

# 2013

**GEOS**  
INSTITUTE

Annual Report



## From the Desk of the Executive Director Tonya Graham



As I write this letter, the Oregon Cascades have received 25% of their typical snowfall for this time of year. Ski areas sit idle, and unseasonably warm temperatures make us wonder if the brief cold snap in early December is all the winter we will get this year. At the same time, friends across the southeast are suffering through winter storms so intense that

communities find themselves woefully unprepared to handle them.

Unprecedented weather. Climate chaos. It's one and the same.

Over the past year, I have watched Geos Institute's staff, board, science advisory board, supporters, and volunteers dedicate themselves to turning the most difficult challenge we have collectively faced into opportunities to re-align our communities with the ecosystems that support them. It is my good fortune to be able to work with a top notch team of such wonderful human beings.

What climate chaos eventually means for the families, communities and the wildlife that share our planet depends entirely on how we respond right now and in the coming years. Our team is on the front lines helping decision-makers respond well and appropriately to the real world challenges created by a rapidly changing climate.

Despite the sobering news coming from all directions, we remain hopeful. By working together and calling on the best of what makes us human, we believe we can meet these challenges in a way that strengthens our communities and protects the natural world.

Thank you for joining us in this vitally important work.

*Tonya Graham*

## From the Desk of the Chief Scientist Dominick A. DellaSala



As we enter the home stretch of the Obama administration, Geos Institute is asking the administration how the President plans to bolster his climate change legacy. If President Obama is to make a difference on the most pressing environmental and socio-economic issue of our time, his climate policies need to be linked to conservation on public lands.

Back in 2008, I was part of a science team assembled by Geos Institute and the Society for Conservation Biology to brief Obama's transition team on climate change and conservation priorities for the nation. We explained how capping emissions on forestry and other polluting sectors needed to be a central tenet of his policies.

Last June, the President released his *Climate Action Plan*, which recognized forests for their climate change benefits, as we had suggested. However, there is still much to be done.

Geos Institute is proposing that the President designate a national network of forest-carbon reserves on public lands, especially to protect threatened rainforests in the Pacific Northwest and Alaska. These forests store carbon, stabilize the climate, enhance our quality of life, and provide habitat for fish and wildlife. Protecting these forests should be a central plank in the President's climate proposals.

Your ongoing support of Geos Institute is turning this vision into a reality. Thank you!

*Dominick A. DellaSala*

## Our Vision

Climate chaos threatens life as we know it for our families, friends, and the larger human and wildlife communities of the world. Collectively and individually, we have three options:

- pretend the climate is not changing
- focus on limited, short-term fixes
- get to work creating a culture of awareness, innovative thinking, and action that will allow us to leave a healthy, vibrant world to future generations

At the Geos Institute, we choose to get to work.

Geos Institute's initiatives focus on influencing decision-makers in sectors whose responses to climate change are of particular importance in protecting the integrity of natural systems.

Currently, our initiatives focus on freshwater management, forest management, and community decision-making. We work to make socially and ecologically sound solutions the tools of choice for decision-makers in these sectors.

PHOTO: KEITH HENTY

## PROFILES

### Thank you to Geos Institute Supporters



#### Will and Aura Johnson

“Climate change may be the most important issue of our time. We support the Geos Institute because we’re concerned about our planet, and our business is invested in the health of rivers and native fish populations.”

*Will and Aura Johnson, owners of the Ashland Fly Shop*

#### Mary and Clint Driver

“We have supported the work of the Geos Institute for many years, both through the Laird Norton Family Foundation and through our personal giving. We’ve also been privileged to work directly with staff member Brian Barr in an initiative that aims to restore over a thousand stream miles of fish habitat in the Rogue Valley. We are very glad to see that the Geos Institute is at the forefront of work being done in the environment to meet the serious challenges of climate change.”

*The Drivers with Phoebe at Anza-Borrego Desert State Park, CA*



# The Banking on Forests Program

Dominick DellaSala

Geos Institute launched its Banking on Forests program in 2008 to catalyze a paradigm shift in climate change adaptation (adjusting to impacts) and mitigation (reducing impacts), especially in globally important forested regions. The program is a follow up to our award-winning rainforest book, *Temperate and Boreal Rainforests of the World*.

We have focused on the coastal rainforests of the Pacific Northwest and Alaska, because they are among the most carbon dense ecosystems in the

world. They are threatened by logging proposals that would undermine landmark laws and policies. Case-study areas, such as the Kalmiopsis in Southwest Oregon, were chosen to demonstrate our unique approaches that link climate change mitigation and adaptation.



