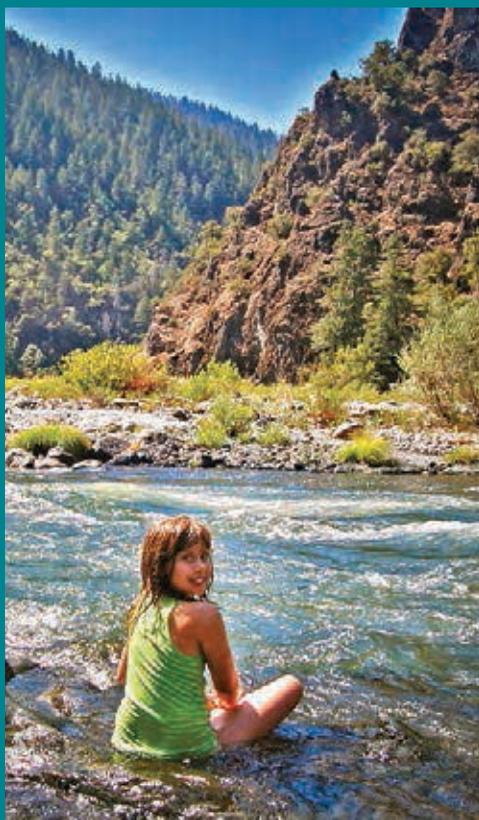




2014

**GEOS**  
INSTITUTE

Annual Report



## From the Desk of the Executive Director Tonya Graham



As I look back on 2014, I am keenly aware of the speed with which our world and the Geos Institute are changing.

Eighteen months ago, we took a hard, reality-driven look at what we were trying to accomplish and asked the difficult question of whether our current program strategies were achieving our goals. That process led us to focus our energies, bring our assumptions into the sunlight, and chart a course to create the greatest big picture leverage in helping decision-makers address climate change responsibly.

In the past twelve months, we have transformed our programmatic work and put in place the strategies necessary for its long-term sustainability. Given that we are tackling complex, deeply entrenched systems, sustainability over the long haul is key.

Based on these refined approaches, the Geos Institute has gained significant traction in all three of our program areas: community resiliency, forest management, and municipal watershed management. We are developing unconventional partnerships, building new resource streams, and expanding our reach beyond the Pacific Northwest. Most importantly, we are contributing to the thought leadership for the issues we have taken on.

As this 2014 Annual Report describes, we continue to push toward real solutions that will meet the long-term needs of people and nature in a changing climate.

Thank you so much for your support.

Sincerely,

## From the Desk of the Chief Scientist Dominick A. DellaSala, Ph.D.

The preponderance of climate change deniers now populating Congress (72% of Republican Senators) contrasts starkly with the vast majority of scientists (>97%) that recognize climate change is happening now.



As the planet heats up and climate deniers block much needed policy reforms, what is a small but passionate organization like Geos Institute to do? At Geos Institute we take pride in delivering science-based solutions.

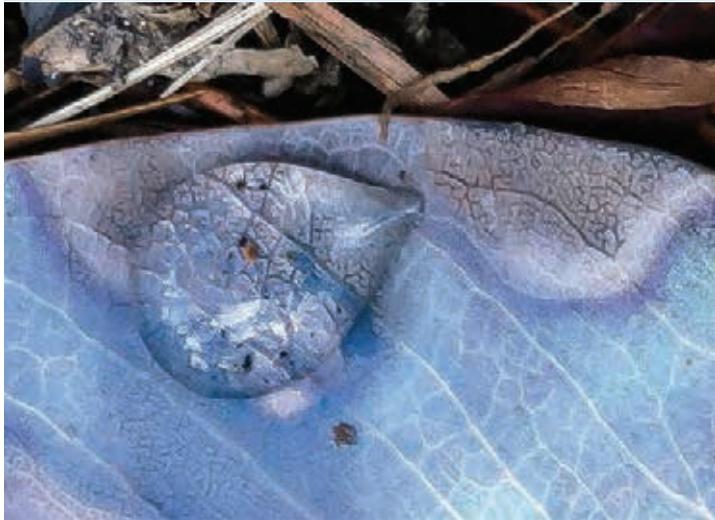
Our staff scientists in the **ClimateWise** program provide communities like Ft. Collins, Colorado, and Austin, Texas with the latest climate change forecasts, to help them plan for the projected impacts from intensifying droughts.

Our **Green Solutions** program is busy helping partners in Oregon's Rogue River Basin remove small dams and failing culverts that block fish passage. This is good for the fish and improves water quality for people.

