

UNIVERSITY OF CALIFORNIA, DAVIS

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DEPT. OF ENVIRONMENTAL SCIENCE & POLICY
& UC NATURAL RESERVE SYSTEM
UNIVERSITY OF CALIFORNIA
ONE SHIELDS AVE.
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PHONE (530) 752-7110
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EMAIL spharrison@ucdavis.edu

October 5, 2006

Dear Roger:

It's a pleasure to write in support of your efforts to conserve the Sonoma County Cedars through working with the Coastal Conservancy, Sonoma Land Trust, county Open Space District and other organizations. Your long-standing efforts on behalf of this amazing resource are a tremendous contribution to the cause of rare plant and community conservation.

Serpentine soils are a major contributor to California's status as one of the world's top 25 hotspots of botanical diversity; of the roughly 2,000 plant taxa that are uniquely found in California, well over 200 are serpentine endemics, or species that have evolved to depend on these unusual soils. (This is in spite of the fact that serpentine forms only <2% of the state's surface area.) Ecologists and evolutionists worldwide have long considered the California serpentine flora a model system for understanding how new plant species form and how they adapt to challenging environments. Many of California's rarest and most unusual plant species are serpentine endemics. In my experience, *no other single serpentine site can match The Cedars for its importance to the study and conservation of the Californian serpentine flora.* This is because as you know, several plant species and varieties are completely unique to The Cedars; I am not aware of any other such cases anywhere in the state. If I had to guess, I'd say that this is because The Cedars is a large exposure of serpentine, widely separated from other large serpentine outcrops, lying within a region that is generally botanically rich (western Sonoma and Marin counties), and that these factors have combined to make it a "hotspot within a hotspot" for serpentine plant evolution. In addition to its rare and unique species, The Cedars contains an extensive and pristine stand of a rare vegetation type - Sargents cypress forest - and populations of a number of species at their geographic range margins, which are also important subjects for genetic conservation and scientific study. Finally, the scientific significance of The Cedars has been enormously enhanced by your botanical expertise and the tremendous time and effort you've put into gathering and disseminating information about its natural resources.

Having visited The Cedars in the company of geologists and geochemists, I am also aware that they consider The Cedars to be of outstanding significance, as the site where the unique chemistry of the seeps gave rise to a new understanding of how serpentine forms from the rocks of the oceanic crust. There is an ongoing interest here at UC Davis in studying various issues about geochemistry and plate tectonics at The Cedars. I don't think very many, if any, other geochemical seeps like the ones at The Cedars have been discovered in Northern California.

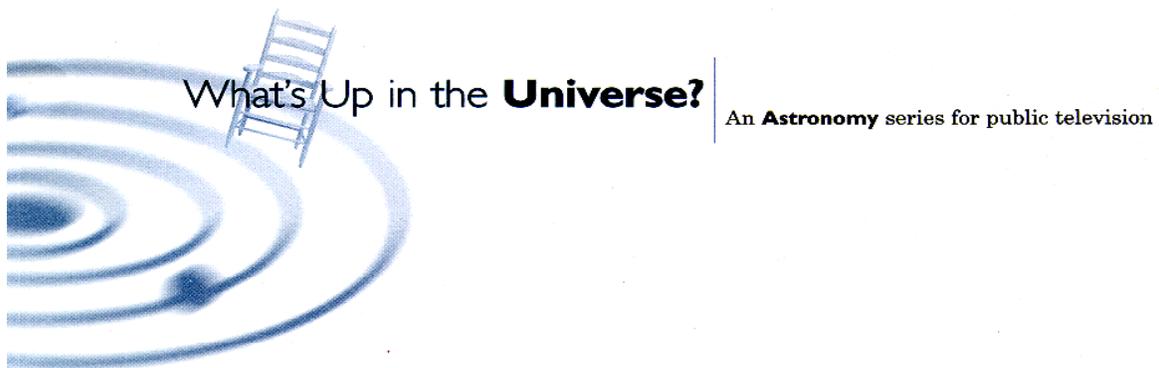
I've been fortunate to have used The Cedars in my various studies of serpentine plant diversity, and cannot think of any other site I would consider more essential to conserve in its present pristine state for the sake of its outstanding contribution to California's flora.

