Sierra Institute
for Community and Environment

Testimony of Dr. Jonathan Kusel
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Thank you for offering me the opportunity to provide testimony to this committee. I am a social scientist involved in natural resource sociology since the late 1980s. My testimony today will reflect on outcomes and lessons I've learned through various projects and studies in the Sierra and elsewhere. I direct the Sierra Institute for Community and Environment, a non-profit organization based in the rural northern Sierra town of Taylorsville, population 153.

The Sierra Institute for Community and Environment advances healthy and sustainable forests and watersheds by investing in the wellbeing of rural communities and strengthening their participation in natural resource decisions and programs. Since 1993, the Institute has worked to advance innovative programs, research, and polices to improve the health of forests, watersheds, and rural communities. The Sierra Institute is a leader in designing processes and monitoring tools and indicators to assess rural community well-being; applied research for rural communities; dialogue and collaboration among scientists, policy-makers, land managers, agencies, and local community members; and community- and stakeholder-involved approaches to development and natural resource management.

Some of the projects we've led include:
Assessment of the Northwest Economic Adjustment Initiative. We examined the effectiveness of $1.2 billion dollars of federal expenditures spent on improving the wellbeing and economic outcomes in rural communities throughout the Northwest Forest Plan Area.

Socioeconomic Assessment for the Sierra Nevada Ecosystem Project. We led the social assessment team, evaluating and mapping the socioeconomic health and capacity of 180 Sierra communities. We also developed a new public involvement process that allowed land managers and the public opportunity to engage with project scientists, which improved the overall study.

Assessment of the Secure Rural School and Community Self-Determination Act. In a study funded by the Department of Agriculture and the Department of the Interior, we assessed the effectiveness of Title II, which created Resource Advisory Committees and resulted in funding of a wide variety of natural resource projects, and Title III, which allowed counties to target funds for natural resource related work and activities.

Development and evaluation of socioeconomic indicators for watersheds in California. For the California Department of Water Resources, the Sierra Institute worked with community leaders in 2009-10 to identify indicators and measures in three watersheds to assess

socioeconomic condition and capacity of watershed organizations and agencies.

In my testimony I want to discuss concepts that undergird H.R. 3685, the Quincy Library Group legislation: collaboration, scale, forest health. To these I want to add watershed health, investment, and "triple-bottom line." The latter two concepts have been far less discussed until very recently. Though not part of H.R. 3685, they are fundamental to new work focused on forest and watershed health, and, I believe, will be a critical part of natural resource discussions and successful management in the coming 10-15 years.

Collaboration

Passage of the Quincy Library Group legislation set a tone for natural resource management: people of differing perspectives can and should work together to resolve differences. While there has been debate about who is in and who is out of Library Group discussions, the conversation about natural resource management and collaboration was forever changed with passage of the legislation.

The Sierra Institute has been privileged to work in the Burney-Hat Creek Area, part of the Quincy Library Group area, encompassing the north slopes of Mount Lassen and where Burney and Hat Creeks travel north before they flow into the Pit River and head west to the Sacramento River.

Our involvement in the Burney and Hat Creek project is largely the result of our work assessing the Secure Rural School and Community Self-Determination Act (P.L. 106-393). Assessment of P.L. 106-393, the "county payments" legislation, focused on Title II and Title III.

We assessed "county payments legislation" because we were interested in learning whether the first federal law requiring collaboration among stakeholders participating in Resource Advisory Committees (RACs) and agreement on natural resource projects was successful. Our study involved examination of 16 cases from Mississippi to Alaska. A total of 15 cases were in the eight states receiving the highest total payments allocated to Title I, II, and III. A total of 99% of all Title II dollars and 86% of Title III dollars were expended in the states in which case studies of RACs and county Title III expenditures were conducted.

The most dramatic achievement of P.L. 106-393 is the impressive collaboration developed among RAC members while approving hundreds of million dollars of projects nationally. As the first legislation to require collaboration to fund resource management projects, few would have predicted the degree and intensity of success. RAC members, representing diverse interest groups including some that had been warring for years, agreed that not only could they work together and fund worthwhile projects, but they could also learn from one another. A measure of their success is the fact that no RAC project had been appealed or challenged, from the launch of the legislation to the completion of our study in 2006, and counties increased their allocation of funds to Title II.