Our **Banking on Forests** program is providing financial support and scientific expertise for conservation groups protecting the pristine rivers in the Kalmiopsis region of southwest Oregon. We are working with diverse stakeholders on the Tongass, a rainforest in Alaska that stores more atmospheric carbon than any other forest in the nation. We continue to encourage the Forest Service to transition out of old-growth logging as a means of reducing the eventual extent of climate change.

These are but a few of the ways our science team is working to cultivate climate savvy citizens, land managers, and hopefully future politicians. We do this not only because we believe in the science, but because we are driven to do something about it for our families and future generations.

## The Work of the Geos Institute



Geos Institute *uses science to help people predict, reduce, and prepare for the impacts of climate change.*

We have three core initiatives to help decision makers create ecologically responsible solutions to today's most pressing climate change problems:

**ClimateWise** helps local leaders respond to climate change

**Banking on Forests** helps forest managers respond to climate change

**Green Solutions** helps water managers respond to climate change

## PROFILES

### Thank you to Geos Institute Supporters



*I serve on the Geos Institute Board of Directors because the organization does real work to both reduce climate change and get communities ready for the climate changes that are already underway. This multi-pronged approach is a realistic, practical model for ensuring a livable planet and healthy future for my grandchildren.*

Bill Bradbury, Geos board member and former Oregon Secretary of State



*Working with Geos Institute scientists is a great experience. They are reliable, flexible, committed to their work, and assure the best outcomes using their technical expertise. One key goal of our work with them has been to make climate science accessible to a non-technical audience, so that communities can take action for the future. We could not achieve this goal without the expertise and commitment of Geos Institute!*

Susan Roothaan, Executive Director, A Nurtured World

# ClimateWise In Action

Marni Koopman

Our ClimateWise initiative works to ensure that communities across the country are responding to the threat of climate change by building resiliency in ways that are effective and beneficial over the long-term for fish, wildlife, and people.

Many communities are experiencing climate change impacts directly, including severe drought and flooding. Some are



beginning to develop “solutions” that reduce the risk to a single resource or population (for example, water) by transferring that risk to other resources, populations, or future generations. Our focus is helping local leaders create a resilient future by developing solutions that work across sectors and are the best investments for their communities.

## ClimateWise Introduces Whole Community Adaptation

Whole Community Adaptation, developed by our ClimateWise team, results in increased resilience across *all* resources and populations, with special focus on natural systems and vulnerable people.

We encourage communities to include three components in their climate change planning:

- (1) multi-stakeholder engagement (drawing lots of people in the conversation);
- (2) cross-sector integration (inviting diverse perspectives to identify issues and opportunities); and
- (3) mechanisms for learning and improvement (testing approaches, monitoring results, and building on successes).

Using the concept of Whole Community Adaptation, communities develop strategies that support rather than degrade natural resources and are co-beneficial across sectors. The resulting approaches have community buy-in, reduce the likelihood of new conflicts, reflect local values, and save money.

For more details, check out our video about our recent Whole Community Adaptation project in Ft. Collins, Colorado at [www.climatewise.org](http://www.climatewise.org).

## ClimateWise Team Assists with Water Management Planning in California

The Geos Institute provided climate change projections in support of water management for the Southern Sierra that is resilient in the face of climate change.

Broad scale changes in climate are already impacting local conditions in the Southern Sierra and are likely to continue and accelerate in the coming decades. Overall, managers can expect warmer temperatures, declining snowpack, a dramatic shift in timing for runoff, and shifts in major types of vegetation. Changes in precipitation and wildfire patterns are also likely.



*Kaweah middle fork headwaters, Sequoia National Park, California*

PHOTO: WIKIMEDIA COMMONS

The state of California has committed to a new approach, called an Integrated Regional Water Management Plan (IRWMP). It brings together diverse interests to plan for improved water quality, sustainable use, ecologically sound management, protection of agriculture, and a strong local economy.

In 2014 we met with a group of local stakeholders and water managers in Fresno, CA, hosted by Provost and Pritchard Consulting, to develop adaptation strategies for the IRWMP. These strategies included watershed restoration to hold water at higher elevations and keep it in the system longer. Also recommended was a return to more natural wildfire regimes that allow forests to burn over large landscapes. This allows restoration of forests, thereby reducing over-dense stands and releasing more water into the wetlands, streams, and rivers.

The Southern Sierra Integrated Regional Water Management Plan is now under review by the California Department of Water Resources.