## Geos Institute Commissions Potential Game Changer on Alaska's Tongass Rainforest

Last October Geos Institute commissioned a study by Mater Engineering that used new Forest Service data to demonstrate that there are sufficient second growth stands on Alaska's Tongass National Forest to transition away from logging old growth in as little as five years. This report was presented to leadership at the U.S. Department of Agriculture and Forest Service by Chief Scientist Dominick DellaSala, board member Jim Furnish, consulting engineer Catherine Mater, and the Natural Resources Defense Council. Since then we have been working

with Mater Engineering to compile information on timber inventories from state and private lands, new opportunities for wood products manufacturers, and employment projections for local forest workers.

With your support, Geos Institute is helping to solve old conflicts in the rainforests of Alaska. We are demonstrating that this transition away from old-growth logging is economically and politically feasible, and it will save Alaska's rainforests for their benefits to a stable climate and biological diversity.

*Chaik Bay, Admiralty Island National Monument; Tongass National Forest, Alaska. Places like the Tongass rainforest store the carbon dioxide equivalent of 90 times the state's global warming pollution, and Pacific Northwest rainforests are storing similar amounts. When these forests are cut down, up to half of their stored carbon is released as a global warming pollutant. Both areas remain under threat from unsustainable logging proposals. Geos Institute is proposing a carbon-wildlife network of reserves to protect endangered rainforests like this one.*

PHOTO: JOHN SCHOEN, COURTESY OF FRIENDS OF ADMIRALTY ISLAND

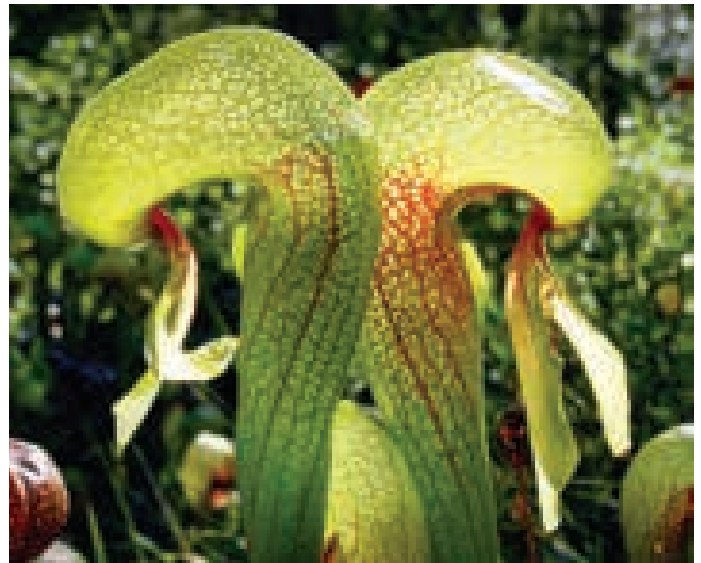


## Oregon's World-Class Kalmiopsis: a Threatened Climate Change Refuge

The 10-million acre, world-class Klamath-Siskiyou ecoregion contains some of the most remote forests and rivers along the Pacific coast, from Mexico to Canada. The Kalmiopsis is a stronghold for salmon and has unusual serpentine soils populated by carnivorous plants. Its carbon-dense, older forests are interlaced with crystal clear, emerald green waterways that feed into five federally protected Wild and Scenic Rivers.

We have determined that effective climate change planning in the Kalmiopsis needs to protect north-facing older forests for their carbon storage and climate adaptation benefits. Valley bottoms also need to be protected to allow plants and wildlife sufficient time to adapt to changing conditions. Unsustainable logging and industrial mining proposals are threatening the region's ability to adapt to climate change.

With your help, we are funding a diverse coalition of conservation and business leaders that are encouraging the Oregon congressional delegation



*California Pitcher Plant*

PHOTO: NOAH ELHARDT

to protect these threatened forestlands. In addition, Geos Institute is working with regional and national efforts to create a climate refuge for rare plants and wildlife.

## Science Supports Pacific Northwest Forests

All the work we do at Geos Institute is grounded in our signature science work and its application to climate change and land use policy-making. This policy work is strengthened by collaborations with our 18-member science advisory board, science and policy experts on our board of directors, and a database of over 1,000 prominent scientists and numerous scientific societies.