A key ingredient of success is that RACs have money for projects and on-the-ground work. Funding has been a powerful motivator for collaboration to advance learning and to support projects that otherwise would not be funded.

Collaboration is fertile ground for more collaboration. Previous experience with collaboration has helped RACs get started and become functional sooner. The growth of community involvement with the federal agencies and establishment of various forms of collaboration helped Western groups more quickly embrace the idea of RAC collaboration and, as a result, gave them a head start. The Southwest Mississippi RAC, whose members lacked resource-based collaboration history, is proving more successful in those counties where community efforts have been successful in overcoming a historic legacy of racial conflict.

New and improved relationships between RAC members (and the interest groups they represent) and the federal agencies have characterized RAC operations. The RAC process has led to a new and more effective public-agency interaction.

In sum, RAC collaboration through P.L. 106-393 has succeeded beyond the hopes of even some of its most optimistic supporters. Improved relationships among diverse stakeholders and the agencies and good work in forests and watersheds have been accomplished.

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The Burney and Hat Creek project was born out of the Shasta Resource Advisory Committee in 2009. Based on Sierra Institute's report on the collaborative success of P.L. 106-393 legislation and our social assessment work, The Shasta RAC asked the Sierra Institute to evaluate local conditions in the Burney and Hat Creek region and recommend ways that what they termed a "legacy project" could be advanced.

The Shasta RAC wanted to support a project that would carry on their vision, beyond the life of the RAC if P.L. 106-393 was not renewed, and with a focus on comprehensive, long-term, landscape-scale restoration, that reduced fire risk, sustained jobs, and moved beyond the project-by-project approach that characterized their work. Because of an active Resource Conservation District and a Forest Service district ranger that encouraged stakeholder involvement, the RAC suggested that the Burney and Hat Creek area might be a good location for such a project.

In the socioeconomic and stakeholder assessment completed for the area in 2010, the Sierra Institute found a crisis of unemployment, poverty, and even student hunger in local communities in the town of Burney, the largest community in the two-watershed area. Student participation in the federal Free and Reduced Lunch Program was above 60%. Alarmingly, high school students were enrolling at rates that approached elementary student participation, as hunger trumped the social stigma of participation in the program. In my 20 plus years of studying rural communities, I have never seen this. There are many factors that contributed to increased local impoverishment, but what became clear is that, like so many rural communities across the region, Burney was in the grips of the Great

Recession that hit the town hard. Local unemployment was 2½ times what it had been several years earlier, and twice the state average. We also learned that stakeholders supported launch of a new collaborative.

With Shasta RAC support, the Sierra Institute worked with the watershed coordinator from the Fall River Resource Conservation District and the Hat Creek District Ranger to launch a new collaborative. In addition to these two, the group was formed with representatives from several private timber companies, recreation interests, environmental groups, a local fire safe council, and the Pit River Tribe, along with a forester from Pacific Gas & Electric, a rancher, two timber contractors, and a fuels procurement manager from a local biomass cogeneration facility, among others. That was two years ago.

In December of 2011, the Burney-Hat Creek Community Forest and Watershed Group received the Forest Service's Region 5 award for all-lands collaborative work. The group is focused on all the land in the almost 400,000 acre Burney and Hat Creek Basins. The Forest Service manages 54% of the land and the Park Service manages 7%; 30% of the remaining land is held by private industrial timber operators, and 7% is held by nonindustrial forest owners and ranchers.

One project of the group involves four industrial timber operators (W.M. Beaty and Associates, Fruit Growers Supply Company, Pacific Gas and Electric, and Sierra Pacific Industries) coming together to restore an area called Burney Meadows, a mix of riparian corridor, meadow, and forest. Project goals are to reduce pine encroachment in the meadow, enhance aspen growth, reduce fire risk, and improve watershed function. The four have jointly submitted a single timber harvest plan for the area. With support of state regulatory agencies, this project is growing into one of the largest watershed restoration projects in the State of California. The project is linked to nearby Forest Service forest restoration projects to reduce the likelihood of the spread of catastrophic wildfire to communities to the north.