Sincerely,



Susan Harrison

Professor, Environmental Science & Policy
Davis Campus Director, UC Natural Reserve System



To whom it may concern:

I am writing to you to support preservation of a unique environment known as the Cedars. Last year my production Company filmed a team of scientists from JPL exploring the Cedars for an astronomy film program called "***What's Up in the Universe?***" which is intended for both broadcast on public television, as well as educational distribution. This 60-minute special and 6-part educational series has been designed to lead viewers on an expedition of discovery by blending science, art and storytelling along with interviews with some of today's leading scientists in order to help connect astronomy to people's everyday lives.

We have an airdate on National Public Television of May 1, 2007 to coincide with International Space Day and Pacific Islander's month, ***What's Up in the Universe?*** explores our own planet's relationship and similarities with the other planets in our solar system and ponders in a truly contemporary matrix the age old question, "Are we alone?" - a question made more profound with the recent discovery of extra solar planets orbiting sun-like stars,

The Cedars was a chance for us to film in a unique living laboratory where important lessons are still unfolding. The peridotite is a unique feature that deserves to be preserved. The beauty of the landscape made a perfect backdrop for our film and we filmed both in the main Canyon where the springs are near the camp and along the trails to the ridge tops. We featured the Cedars in three sections of the film and intend to go back to film more for the educational part of the project. The premise was comparative planetology to understand what microorganisms might have been and might still be on Mars.

The Cedars could be used for future film work and for students in the arts and sciences to learn and study. I would think that anyone seeing the Cedars would want to protect the natural features in perpetuity and allow scientific research and artistic inspiration to continue there.

I'll be glad to answer any additional questions you may have and can be reached anytime at (650) 726-1693. Please visit our web site to see a clip from our program at www.whatsupintheuniverse.org

Cordially,

Susan Friedman
Director and Producer
"What's Up in the Universe?"
whatisup@earthlink.net
www.whatsupintheuniverse.org

Date 28 September 2006
Contact person Prof.dr. J.G. Kuenen
Telephone/fax +31 (0)15 27 85308/+31 (0)15 27 82355
E-mail j.g.kuenen@tnw.tudelft.nl



Laboratory of Environmental Microbiology

Delft University of Technology

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To whom it may concern

Since 2004 our laboratory is involved in the study of the microbiology of the hyperalkaline (ultrabasic) springs in the Cedars. For the last 25 years our lab has studied microbial life in a variety of extreme, natural environments as they occur on Earth with the aim to understand how microbial life can deal with such harsh conditions and what kind of special metabolism it must possess in order to handle such extreme conditions. This knowledge may later be applied in the management of natural resources as well as in waste water treatment.

For example, we have investigated and applied bacteria living in alkaline soda lakes, which have a pH of 10-11. These bacteria can grow as long as the pH is below 10.5-11.0, but when the pH gets even higher they must invest all their available energy in survival and most of them die at that pH. Based on the study of these soda lakes, we had assumed that the limits for life would be around pH 11.

The Cedars represent one of the few places on Earth, where mantle rock (peridotite) is exposed to the surface and subject to weathering and all kinds of geo-biological forces. This exposure has led to the development of a unique habitat including the emergence of hyper-alkaline (ultrabasic) springs, with pH values up to 11.9. In fact, the conditions that exist today in the Cedars may represent a rare remainder of what Earth looked like a few billions of years ago. When we learned from these natural springs we immediately realized that bacteria might exist that would be able to deal with these high pH values and, if so, this would represent a unique possibility to extend our understanding of what limits microbial life on earth. The recent research into the springs has now revealed that such bacteria do exist and that we are in the most fortunate position to learn more about life at the edge of biochemical possibilities. We are also convinced that such bacteria will possess properties that may be useful to help us in the proper maintenance and management of our environment.