In 2013 our team submitted sign-on letters opposing congressional legislation to ramp-up logging on national forests, including a plan for post-fire logging in Yosemite National Park. Along with carbon scientists Mark Harmon (science advisory board member) and Bev Law, we teamed up with the Society for Conservation Biology, National Council on Science & Environment, Heinz Center, and American Bird Conservancy to brief decision makers in Washington D.C. on the need to set aside tracts of older forests for their carbon storage benefits.

Because Geos Institute and our donors have invested for decades in upholding the *Northwest Forest Plan* as a global model in biodiversity and ecosystem management, we push back whenever there is a threat to undermine the plan. Most recently, Oregon Senator Ron Wyden introduced legislation to double logging on BLM lands in western Oregon. This would come at the expense of older carbon-dense forests needed for clean water, carbon storage, and climate adaptation. In response, Geos Institute published a paper in the *Journal of Forestry* and worked with the Society of Conservation Biology and American Fisheries Society to submit congressional testimony on the legislation's scientific shortcomings.

Our ongoing efforts to convey accurate science to decision-makers are made possible by your support. Thank you!

# ClimateWise In Action

Marni Koopman

As climate extremes become the “new normal,” communities are faced with the daunting task of increasing their preparedness and continuing to provide vital services, safety, and opportunities for their residents. The first step in preparing for climate change is identifying what resources and/or populations are most vulnerable to the changes ahead.



As human and natural communities become stressed, there will be increasing needs for additional water storage. That will impact aquatic ecosystems. Many city initiatives, such as lowering greenhouse gas emissions and reducing waste, are also facing challenges from climate change.

## Climate Change Response in Fort Collins, Colorado

Climate change impacts were front and center in Fort Collins, Colorado in 2013. The Front Range region was hit by severe drought, devastating wildfires, and school closures from an extreme heat wave. Then an unprecedented downpour triggered a massive flood that destroyed whole towns.

In response, the city of Fort Collins contracted with the Geos Institute and the Brendle Group, a consulting firm that specializes in sustainability, to conduct a vulnerability assessment to use in a long-term planning process.

We met with city and county staff to identify which resources, services, and populations are most at risk from climate change. We identified high vulnerabilities related to human health and safety,

*Cars lay mired in mud deposited by floods in Lyons, Colorado, on September 13, 2013. Days of heavy rains and flash floods which washed out the town's bridges and destroyed the electrical and sanitation infrastructure left many Lyons residents stranded with minimal access to help.*

AP PHOTO/BRENNAN LINSLEY

especially for those with sensitivity to ozone, smoke, and allergens. These included the elderly, the very young, and people with compromised health, as well as outdoor workers and people who live in flood-prone areas. Also deemed highly vulnerable were parks, natural areas, urban forests, native species, and ecosystems, due to potential stress from drought, insects, and warmer water. Businesses dependent on a reliable source of water, such as breweries and clean energy technology, are also at risk.

The next step for the city is to develop strategies to increase resilience in a coordinated manner across both natural and human systems. As Fort Collins continues to lead on climate change planning, the Geos Institute is proud to assist them in their efforts to protect people and nature.



## Changes in Coastal Redwoods

In fall 2013, we held a workshop in Arcata, California for scientific experts and managers of redwood ecosystems. The workshop attracted ecologists, hydrologists, resource managers, foresters, and timber industry representatives. We presented the latest information on current and future changes associated with the redwoods, including climatic changes and a variety of other stressors, such as logging, residential development, invasive species, and changes in fog.



Following the workshop, there was a field trip to visit restoration sites in Redwood National Park, led by Redwood National Park Forester Jason Teraoka (right).

PHOTO: MARNI KOOPMAN

Much of the region, including most of the National Park, has been clear-cut and reseeded with Douglas fir. This resulted in “doghair” stands (very dense stands of small trees that are too crowded to grow larger) of Douglas fir, making redwood restoration impossible without active management. Yet for many decades, National Park Service policy was to let nature take its course. Only recently have managers been allowed to go in and thin out some of the Douglas fir, creating space for redwoods to grow larger and compete with Douglas fir.

The workshop revealed a need for more regional planning that prioritizes areas for redwood conservation and restoration, based on our best understanding of future climate trends. We are working with a multi-agency team of scientists to begin some of this work. We plan to hold another workshop in 2014 to continue to build partnerships and share knowledge for more cohesive redwoods management.

## Climate-Smart Conservation

Geos Institute’s Climate Change Scientist, Marni Koopman, contributed to an upcoming handbook called *Climate-Smart Conservation: Putting Adaptation Principles into Practice*. It was edited by Bruce Stein, Patty Glick, Naomi Edelson, and Amanda Staudt of the National Wildlife Federation.

