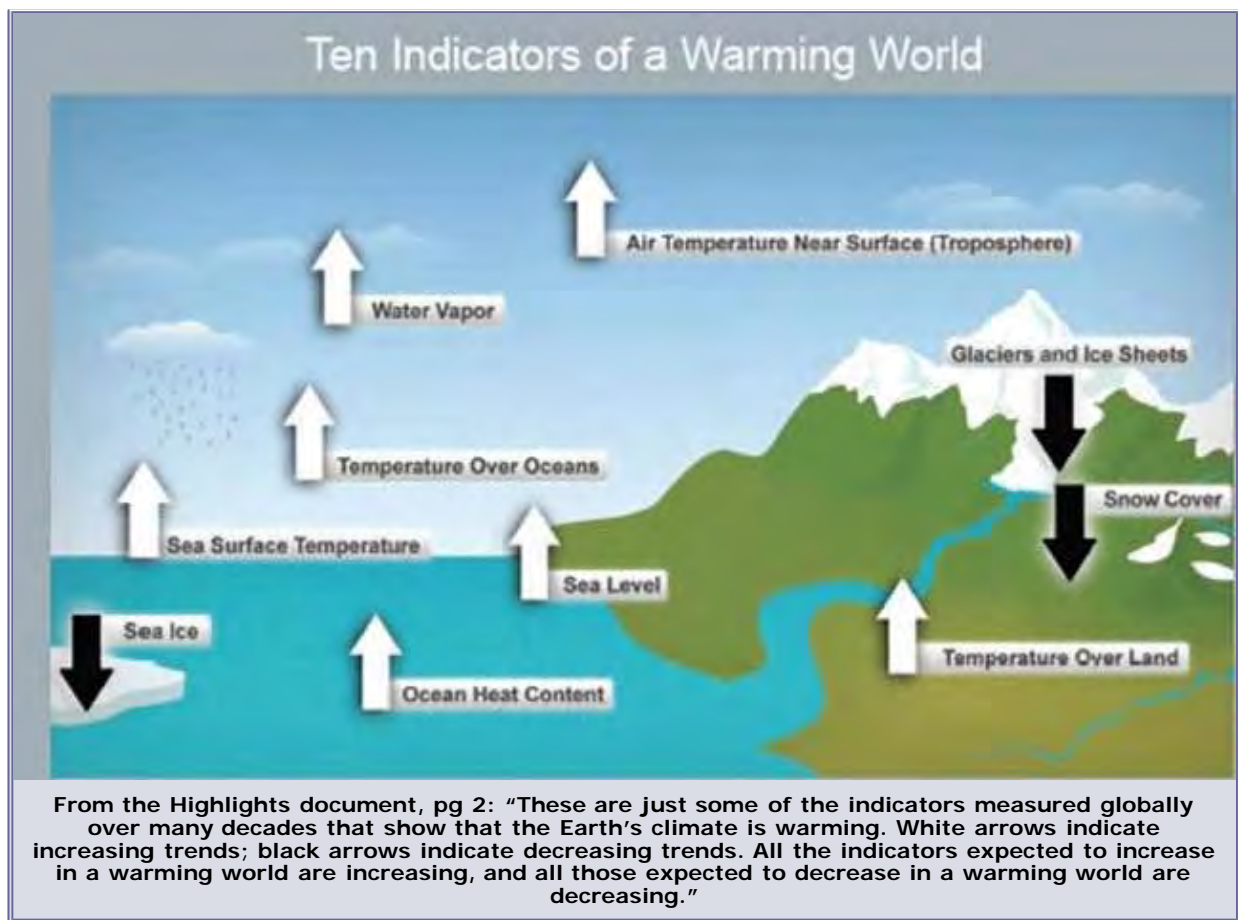
Food for thought

As long as skepticism is based on a sound understanding of science it is invaluable, for that is how science progresses. But poor criticism can lead those who are unfamiliar with the science involved into doubting everything about climate change predictions.
- Tim Flannery, *The Weather Makers: How Man Is Changing the Climate and What It Means for Life on Earth*

The 2014 National Climate Assessment

This is a carefully done scientific study was done by the U.S. Global Change Research Program with contributions from fourteen US government departments. You don't have to drown in the detail; there are good highlights and overview documents.





The overall website is at globalchange.gov. From the initial page note the "Explore the NCA" button. From here, it is fun to browse; there are succinct summaries, clearly understandable graphs and nice photos. Also at the initial page, note the "Download the NCA" button; you can get everything or anything as PDFs. On [that download page](#) at the top you can get "Highlights" or "Overview", and below are links to the whole report.

by Kevin Hartley, Newsletter Editor

Sign Up for Action Alerts

The Sierra Club is all about citizen action on critical issues. Quick citizen input often spells the difference between victory and defeat for important measures at the local and state levels. Sign up now to receive our local e-mail Conservation Action Alerts and let your voice be heard. **Call (674-9489) or email Loyd Cortez** and we'll add your name to our growing list of environmental activists.

Outings: The Call of the Wild

Visit the [Alamo Sierra Club Outings page](#) on Meetup for detailed information about **all** of our upcoming Sierra Club Outings.