**In 2015 ...** The ClimateWise team will:

- develop a ClimateWise handbook for local leaders
- host a webinar series on Whole Community Adaptation with professional associations
- identify new community partners for ClimateWise adaptation planning
- build on-the-ground adaptation resources in the Gulf Coast and Alaska
- work with allied organizations to make Whole Community Adaptation the national standard
- participate in climate change workshops in Austin and Killeen, Texas and other communities
- conduct original research comparing “siloe” vs. “integrated” adaptation planning

## Helping Texans Understand Likely Future Conditions

Austin and Killeen, Texas have experienced many temperature and precipitation extremes in the last decade. And they can expect more.

As climate change accelerates, residents can expect more days of extreme heat, fewer overnight freezes, and more frequent periods of drought.

The Geos Institute collaborated with A Nurtured World and the cities of Austin and Killeen to assess recent and future changes in weather extremes.

Our ClimateWise team developed a report and a dynamic, online presentation to help create community-wide understanding. This spring, we will participate in workshops on climate change with local community leaders in these areas.



*Shrinking surface water, Texas*

PHOTO: WIKIMEDIA COMMONS

Our ClimateWise team of scientists is able to create locally specific future projections for any community in the U.S. using the latest scientific data and spatial analyses.

## Summary of Past and Future Climate Extremes in Austin, Texas

- The region has warmed by 2°F since the early 1900s.
- Frost free season is 10 days longer, on average, than the early 1900s.
- Extreme precipitation is now heavier and more frequent.
- Continued warming of 6–11°F by 2100 is expected if emissions remain high.
- With severe emissions reductions, warming could level off at 3–7°F by mid-century.
- Overnight temperatures over 80°F could become common.
- Days over 100°F expected to become 2–5 times more common by mid-century.
- Soils are expected to become drier from heat and evaporation, even if precipitation increases.
- Many of the most severe impacts can be avoided by reducing emissions globally.

# Green Solutions

Brian Barr

The Green Solutions initiative focuses on ensuring that watershed restoration becomes the preferred way by which managers meet a range of water management goals for people and wildlife in an era of climate change. The initiative houses both our Freeways for Fish restoration work as well as our Green Infrastructure program.



## Restoration that sets an example

*Over the years, the combined stress from homes, agriculture, and invasive plants took their toll on lower Little Butte Creek (in Southern Oregon). It resembled more of a ditch than a salmon stream. The recent (Geos designed) re-meandering and riparian restoration work along the creek near the confluence with the Rogue River was the perfect prescription. It is providing a huge boost for salmon, steelhead, and lamprey, water quality, and riparian-dependent birds. This project provides a great template for additional work on Little Butte and other valley bottom streams.*

Jack Williams, Ph.D., Senior Scientist  
Trout Unlimited

## Freeways for Fish Project: Dam Removal Deal for Wagner Creek

One of the fastest ways to drive salmon recovery is to provide them with access to stream reaches that are currently impossible or difficult to reach. For the past 13 years, the Freeways for Fish project has been working to create or improve access to 1,200 miles of stream habitat in the Rogue River Watershed. At the end of 2014, we had reached 1,121 miles on our way to that goal.

In 2014 we completed a six-month negotiation process with 19 water rights holders and one landowner to remove one of the two remaining fish passage barriers on Wagner Creek. This will provide steelhead and coho salmon access to an additional three miles of creek for spawning and rearing. In addition, we are working with several partners to remove two large barriers on Evans Creek. When these two projects are completed in 2015, we will reach our Freeways for Fish goal!



Wagner Creek water diversion

## Green over Grey: Achieving Water Management Goals through Restoration

A top concern for community leaders in an era of changing climate conditions is a dependable supply of clean drinking water. The primary worries for water managers are water quality, storage capacity during periods of low flow and drought, and protection from seasonal flooding. Climate change is making it increasingly difficult for water managers to ensure predictable supplies of clean water.

Municipal water management typically involves dams, sewage facilities, and levees. We call these human built systems “grey infrastructure.” These methods are expensive, require ongoing maintenance, and eventually require upgrades and replacement. They also degrade aquatic and riparian habitat and do severe damage to fish populations.

In contrast, a “green infrastructure” approach uses the natural functions of healthy watersheds to attain water management goals to the extent feasible, before turning to constructed solutions.

Reconnecting rivers to their floodplains, restoring beaver populations, removing or replacing undersized road culverts, and decommissioning roads all improve water quality, increase water storage, and protect against floods. Essentially these strategies do double duty for fish and people, but information does not exist about how well these strategies work and what they cost.

