LIVING WITH WILDFIRE

Professional Services Provided to
RB United and Rancho Bernardo
Homeowners' Associations

By Business and Ecology Consulting,
Community Green Scene, and Local Consultants
Funded by The San Diego Foundation "After the Fires" Fund
Final Report, September 29, 2008






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Project Completed by Business and Ecology Consulting and Local Experts
For RB United and Rancho Bernardo Homeowners' Associations
June to September, 2008

Summary

The Living with Wildfire program educated more than 400 homeowners about wildfire property risks, helped them identify the risks of their own homesites, and outlined actions to reduce those risks. These professional services were coordinated by RB United, a coalition of homeowners' associations; provided by Business and Ecology Consulting and Community Green Scene; and funded by a grant from The San Diego Foundation's "After the Fires Fund." Homeowners first attended a three-hour class focused on the attributes of ignition-resistant structures and "fire wise" landscaping, low-cost maintenance and retrofits to reduce property risks and sustain natural environments, and community action. Homeowners attended two-hour demonstrations at two homesites, led a local fire behavior specialist and landscape architect; completed an online assessment for their own house; and concluded with a two-hour workshop to identify solutions and write personalized action plans. Project staff also worked with homeowners' associations to identify actions for common areas. Evaluations confirmed the value of community sponsorship in level of participation, and the project's effectiveness in homeowners' understanding how maintenance and retrofits can reduce risks and their intent to make those changes.

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RB United Project

This project is sponsored by RB United, a coalition of community organizations led by concerned individuals, organizations, and the Rancho Bernardo Community Foundation, and formed in the aftermath of the 2007 wildfires to help with the recovery of Rancho Bernardo. The RB United Coalition (www.rbunited.com) hosts the long-term recovery center for Rancho Bernardo (RB), Poway, and Rancho Santa Fe to provide advocacy, information and referral, and coordination of assistance services for our fire-impacted households. The RB United Coalition has also created task forces working to address environmental, homeowners' association (HOA), senior, youth, and other issues impacting the greater RB community. This effort acknowledges that all of RB was affected in many different ways by the fires, and the community can work together to recover, rebuild, and heal.

As part of RB United's effort to educate homeowners and mitigate future wildfire damage, it contracted with Business and Ecology Consulting (BEC), a group of veteran wildfire and ecology scientists, to provide wildfire education classes and assist homeowners and HOAs with assessing wildfire risks and actions to reduce those risks. The "Living with Wildfire Professional Services" grant was provided by The San Diego Foundation's "After the Fires Fund!" (described at http://www.sdfoundation.org/). RB United and BEC also joined forces with Community Green Scene (CGS) to launch a community-wide first-of-its-kind wildfire risk assessment and action tool.

Project Objectives

Research has shown that most property losses in a wildfire can be prevented by homeowners following some well-established, simple steps—and the "Living with Wildfire" project aims to help residents identify and implement those steps. The classes and on-line assessment are based on the latest scientific principles developed by University of California (UC) Berkeley's Center for Fire Research and Outreach and other fire experts.

The "Living with Wildfire" project was developed and conducted by BEC to achieve the following objectives:

1. Inform homeowners about the local fire environment, how houses ignite, and the principles of wildfire property risk reduction
2. Provide assessment tool for homeowners to rate their wildfire property risks
3. Provide structure and landscape examples for the homesite assessment
4. Assist participating homeowners to review risks and develop action plans
5. Review landscaped areas and adjacent natural vegetation for homeowners' associations
6. Evaluate and report on the overall project

RB United scheduled the dates and locations for the courses, homesite assessment and action plan workshops, and the common space workshop. They led the marketing efforts; arranged for meeting rooms and homesite locations; took reservations and assembled class participant lists; duplicated handouts; and answered many questions from homeowners and community members.