It is evident from these considerations that, with the Cedars, California possesses a rare gem of Nature, which needs to be preserved and secured for future generations. Clearly, it is a habitat that will serve as an important source for scientific, i.e. microbiological, investigations, but it also is a place where future students might be exposed to unique features of combined geological and biological forces that have shaped the Earth in an early state of its existence.

A handwritten signature in the bottom right corner of the page.



The Delft University of Technology has a long tradition of top microbiological research. We appreciate the importance of unique sources for microbial diversity, as it can teach us so much about life, the importance of recycling of nutrients by microorganisms and the value of these microbes for a vast array of applications. As an academic centre at the other end of the world we admire the immense natural (re)sources of the United States of America. We hope that California will value the uniqueness of the Cedars as a beautiful addition to the spectrum of its natural sanctuaries, and as a rich source for future scientific research and education of students.

A handwritten signature in cursive script that reads 'J. Gijs Kuenen'.

J. Gijs Kuenen
Professor of General and Applied Microbiology at the
Delft University of Technology
& Visiting Scientist at the University of Southern California



STANFORD

UNIVERSITY

Dr. Robert G. Coleman, Professor of Geology Emeritus
 Department of Geological & Environmental Sciences
 Stanford University
 2025 Camino Al Lago, Atherton, CA 94027

PHONE: (650) 854-3641

e-mail coleman@pangea.stanford.edu

September 30, 2006

Dear Roger and David;

This letter is written to provide some geological information in support of the proposed incorporation of your property into the East Austin Creek State Park. The exciting aspect of the Cedars is that it is a place where scientific studies took place under your careful guidance. The goal of this natural preserve such as you have started should be to support botanical, biological, geochemical, and geological research on theories and explanations for this dislodged piece of the Earth's peridotite slab and the plants now living here. The uniqueness of The Cedars is what human activity that has taken place in the past 200 years has hardly changed its pristine setting. It has one of the largest continuous exposures of peridotite in North America providing scientists the opportunity to study the Earth's Mantle without having to drill to great depths. Because of the unusual composition of these rocks and soils they produce hardly enough nutrients for normal plants to develop. As a result those plants that do grow here have developed a unique capacity to survive in a toxic habitat. The study of these plants by botanists provides insights on how plants adapt and develop tolerances to extreme toxic settings.

Geologic history of The Cedars area.

The Cedars peridotite is surrounded by sediments accumulated within a trench along the continental margin of California. These sediments are called greywacke (Franciscan formation) and represent debris eroded from the continent. The Cedars peridotite is an exotic slab of oceanic crust detached from the Pacific oceanic plate as it was subducted under the continental margin of California more than 150 million years ago. The detached peridotite slab was thrust into the greywacke trench sediments and became part of the California continental margin. Continuous "plate tectonic activity" slowly elevated the Cedars peridotite slab along faults changing its shape into an ellipsoidal mass that is now exposed within the San Andreas Fault system.

The occurrence of large peridotite slabs on the surface of the Earth is extremely rare and the Cedars is one of the least altered examples in the world. Peridotite is the main rock type of the Earth's mantle and consists of dense silicate minerals that consist mainly of iron, magnesium, and silica. All of these minerals formed in the mantle under high temperatures and pressures in the absence of water! When the detached Cedars peridotite slab became immersed in the cool water-rich Franciscan greywacke trench sediments, the dense peridotite silicate minerals along its outer boundaries altered into serpentine minerals. Serpentine minerals are essentially the same composition as the dense mantle silicate minerals but they contain up to 12% water and are much less dense than the primary mantle silicates.

The tectonic history of the Cedars peridotite Within the California continental margin has preserved much of the primary nature of the peridotite minerals and so the alteration of the primary silicates (serpentinization) is still continuing.