Integrating the "Triple Bottom Line" into Collaboration

The Burney-Hat Creek Community Forest and Watershed Group is committed to improving the health of forests and watersheds in the area. In addition to improving landscape health, they are committed to creating local jobs and improving wellbeing in local communities. This is the "triple-bottom line" approach—improving economic, ecological, and community health. Increasing numbers of groups are discussing ways of advancing work towards these ends.

Triple-bottom-line work is part of the Collaborative Forest Landscape Restoration (CFLR) Program. I call this program the next generation of collaboration because it not only requires collaboration, but it requires a collaborative focus on the triple bottom line. Monitoring is a part of it as well. Comprehensive monitoring programs are required as a part of CFLR plans so groups and the Forest Service will not only restore land but must also consider economic and community outcomes in their work, and actively track project work so they can learn, modify project work as necessary, including more effectively addressing triple-bottom-line objectives.

The Lassen National Forest with help from the Burney-Hat Creek Community Forest and Watershed Group, the Fall River Resource Conservation District, and the Sierra Institute recently submitted a CFLR proposal, called the Basins Project. The Lassen National Forest and the group are seeking $10.8 million over ten years to reduce burn probability by 37% and avoid $11 million in fire suppression costs. The Basins Project will create numerous jobs through the removal of almost 50,000 truckloads of logs and the same number of truckloads of biomass over the project life. This will help maintain employment at two local mills. Hopes are that it will also contribute to reopening of the recently closed biomass power plant in Burney.

Collaboration, fundamental to the Quincy Library Group, and powerfully illustrated by the Burney-Hat Creek Community Forest and Watershed Group, is a concept and an activity that requires continued nurturing and support. The RAC program has *proven* to be one powerful vehicle advancing collaboration. The CFLR program is another, but with the important difference is that CFLR awards landscape work in a focused area over a longer period.

Scale

The Collaborative Forest Landscape Restoration program also offers an approach in which collaborative groups focus on a landscape that is sensible, or to put it another way, at a scale they can understand. It underscores one of the concerns I have with H.R. 3685. Expansion of the QLG area calls attention to assuring work continues at a pace and at a scale needed to address the risk of catastrophic fire in the Sierra-Cascade region, but it also raises the question of whether expansion should be developed in the context of a single pilot and under the aegis of a single group. There are a number of collaborative groups operating in the proposed expanded QLG area, and it is unlikely they would accept operation under any single super-group.

Yet, while the scale highlighted in H.R. 3685 is problematic for single group understanding and operation, it does offer the opportunity to highlight the relationship between water and forests and future investment in the landscape. I will illustrate this by referring to collaborative work to the south of the Burney and Hat Creek Basins project.

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Watershed health

The shoulders of Mount Lassen form the divide between the Burney and Hat Creek watersheds to the north and Lake Almanor Basin and the North Fork of the Feather River to the south. With the support of the Plumas County Supervisors, the Sierra Institute has been working with a local community collaborative in the Almanor Basin for ten years. The focus has been primarily on watershed health.

Like the Pit River, into which Burney and Hat Creek flow, the Almanor basin is part of the Upper Feather River. Both rivers are critical source watersheds for the State of California and feed the Sacramento River. The Upper Feather River supplies water to the State Water

Project, which provides water to agricultural and urban users. Over 25 million Californians depend on it.

The North Fork of the Upper Feather consists of a series of reservoirs, dams and conveyance facilities operated by Pacific Gas & Electric (PG&E), collectively called the "Stairway of Power." Roughly 10 percent of all hydroelectric power and 2 percent of California's total electricity production is generated in the North Fork of the Feather River.

Because of the importance of dam and reservoir operation and reducing flood flows, PG&E and the California Department of Water Resources have closely monitored the North Fork. PG&E has been conducting this monitoring for over 50 years. During this period water in the North Fork has declined by 400,000 acre feet on an annual basis. PG&E has also determined that cold groundwater inflow to Lake Almanor has declined by 40 percent, threatening an already declining cold water fishery that is part of a popular recreation area. Much of this groundwater originates across the Mount Lassen divide, in the Burney and Hat Creek drainages.

The 400,000 acre foot loss is an astonishingly large number. Some have suggested increased winter temperatures and changed flow regimes have lead to the loss. In fact, PG&E reported that over the 50-year period mean March low temperatures in mountain communities between 3500 to 5500 feet (1067-1675 m) in the Almanor area increased 2-7° F. Lake Almanor itself has increased 2° F during this period. While air temperature increases hasten the onset of the fire season, PG&E reported this change did not lead to the decline. Water is lost from the system for other reasons.