At the Geos Institute we are sharing with water managers what we have learned through our years of restoring watersheds. We are partnering with the Forest Service, Environmental Protection Agency, and Oregon Department of Environmental Quality to get pilot projects on the ground that restore watersheds for the primary benefit of communities. These projects will be monitored for effectiveness



*Grey infrastructure*

PHOTO: DUFF WTP

and cost, so that water managers considering green infrastructure solutions will have the information they need.

**In 2015 ...** The Geos Institute will continue developing pilot municipal restoration projects with our agency partners and communities in western Oregon. The Healthy Headwaters Alliance, a consortium of drinking water providers, land managers, elected officials, and conservation NGOs, will highlight this work at a gathering in Eugene.



*Culverts like this create fish passage barriers for native fish and can create major sediment problems when they blow out during flooding*

PHOTO: KEVIN SCHAFER

# Banking on Forests

Dominick DellaSala

The Banking on Forests program focuses on promoting forests as a “carbon bank” to offset some of the nation’s dangerous global warming pollution. Forests store atmospheric carbon in their dense foliage, soils, and especially long-lived trees, like those in the Pacific Northwest and Alaska’s Tongass rainforest.



We also work to protect bio-diverse areas that may act as a climate change refuge, and we publish groundbreaking science on the ecological importance of wildfires in shaping forest biodiversity. We rely on an 18-member, nationally recognized Science Advisory Board, a network of over 1,500 leading scientists, and scientific societies to extend our science reach to decision makers.

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

USDA Secretary Tom Vilsack announced in July 2013 that a transition out of old-growth logging on the Tongass National Forest would take place, but not for another 10-15 years. Meanwhile forests would continue to be clear-cut.

We were not satisfied with the Secretary’s timeline, so we assembled a team of top forest policy experts to present options for speeding up the transition. For the past two years, our team has been providing state-of-the-art timber assessments to demonstrate the feasibility of a rapid transition out of old growth and into previously logged forests that can soon sustain timber needs instead of old growth. Working with hundreds of scientists and the nation’s top scientific societies, we called on President Obama to speed up the transition as part of his signature climate change programs.

We are in the final stretch of making our case even stronger by working with members of the timber industry and Forest Service on a study to determine the economic feasibility of transitioning from old growth to younger trees. If successful, over 700,000 acres of old-growth rainforest will be protected.



*Old-growth forests to protect*

PHOTO: AMERICANFORESTS.ORG



*Second growth forests to sustainably log*

PHOTO: WWW.HCN.ORG

## Bringing Science to Bear to Protect the World-class Klamath-Siskiyou

Pristine headwaters in the Klamath-Siskiyou ecoregion support Oregon's best remaining salmon runs and highest water quality, both of which will become increasingly important as the climate continues to change.

Unfortunately, three industrial-scale nickel-mining operations are proposed in the south Kalmiopsis area. These mines would degrade pristine headwaters, salmon strongholds, and Oregon's only redwoods. Geos Institute has been a central participant in a campaign to secure permanent protection for the area for the past two years.

Our local and national partners are bringing to bear their organizing experience, and the Geos Institute is leveraging scientific expertise in a multi-year campaign to permanently protect the area.

**In 2015** ... Oregon Senators Wyden and Merkley, along with Congressman DeFazio, have introduced



*Illinois River, southwest Oregon, threatened by mining*

PHOTO: D. DELLASALA

legislation to protect at-risk watersheds from mining threats. We are now gearing up for a big push for permanent protection over the larger Kalmiopsis landscape. If successful, over 220,000 acres could eventually be added to a surrounding network of protected areas totaling nearly a million acres. This would help create a climate refuge providing clean water for local residents.

## 1 Million Acres at Risk in the Pacific Northwest

Facing mounting pressure from timber industry lawsuits and the 18 O&C counties in western Oregon that are searching for tax revenues from federal logging receipts, Senator Ron Wyden and Congressman Peter DeFazio each introduced legislation that would double logging levels on Bureau of Land Management lands in 2014.

Geos Institute worked with scientists at Oregon State University to estimate the carbon dioxide pollution that would come from clear-cutting forests under the bill's forestry provisions. Logging older forests for 20 years, as proposed, would emit carbon dioxide pollution equivalent to half of that emitted from

Oregon's dirtiest coal-fired power plant. To Senator Wyden's credit, he made the bill more conservation friendly. However, it did not pass the 113th Congress.

**In 2015** ... We expect related proposals to increase logging, given economic pressures and misperceptions that logging can stop forest fires, even though the science shows otherwise.