The handbook is designed to provide guidance for conservation planners and managers. It outlines key characteristics of climate-smart conservation and a list of primary action steps. Look for the handbook this spring!

Excerpt from the handbook –

Climate-Smart conservation can be defined as: *“The intentional and deliberate consideration of climate change in natural resource management, realized through adopting forward-looking goals and explicitly linking strategies to key climate impacts and vulnerabilities.”*

Four overarching themes:

- Act with intentionality
- Manage for change, not just persistence
- Reconsider goals, not just strategies
- Integrate adaptation into existing work

Key characteristics:

- Link actions to climate impacts
- Embrace forward-looking goals
- Consider broader landscape context
- Adopt strategies robust to uncertainty
- Employ agile and informed management
- Minimize carbon footprint
- Account for climate influence on project success
- Safeguard people and nature
- Avoid actions that increase climate change risk

# Green Solutions

Brian Barr

We all know where our water comes from. You simply go into the kitchen, bathroom, or laundry, find the sink, and turn on the tap. In most places, you can get two kinds: hot and cold.

Simple enough, right?

Most of us realize that this water comes from a utility or public works department. And we understand that those agencies treat the water in order to make it clear, disease free, and so that it smells and tastes like clean water.

But all this water comes from somewhere else, before it is treated and piped to our homes. If you live in Pendleton, Grants Pass, or Newport (or any one



PHOTO: ISTOCK AMPHOTORA

of 150 other communities in Oregon), chances are that your water comes from a stream. And the health of the watershed that surrounds that stream goes a long way to determining how stable the supply of water is and how much the water provider has to treat it before sending it on to us, the customers.



It should not be surprising that the changing climate will have a large effect on water supply, water quality, and watershed health.

Geos Institute is now working with the Healthy Headwaters Alliance, the USDA Forest Service, and a number of water providers across the western U.S. to start planning for these impacts. We are analyzing



PHOTO: RICH NAWA



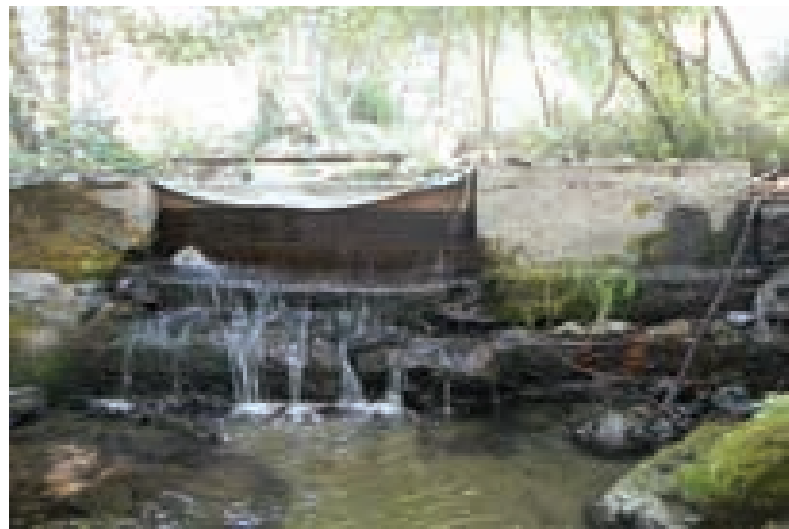
how stream and watershed restoration techniques can contribute to a water utility's bottom line. We are supporting less expensive alternatives to large capital improvement projects like new water storage or treatment facilities.

Here is what we have found to date:

- A series of 5 or so beaver ponds in a small watershed can temporarily “absorb” up to 15% of a small flood and as much as 5% of a large flood event.
- Floodplains can remove as much as 20% of the suspended sediment in floodwaters, with the majority of that removal occurring in forested wetland areas adjacent to rivers and streams.
- Intact floodplain wetlands can store roughly 350 citizens worth of nitrogen waste per acre per year.
- Sediment storage is 15 times higher on active floodplains than in channelized stream reaches.
- In a survey of Oregon water managers, just 15% have considered using watershed restoration as a way to meet water quality or supply goals.
- In the same survey, 30% of water users identify water quality as a pressing issue, and 40% list water supply as a pressing issue.
- In a preliminary economic analysis, reasonable combinations of a number of watershed restoration techniques are predicted to be far less expensive than traditional methods of water storage or water treatment. However, considerable evaluation is needed to determine just how effective these techniques are at delivering sustained supplies of high quality water.