Reduction in water quantity and a changing timing of flows have implications for biotic habitat, downstream storage facilities, hydropower production, and water use statewide. The 400,000 acre foot loss amounts to a 5-8% decline in water passing through the Bay Delta region, a critical water "switching yard" currently facing a variety of environmental challenges. Reduced water only increases these challenges.

The cause of the water loss is unknown. A primary hypothesis is that increasing forest density over the 50-year monitoring period has resulted in the reduction of water flowing out of the Feather River Watershed. Increased stand density intercepts precipitation before it infiltrates in the forest floor and more trees act like straws that suck water out of the ground and transpire it into the atmosphere. If true, increased density of Sierra forests is leading not only to an increase in the threat and incidence of large fires, but also to a reduction of water flowing out of the forest.

There is suggestive evidence that increased forest density contributes to reduced water flows. During a seven-year drought that took place in California the late 1980s and early 1990s, the Collins-Almanor Forest, an intensively managed, industrial forest in the Almanor Basin, showed no unusual mortality or decline in forest stand or tree growth. At the same time, there was considerable tree mortality in dense stands, particularly on drier south slopes.

Investment
Declining water flow in the North Fork of the Feather River is disturbing, but it also represents an opportunity. If it can be shown that forest density contributes to water loss, there is an opportunity for investment in improving forest resiliency and watershed health.

It has already been shown that large, hot fires reduce water quality. Groups like the Denver Water Board are beginning to invest in forest health treatments to reduce the incidence of fire and expenses associated with post-fire landscape restoration and treatments to improve water quality following a fire. We have the biophysical methods for building resiliency into Sierra Nevada ecosystems, but historic means of financing work in the forest are declining. We lack the resources to pay for the landscape-scale restoration that is needed and that would provide economic rejuvenation for forest communities.

Increasing risk of catastrophic fire and larger, hotter fires bring home the point that more not less investment in our forests and watersheds is needed. Increased sales of timber or forest biomass (woody renewables), however, are insufficient to pay for all of the forest and watershed restoration that is needed. In fact, the demand for woody renewables has declined with the recent losses of biomass burning power plants. And tens of millions of dollars are needed in the Feather River Watershed alone, and hundreds of millions across the Sierra, to reduce the risk of catastrophic wildfire and improve ecosystem resilience.

Securing additional investment in forests requires, first, a comprehensive examination of the relationship of forest density to water production. The Sierra Institute is working with Plumas County, the Forest Service and others to assemble a team to conduct this research. If the hypothesis that increased stand density reduces water flow can be proven, irrigation districts and other water purveyors will line up to invest in the improvement in the health and resiliency of forest and watersheds.

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In sum, as this committee considers renewal of Quincy Library Group legislation or other legislation like county payments or CFLR legislation, I urge consideration of how collaboration is most productively advanced. Good collaboration requires that people understand the area on which they are focused, that the scale of a project is well matched with the goals, and that a project includes all stakeholders and communities with interests in the area under consideration and who can affect or be affected by project outcomes.

Collaborative projects require a triple-bottom-line focus. Economic, environmental, and community interests need to be integrated, without favoring one area over another. Simply increasing harvest levels, acres treated, or land reserved from active management is insufficient for improving local wellbeing. Good triple bottom line work will ensure that forest and watershed are restored, jobs are created or maintained, and local communities directly benefit. The many rural forested communities that have been devastated by the recession desperately need it. For too long community interests have played second fiddle to the other two.

Forest and watershed health are being connected in ways that may lead to increased investment. The Organic Act of the Forest Service long ago recognized the importance of healthy forests for "securing favorable conditions of water flow." Whether it is to protect water quality from catastrophic wildfire or increasing water flows through reduction of stand density, opportunities need to be examined and, if viable, pursued vigorously.

Finally, whether focusing on collaboration, improving forest resilience and watershed and community health, or investment in the landscape, it is important to recognize that no one-size fits-all solution exists. Collaboration is an excellent foundation upon which to build, but as Aldo Leopold made clear many years ago, "In these higher aspirations, the important thing is not to achieve but to *strive*."

Thank you again for the opportunity to participate in this hearing.