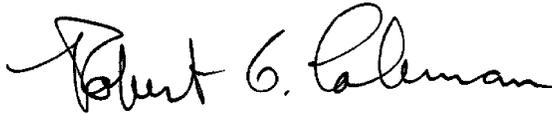
Today numerous springs with travertine aprons are the result of continuing serpentinization and their chemical composition is controlled by continuous present day serpentinization at the surface of the Earth.

Exhibit 7: Letters of Support

The spring waters are unique and have one of the highest pH (>11.5) of natural waters and contain abiotic hydrogen and methane as the peridotite slowly changes to serpentine. In 1967, Dr. Ivan Barnes of the U.S. Geological Survey was the first to discover the unique nature of these spring waters and suggested that present day serpentinization was happening within the Cedars peridotite. In the present decade scientific interest in the Cedars springs has brought together an active research group from University of Southern California who are studying the water-rock-life interactions within these springs. A diverse new microbiological community has been found within the spring waters and is considered one of the best analogues into understanding early life processes on Earth and other terrestrial bodies.

I have felt it a great privilege to be welcomed to your Cedars natural area to carry out my geologic research, as have my colleagues from the academic world who are developing new theories on the origin of life. Your stewardship of conservation and encouragement of studies within your property has set a high standard for private sector support of basic research. For these reasons I am hoping that the committee that reviews your proposal will act favorably to protect this geological and botanical treasure.

With best regards;

A handwritten signature in black ink that reads "Robert G. Coleman". The signature is written in a cursive style with a large, stylized initial 'R'.

Robert G. Coleman Professor of Geology Emeritus

Member National Academy of Science



Stewards of the Coast and Redwoods

Preservation through Education and Restoration
Russian River Sector State Parks

January 24, 2007

Ms. Deborah Hirst
Project Manager
California Coastal Conservancy
1330 Broadway Avenue, 13th Floor
Oakland, CA 94612-2530

Dear Deborah:

Stewards of the Coast and Redwoods supports the grant request from Sonoma Land Trust to the State Coastal Conservancy to develop a strategy for, and conduct, landowner outreach to protect "The Cedars" region of Sonoma County – an area of extraordinary global significance.

This planning and outreach is an important step toward the permanent protection of The Cedars, an extremely high priority for conservation in Sonoma County. In addition to permanently protecting its unique botanical, geological and aquatic resources, there is much to be learned from this stunning landscape, as is evident from the research and investigations being conducted there. Scientists and academics from around the world are studying The Cedar's aquatic systems and have identified The Cedars as a place of "outstanding significance", and a "unique and valuable national treasure" due to the distinctive life processes taking place here.

We strongly support conservation of The Cedars and encourage the members of the Board of the Coastal Conservancy to approve this grant to the Sonoma Land Trust.

Sincerely,

Michele Luna
Executive Director

Cc: Amy Chesnut, Sonoma Land Trust

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JAN 26 2007

COASTAL CONSERVANCY
OAKLAND, CALIF.





September 30, 2006

To Whom It May Concern:

College of Letters,
Arts and Sciences

Department of
Earth Sciences

This brief note concerns an area in northern California called The Cedars Peridotite (informally, just "The Cedars"), its extremely unusual properties, and the reasons that the site is a truly unique and valuable national treasure.

First let me introduce myself. I am Ken Nealson, the Wrigley Professor of Geobiology at the University of Southern California in Los Angeles. I have made a career of studying extreme environments around the world, ranging from polar and deep sea cold environments, to hot springs and deep sea hot vents, to deep subsurface sites (marine and terrestrial), to hypersaline and alkaline environments. Interspersed with these studies, I worked at NASA's Jet Propulsion Laboratory where I was the project scientist for the Mars Sample Return Mission, and founder and director of the Center for Life Detection. In all of these studies, the primary focus has been on understanding how the geology of the planet supports life, and how life in turn alters the geology of the planet – the science of Geobiology. Earthly Geobiology begins with the earliest reports of life on the planet, and continues up to the modern day, helping us understand the way that life and the Earth have co-evolved over time and formed an inseparable partnership. A simple way to view this is that the Earth is like it is because of life, and life adapts to exploit the geological resources of the planet.