One of the reasons we are so keen to catalyze a change in the way water managers prepare for declining water supplies and gear up for increased treatment needs is our legacy of work on restoring access for salmon. We have worked hard to improve fish passage at 20 dams in the Rogue River basin, dramatically increasing access to 1,122 miles of stream. Some of this work has involved removing dams.

Following these successes, we do not want rash decisions leading to construction of new water



*Beeson-Robinson diversion dam blocks fish access on Wagner Creek near Talent, Oregon*

PHOTO: L. JOEY HOWARD

storage reservoirs to undo our success with salmon restoration. And we continue to work with landowners and water users to address more barriers to fish. Over the past year, we have worked closely with partners assisting the Gold Hill Irrigation District in upgrading their diversion facility so that it has less impact on young salmon headed to the ocean.

We are also working directly with the landowner and water users to retrofit the Beeson-Robinson diversion dam (see photo) near Talent, Oregon.

This dam impedes salmon and trout access to about 3 miles of habitat on Wagner Creek, a small but cool, year-round flowing stream that feeds Bear Creek near Medford. Streams like Wagner Creek are essential for declining fish species like coho salmon and summer steelhead. We have developed a solution at this site that will provide year-round fish passage for all sizes of fish without affecting the water users' ability to divert their righted water.

Our responsibility is to keep our communities and wildlife healthy, and your support is making a difference!

## Staff



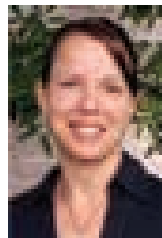
Brian Barr  
*Aquatic Habitat Restoration  
Project Manager*



Dominick DellaSala, Ph.D.  
*President & Chief Scientist*



Tonya Graham  
*Executive Director*



Marni Koopman, Ph.D.  
*Climate Change Scientist*



Jessica Leonard  
*Geospatial Analyst*



Ken Margolis  
*Development Director*



Julie Norman  
*Program Coordinator*



John Stahmer  
*Finance Director*



Cindy Deacon Williams  
*Senior Fellow*



Sharon Hicks  
*Administrative Volunteer*

## Board

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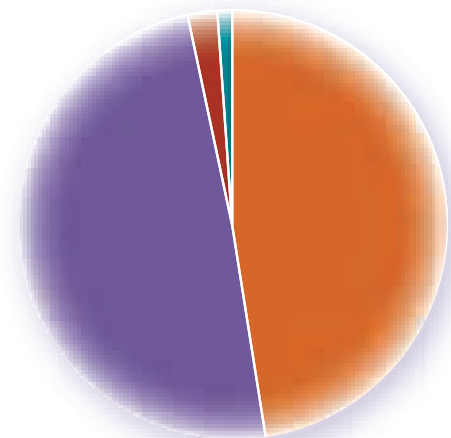
PHOTO: KEITH HENTY

# Financial Snapshot for 2013

Support and Revenue	
Grants and Donations	
Grants	\$598,491
Donations	\$620,901
Revenue	
Contracts	\$27,643
Center Rental and Subleases	\$10,979
Miscellaneous Revenue	\$694
<b>Total Support and Revenue</b>	<b>\$1,258,528</b>

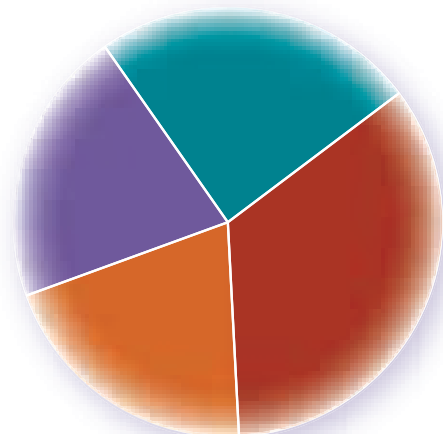
Expenditures	
Direct Program Services	\$955,977
Programmatic Support Services	\$80,102
Organization Resource Development	\$171,017
<b>Total Expenditures</b>	<b>\$1,207,097</b>

Net Assets, Beginning of Year	\$783,857
Net Assets, End of Year	\$835,288



Income

- Grants
- Individuals
- Contracts
- Miscellaneous



Expenses

- Green Solutions
- Banking on Forests
- ClimateWise
- Program Support



# GEOS INSTITUTE

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BOTTOM, BOY WITH FISH (PHOTO: ISTOCK, CAREBOTT)