This is happening as BLM is revising its forest plans and the Northwest Forest Plan is revised on national forests. Geos Institute will be involved in evaluating these plans on their ability to prepare the region's forests for climate change.

## 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*

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Michael Parker, Ph.D. – Southern Oregon University

Thomas Power, Ph.D. – University of Montana

Jim Strittholt, Ph.D. – Conservation Biology Institute

Vicki Tripoli, Ph.D. – retired scientist

Jack Williams, Ph.D. – Trout Unlimited

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Weeden Foundation

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Wilburforce Foundation



*Clear, cold stream*

PHOTO: KEITH HENTY

# Financial Snapshot for 2014

These financial figures are derived from unaudited financial statements. All figures are prepared using the accrual basis of accounting.

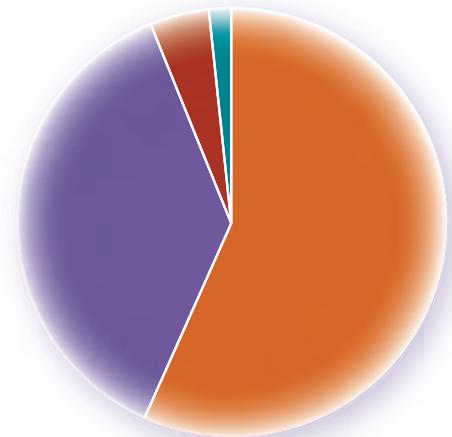
## Support and Revenue

Grants and Donations	
Grants	\$598,469
Donations	\$387,525
Revenue	
Contracts	\$45,009
Center Rental and Subleases	\$10,037
Miscellaneous Revenue	\$6,694
<b>Total Support and Revenue</b>	<b>\$1,038,734</b>

## Expenditures

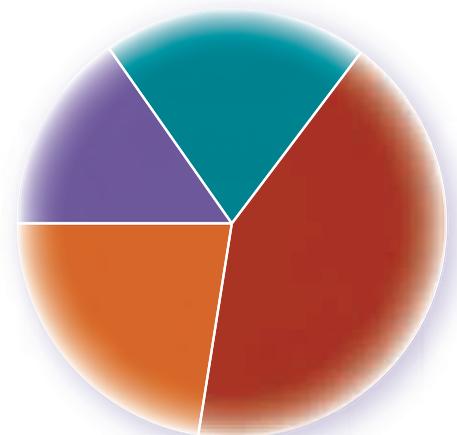
Direct Program Services	\$883,004
Programmatic Support Services	\$50,339
Organization Resource Development	\$109,986
<b>Total Expenditures</b>	<b>\$1,043,330</b>

Net Assets, Beginning of Year	\$834,015
Net Assets, End of Year	\$833,276



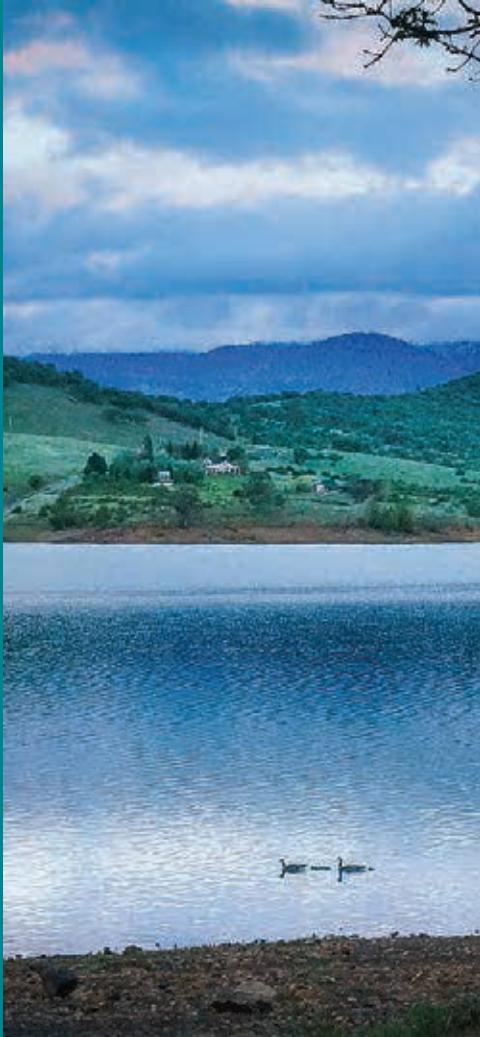
## Income

- Grants
- Individuals
- Contracts
- Miscellaneous



## Expenses

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



# GEOS INSTITUTE

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