Program Outcomes

The following actions were completed between May 19 and September 29, 2008:

- Three sessions of the 3-hour course, "Living With Wildfire: Reducing Property Risks, Habitat Losses, and Costs," July 22, August 2 and 7
- Online homesite assessment, produced by Community Green Scene as a non-funded contribution to this project
- Three 2-hour "homesite self-assessment" sessions to provide examples for the assessment process (structure and landscaping), consisting of walking tours of two homesites with an expert, July 29, August 9 and 14
- Three 2-hour "homeowners' action workshops" for homeowners to review and develop action plans for each homesite, August 5, 16 and 21
- One "common space workshop" to review landscaped areas and adjacent natural vegetation, June 20
- Marketing and other support to homeowners and community members regarding this project, provided by RB United
- Project management, and final report provided on September 29, 2008

In addition, RB United agreed to be the test site for the Online Wildfire Risk Assessment Tool, developed by CGS. This interactive tool is intended to assess the risk of wildfire damage to individual homes and communities; provide checklists of items and priorities for development of an action plan; and offer ideas, incentive and guidance for implementation.

Living with Wildfire Classes

The community-based class is named, "Living With Wildfire: Reducing Property Risks, Habitat Losses, and Costs." It was developed after the 2003 wildfires by 30 local experts; led by Anne S. Fege, Ph.D., M.B.A., at the San Diego Natural History Museum (now a partner in BEC); and financially supported by funds from the U.S. Fish and Wildlife Service. The class has been updated to reflect the 2007 wildfires, and recent scientific and technical information about how houses ignite and how to reduce property risks. BEC organized the recent updates and provided the instructors, PowerPoint presentation, laptop and projector.

The three-hour class focuses on how houses ignite, attributes of ignition-resistant structures and firewise landscaping, responsible fuel/brush management and the costs of excessive vegetation reduction, quick low-cost maintenance and retrofits to reduce property risks, community assessments, and more. Three classes were given:

- Tuesday, July 22, 6-9 pm at Westwood Club, 17394 West Bernardo Drive, 34 attendees

- Saturday, August 2, 2-5 pm at RB Swim and Tennis Club, 16955 Bernardo Oaks Drive, 71 attendees
- Thursday, August 7, 6-9 pm at the Rancho Bernardo Library, 17110 Bernardo Center Drive, 75 attendees

Class objectives were that homeowners would learn about:

- The physics of fire behavior, the ecology of southern California's fire regimes, and how they relate to structure ignition and property losses
- The reasons behind local codes for building ignition-resistant structures, managing 100-foot defensible space, and minimizing habitat impacts from vegetation reduction
- Clear examples of building design, exterior materials, landscaping practices, and quick, low-cost property maintenance and modifications to reduce property losses.
- The principles of effective community action

Instructors were Anne Fege and David Bacon. Handouts included an 8-page list of references, attached as Appendix A; the 25-page publication, "Is your home protected from wildfire disaster? A homeowner's guide to wildfire retrofit," from the Institute for Business and Home Safety, available at http://www.ibhs.net/publications/downloads/130.pdf; and the "tip cards" produced by the San Diego County Extension Office, available at http://www.wildfirezone.org/assets/images/resource_docs/tip%20cards_ucce%20logo.pdf.

Online Wildfire Risk Assessment Tool

An online program was pilot tested as a tool to assess wildfire property risks, develop and implement action plans, and encourage homeowners and communities to take actions to reduce these risks. This online Online Wildfire Risk Assessment Tool is based on research conducted at the University of California at Berkeley, at http://firecenter.berkeley.edu/homeassessment/ (online assessment) and http://firecenter.berkeley.edu/toolkit/docs/FIET_userguide_May2008.pdf (user guide). It is also based on the damage assessment of the 2007 Witch Fire (in Rancho Bernardo and Rancho Santa Fe, available at http://www.disastersafety.org/resource/resmgr/pdfs/wf_research.pdf .