Perhaps no where on Earth is this more vibrantly demonstrated than in The Cedars. Here we have the extremely rare occurrence of mantle rock called peridotite (usually found many - 10 to 100 - kilometers deep beneath the Earth's crust) readily available for study at the surface. Not surprisingly, The Cedars is in the earthquake zone of Northern California where, due to faulting and tectonic plate movements, peridotite was transported to the surface. Such happenings are not rare in California – peridotite is regularly uplifted, and when it interacts with water (usually groundwater originating from rainfall) it forms alkaline solutions, hydrogen, and the mineral serpentine, which is the state mineral of California.

What is surprising, and perhaps unique, is the massive and active nature of The Cedars Peridotite system. Instead of a small, isolated bit of peridotite, which is characteristic of many sites in California and Oregon, we have a site that covers hundreds of acres. This massive site is distinct from most other peridotite sites because it is geologically young, and extremely active: processes that have long since terminated in other sites are presently active at The Cedars site, exhibiting many different manifestations of the peridotite/water interaction that can be studied in real time. Furthermore, the site is remote and thus nearly pristine in terms of offering a location for scientific study (both short and long term).

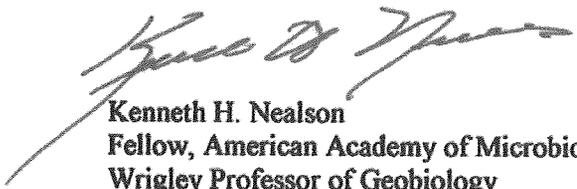
My own interests are focused on the basic microbiology of the region, asking such questions as "how can any life survive in such extreme conditions (pH ~ 12)?" and "what mechanisms are used by the organisms (which we already have in culture and are beginning to characterize) to eke out an existence where it should not be possible?" However, these interests are merely the tip of an intellectual "iceberg" of inquiry spanning topics such as whether such environments were abundant on early Earth and, if so, can the properties of these ancient ecosystems be predicted by the study of their modern counterparts. It is thought that peridotites were very common in the primordial Earth, and therefore the study of such a pristine site as The Cedars would provide insights into the earliest life on the planet.

Putting my NASA hat back on, one can imagine that similar environments could exist many places in the Solar System, and understanding The Cedars ecosystem might well provide keys to how to search for evidence of life in similar environments on extraterrestrial sites.

In summary, it is clear that The Cedars Peridotite is not only one of the most unique geological and biological sites on the planet but it also presents an excellent opportunity to conduct research in a site that is accessible by ground transportation, yet remote enough to be pristine. It provides a study site that both relates to modern processes occurring on Earth today and the extreme challenges to life as we know it, and may provide analogs for the earliest Earthly life, perhaps even for life that may have existed, or may still exist in extraterrestrial environments.

In nearly 40 years of studying the planet and its incredibly variable life forms, I have never seen such a magnificent site that relates to so many fundamental issues regarding the history of Earth and its life. It is my hope that an effort can be made to preserve The Cedars so that as science and technology continue to develop new methods and concepts, this site will be available to probe the mysteries of ancient and modern life both on and off the Earth.

Sincerely yours,



Kenneth H. Nealson
Fellow, American Academy of Microbiology
Wrigley Professor of Geobiology
Departments of Geology and Biology
University of Southern California



SONOMA COUNTY

AGRICULTURAL PRESERVATION
AND OPEN SPACE DISTRICT

Ms. Deborah Hirst
Project Manager
California Coastal Conservancy
1330 Broadway Avenue, 13th Floor
Oakland, CA 94612-2530

Dear Ms. Hirst:

It is our understanding that the Sonoma Land Trust is requesting a grant from the State Coastal Conservancy to develop a strategy for, and conduct, landowner outreach to protect "The Cedars" region of Sonoma County – an area of extraordinary global significance. This proactive approach is consistent with goals and objectives in our long-range acquisition plan, Connecting Communities and the Land.