On the website, http://www.communitygreenscene.org/pgs/, homeowners conducted a simple 15-minute on-line survey that produced an individualized risk assessment of their home. After completing the assessment, each homeowner was provided a checklist of action items, a list of resources for taking action, and (in the future) reminders for maintenance and retrofit actions. A technical review of the August 1 version of the Online Wildfire Risk Assessment Tool was completed in September.

Instructions for using the online survey were given during the Living with Wildfire classes, and the printed assessment was handed out at the Homesite Assessment Class. Paper copies of the survey were available at RB United offices for those without computers, and offers were made for volunteers to enter the data online. It was repeatedly made clear that homeowners are responsible for the information obtained for their homesite assessments and for any action plans (not the project team or RB United). The first versions of the online assessment were tested in late July by ten volunteers who are members of the Community Emergency Response Teams (CERT).

Homeowners participating completed the following:

- Printed the list of questions, with accompanying explanations and photos
- Answered the assessment questions while walking around their homesite
- Entered the data on structure and landscape conditions online
- Viewed checklist and description of action items rated by priority, cost and ease of implementation

The Online Wildfire Risk Assessment Tool was offered by Community Green Scene (CGS), a newly-formed partnership dedicated to empowering local communities and their residents to make a real difference in protecting our homes and environment. Their mission is to empower communities and individuals to make a difference in protecting our homes and environment by providing a systematic approach to overcome barriers to effective action. CGS completed the following during the course of the project, at no cost to RB United or any of the other partners:

- Developed the systems technology for the Online Wildfire Risk Assessment Tool
- Developed marketing plan and marketing materials, and identified assistance needed from others
- Tested the ease of technology use, including interviews with CERT volunteers while completing the online assessment
- Tested the integrity of the technology to assess fire risk and action plan priorities, through analysis of user responses and consultation with experts

With the initial test now completed, CGS is ready for full-scale implementation in Rancho Bernardo and Scripps Ranch. As part of this implementation, CGS is exploring ways of applying what has been learned to maximize the benefits to the community, and of working together with other organizations.

Homesite Assessment Classes

Three two-hour Homesite Assessment classes were conducted by Dave Bacon, fire behavior specialist from Firewise 2000, Inc., and Kay Stewart, a local landscape architect who specializes in low-water and firewise landscaping. For two hours, attendees walked around the houses with the two experts, who inspected and assessed the structures and landscaping elements for wildfire property risks. Attention was given to all the elements in the online assessment, and possible retrofit and maintenance actions were described. Locations were not announced in marketing materials, but were provided to those who registered with RB United.

Three Homesite Assessment classes were given:

- Tuesday, July 29, 5:00 to 7:00 pm, review of homesites at 18134 Moon Song Court and 18285 High Mesa, 29 attendees (built in 1990)
- Saturday, August 9, 2:00 to 4:00 pm, review of the homesite at 12659 Gibraltor Street, 44 attendees (built in 1978)
- Thursday, August 14, 5:00 to 7:00 pm review of homesites at 11424 and 11441 Monticook Drive, 38 attendees (built in about 1985)

The assessments identified these most common structural conditions that increase risks of house ignition during wildfires (not listed in any order):

- Debris in gutters and/or roof valley
- Gaps between clay tiles and roof underlay
- Insufficient ember protection in original vents, in eaves, gables or foundations
- Single-pane windows, or lack of tempered glass panes
- Garage doors and exterior doors with inadequate seals

The inspections identified these most common landscape conditions that increase risks of house ignition during wildfires (not listed in any order):

- Wood fences too close to eaves, between houses or attached to house
- Small-dimension (horizontal) wood in patio covers
- Patio furniture (wood and fabric) next to the house
- Mulch or leaves or unpruned plants, adjacent to the structure
- Plants under windows, large or unpruned
- Vegetation overhanging structural elements or trees overhanging roof
- Vegetation growing too close to the siding, windows or foundation
- Plants that are hedged and have many interior dead branches and leaves
- Plants that shed leaves and create a lot of litter
- Mexican fan palms that retain fronds, and are unpruned and unskinned (along trunk)
- Cypress trees that are planted between houses or under eaves, and retain interior leaves and dead material
- Hillsides that have considerable dead material and overgrown shrubs, usually responsibilities of the HOAs