This planning and outreach is an important step toward the permanent protection of The Cedars, an extremely high priority for conservation in Sonoma County. In addition to permanently protecting its unique botanical, geological and aquatic resources, there is much to be learned from this stunning landscape, as is evident from the research and investigations being conducted there. Scientists and academics from around the world are studying The Cedar's aquatic systems and have identified The Cedars as a place of "outstanding significance", and a "unique and valuable national treasure" due to the distinctive life processes taking place here.

We strongly support conservation of The Cedars and encourage the members of the Board of the Coastal Conservancy to approve this grant to the Sonoma Land Trust.

Sincerely,

Andrea Mackenzie
General Manager

Cc: Amy Chesnut, Sonoma Land Trust



Ms. Deborah Hirst
Project Manager
California Coastal Conservancy
1330 Broadway Avenue, 13th Floor
Oakland, CA 94612-2530

Dear Deborah:

LandPaths supports the grant request from Sonoma Land Trust to the State Coastal Conservancy to develop a strategy for, and conduct, landowner outreach to protect "The Cedars" region of Sonoma County – an area of extraordinary global significance.

As has been discussed on several occasions as part of our West County Working Group Collaborative, this planning and outreach is an important step toward the permanent protection of The Cedars, an area of high priority for conservation in Sonoma County.

In addition to permanently protecting its unique botanical, geological and aquatic resources, there is much to be learned from this stunning landscape, as is evident from the research and investigations being conducted there. Scientists and academics from around the world are studying The Cedar's aquatic systems and have identified The Cedars as a place of "outstanding significance", and a "unique and valuable national treasure" due to the distinctive life processes taking place here. Given all this I am, frankly, somewhat astounded that the area has remained "under the radar" in terms of conservation and protection until just recently.

The Cedars has additional significance as an area of unique habitat to be protected and studied. The Cedars are due west of the 400-acre Riddell Preserve, an oak and madrone-studded wildland property owned and stewarded by LandPaths - land that could someday serve as the eastern terminus of an east-west corridor of protected habitat spanning between the high tide line and the Dry Creek Valley outside Healdsburg. No such corridor of protected habitat yet exists in Sonoma County to my knowledge.

I strongly support conservation of The Cedars and its environs and I encourage the members of the Board of the Coastal Conservancy to approve this grant to the Sonoma Land Trust.

Sincerely,

Craig Anderson
Executive Director

Cc: Amy Chesnut, Sonoma Land Trust



SONOMA COUNTY TRAILS COUNCIL

P.O. Box 14483, Santa Rosa, CA 95402

www.sonomacountytrails.org

Ms. Deborah Hirst
Project Manager
California Coastal Conservancy
1330 Broadway Avenue, 13th Floor
Oakland, CA 94612-2530

Dear Deborah:

The Sonoma County Trails Council supports the grant request from Sonoma Land Trust to the State Coastal Conservancy to develop a strategy for, and conduct, landowner outreach to protect "The Cedars" region of Sonoma County – an area of extraordinary global significance.

This planning and outreach is an important step toward the permanent protection of The Cedars, an extremely high priority for conservation in Sonoma County. In addition to permanently protecting its unique botanical, geological and aquatic resources, there is much to be learned from this stunning landscape, as is evident from the research and investigations being conducted there. Scientists and academics from around the world are studying The Cedar's aquatic systems and have identified The Cedars as a place of "outstanding significance", and a "unique and valuable national treasure" due to the distinctive life processes taking place here.

Additionally, due to The Cedars' close proximity to both Bureau of Land Management property and Austin Creek State Recreation Area, the protection of this area is an important opportunity to connect protected lands and provide additional public recreational opportunities.

We strongly support conservation of The Cedars and encourage the members of the Board of the Coastal Conservancy to approve this grant to the Sonoma Land Trust.

Sincerely,

Rob D. Helms
Executive Director
Sonoma County Trails Council

Cc: Amy Chesnut, Sonoma Land Trust

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FEB 9 2007

COASTAL CONSERVANCY
OAKLAND, CALIF.