Homeowners' Action Workshops

Three two-hour Homeowners' Action Workshops were conducted to:

- Review homesite assessments (checklists), completed by individual homeowners
- Discuss actions suitable to address structural and landscaping items that do not meet current code and/or checklist standards
- Discuss action plans for maintenance and retrofits, developed by each homeowner
- Evaluate knowledge, intent, and actions of homeowners, relating to wildfire risk reduction

Three workshops were given:

- Tuesday, August 5, 6:00 to 8:00 pm, Westwood Club, 17394 W. Bernardo Drive, 15 attendees
- Thursday, August 16, 6:00 to 8:00 pm, Rancho Bernardo Library, 17110 Bernardo Center Drive, 24 attendees
- Saturday, August 21, 2:00 to 4:00 PM at RB Swim and Tennis Club, 16955 Bernardo Oaks Drive, 63 attendees (of which 24 had attended all three classes)

The format was changed slightly for each of the three sessions, to improve the presentation of solutions, integration of web-based Online Wildfire Risk Assessment Tool into the classes, and the contributions of fire behavior specialist Dave Bacon and landscape architect Kay Stewart. Project

team members and some attendees identified several aspects of these workshops that could be improved. Future programs will address the following:

- The information was repetitive of Living with Wildfire classes and Homesite Assessment classes; for some this served to reinforce information, and for others it was redundant and didn't hold their interest
- Some attended without participating in other classes, and their questions distracted from others' more advanced questions
- Be more insistent that homeowners attend all classes in the series, and that all attendees bring completed assessments to this third class
- Community-wide (or HOA-based) assessment summary can be prepared, from tabulated homesite assessments,
- Computer screens need to match handouts, if web-based information is used
- Facilitated action planning process can be used, first sorting the assessment items by relative risk (based on the UC-Berkeley research) and then by whether it needs high, medium, low, or no funds to implement
- Involve HOA board members to participate fully in the project, and make a schedule of actions for common space

Common Space Workshop

The Common Space Workshop was held on Friday, June 20. The agenda is attached as Appendix B and included the following:

- Walk around two of the HOA common areas, with consultants Kay Stewart, Dave Bacon, Bret Black, and Anne Fege (described in Project Staff section)
- Review master landscape plans and maps of current plantings and burned areas, for each HOA
- Background information about plant flammability, plant selection and maintenance in landscaped areas (zone 1)
- Advice about irrigation systems and technologies from Mr. Bret Black, who is the owner of Ponderosa Landscaping has 40 years of experience in the landscaping industry and extensive accomplishments in landscaping, irrigation, and grounds management
- Background information about what to consider, in managing natural vegetation adjacent to landscaped and developed areas (zone 2)
- Questions/answers about approval of revised master landscape plans, with Mr. Terre Lien, landscape architect in the Development Services Department, City of San Diego

This common space workshop was attended by 14 homeowners' association board members, homeowners, and other interested individuals. The following sites were visited.

- Montelena HOA, 18000 block of Lancashire Way
- Eastview HOA, 18000 block of Chretien Court
- Legends HOA, Duenda Road between Moonsong and Smoke Signal
- Northfield HOA, Matinal Circle between Duenda and Matinal Road
- Legends HOA, intersection of Duenda and Moon Song Court

During discussions at this workshop and subsequent clarification with City of San Diego (City) officials, the following steps were outlined for revised landscape plans, installation of landscaping elements, and brush management:

- Obtain a copy of the original Planned Residential Development (PRD) plan that was the "permit" to build the subdivision. The PRD generally includes the parcel layout, grading plants, and landscape concept plan.
- Take time to review the PRD in order to develop a landscape plan that conforms to the original intent of the PRD, local sensitive habitats, water use, and fuel/vegetation/brush reduction.
- If desired changes are "minor," consider applying for a Substantial Conformance Review (SCR), described at http://www.sandiego.gov/development-services/industry/pdf/infobulletin/ib500.pdf .
- Homeowners' associations could work together to obtain the services of the same experienced landscape architect for the landscape modification plans for several HOAs, and file SCRs for several HOAs at once, or as sub-elements of one application, to reduce City fees.
- HOAs who choose to replant vegetation described in the PRD, and not to do any grading or grubbing of slopes, do not need to request approval from the City.
- City of San Diego Fire-Rescue Department Policy B-08 Clarification of Brush Management Regulations and Landscape Standards (http://www.sandiego.gov/fireandems/pdf/brushpolicy.pdf , 9 pages) states clearly that property owners (including HOA's) do not need a permit from the City of San Diego in order to develop landscapes that conform with the City's brush management regulations and landscape standards for Zones 1 and 2 on privately owned land out to 100' from homes.
- If the 100' area falls in other property ownership, then permission to develop the other property must be granted by the other party. Policy B-08 provides guidance in how to procure a right of entry permit if that is needed, and the forms are posted at posted at http://www.sandiego.gov/park-and-recreation/pdf/brushmanagementroepermit.pdf and http://www.sandiego.gov/park-and-recreation/pdf/brushmanagementroeinfo.pdf .
- If an individual property owner has submitted an application for a grading or building permit the City may require a brush management plan for their property to be developed also as part of the submittal package.

Recommendations from the site visits and discussions on June 20, 2008 were compiled by Landscape Architect Kay Stewart. Her notes are provided as Appendix C. Generally, there are four broad recommendations for homeowners' associations to work together and reduce the time and/or costs of restoring landscaping and fuel reduction in common areas:

1. Develop landscape modification plans for groups of HOAs
    a. Contract with one experienced landscape architect to provide landscape modification plans for groups of HOAs.
    b. Procure aerial photographs showing existing vegetation and compare to original HOA plans.
    c. Accurately delineate original boundaries of irrigated common areas and other identified landscape features.
    d. Accurately map where 100' falls and determine who is responsible for fuel management
    e. Conduct field work to determine status of existing irrigation system for purposes of planning repair, modification, or replacement.
    f. Follow the processes outlined above, for landscaping and brush management.

2. Zone One
    a. Landscape architect to prepare planting and irrigation plan for irrigated HOA landscapes (originally varied from 30' to 80' wide)
    b. Landscape architect to provide assessments directly to HOAs, for modifications to landscape contractors' work

3. Zone Two
    a. Conduct field assessment to document invasive species, and coverage and spacing of existing native plants within 100' of homes in the non-irrigated common space
    b. In consultation with landscape architect and biologist, provide fuel management plan for the HOA to manage vegetation in non-irrigated areas within 100' of homes
    c. Clearly describe actions needed to reduce fuel loads, minimize damage to natural resources, protect riparian functions, reduce exotic invasive flashy weeds, protect sensitive nesting birds, and possibly replanting to restore the natural plant communities (coastal sage scrub, oak woodland, or willow riparian woodland)
    d. Consider land ownership of open space areas; some are common lands within developments, some are City land, and some are in other private ownership
    e. Suggest forming one or several Canyon Friends' groups to gain awareness, appreciation, community involvement, and possibly funding to protect and restore canyon and creek habitats within and beyond the 100-foot fuel management zones (http://www.canyonscampaign.org/)

4. Annual maintenance guidelines
    a. Develop annual maintenance program for both irrigated and non-irrigated components of 100-ft wide fuel management areas.
    b. Outline annual maintenance calendar for appropriate vegetation pruning and thinning techniques and especially exotic flashy fuel weed management plan to reduce fire risk in areas of this open space that is within 100' of homes.
    c. Landscape architect and biologist work together to develop annual adaptive and sustainable management plan(s) to assure sustained maintenance of these Open Spaces using ecologically sustainable and cost effective means.
    d. Maintenance guidelines including weeding, thinning and pruning practices in accordance with constraints to protect protected bird or other species in season, and for sustaining the correct species mix for the plant community by working in the correct seasons.

Follow-on work is underway in a "Phase II" effort. This includes:

- Develop a prospectus for soliciting proposals from a landscape architect to design modified common space planting and maintenance, for both zones one and two of 100-ft wide fuel management of HOA open spaces
- Review service proposals from landscape architects and allied professionals
- Collaborate with landscape architect(s) during early plan development, to advise regarding appropriate fire risk reduction programs and practices
- Review draft plans with HOAs before final approval and submission to City, where necessary
- Continue to educate homeowners about structure and property maintenance to reduce their own risk from ember attack, irrespective of actions taken by their neighbors, HOAs, or the City.

Marketing

Emphasis was placed on community-based outreach, and the most effective were announcements in newspapers, posting on webpages use of community group email lists, and phone calls by volunteers to previous attendees (for the later classes).

The surveys of class attendees asked where they had learned about the class or project. Thirty-three answered this question, and 60% read about it in the Union Tribune, North County Times, Poway Chieftan, or Rancho Bernardo Journal; 24% received the information in an email message from someone they knew, through their homeowners' association or from CERT, Neighborhood Watch, or San Diego Natural History classes; and 6% heard from someone they knew (percents do not total to 100%).

The following marketing actions were completed by RB United:

- Information about the Living with Wildfire project, featured on RB United home page, www.rbunited.org including press release, flyer and poster
- Press release issued
- Request to local newspapers to write articles, and several were published
- Request to include classes in community-based calendars of events
- Frequent email messages to member HOAs about the classes and assessment, with links to RB United's webpage
- Encouragd HOAs and individuals to forward messages to their neighbors, friends, and HOA members (for example, one community member sent it to her mailing list of 125 RB residents)
- Invited CERT members attend the classes and serve as "testers" for the Online Wildfire Risk Assessment Tool
- Met with about 30 HOA representatives on June 3
- Registration for classes by phone at RB United, or by email
- Phone calls by RB United volunteers, and reminder email messages sent to registrants or prior attendees

Marketing items undertaken by CGS included:

- Text for RB United website, explaining Living with Wildfire Project
- Text of first press release, attached as Appendix D, and text for two other press releases about the Online Wildfire Risk Assessment Tool
- Text for email follow-ups, sent out by RB United
- Requests to include project events in local calendars, in the San Diego Union-Tribune, Pomerado News Group, North County Times, and San Diego Reader
- Personal visits to ten HOA offices to explain project and encourage participation
- Personal contacts with reporters and other interested organizations
- Contacts with Neighborhood Watch and CERT team representatives
- Over 1000 flyers (8" x 11") distributed locally at HOAs, nearby libraries and post offices, community centers, Starbucks stores, major grocery stores, and Bernardo Winery
- Posters (13"x17") on community boards and other locations
- Phone calls with potential attendees who sought additional information

Business and Ecology Consulting provided initial text regarding the class objectives, subject material, and development. As an example, this text was sent in email messages in late July:

> WE ARE IN THIS ONE TOGETHER! Regardless of our preferences, we no longer live in isolation. The environmental risks facing us today know no boundaries. Particularly in the case of wildfires, what our neighbors do next door and down the street is as important as how we build our homes and maintain our own surroundings.
>
> Help us inspire your neighbors to get involved by spreading the word about how to mitigate our fire risk TOGETHER -TODAY! We need volunteers to help with telephone calling, distributing flyers and other tasks to help spread the word about how each of us can truly make a difference.
>
> Registration is encouraged but not required for classes. For more information about the project and volunteer opportunities, contact rbunitedfirewise@gmail.com, 858.485.8502 or visit www.rbunited.com.

Evaluation

Program evaluation was accomplished by asking participants to complete surveys about their expectations, knowledge, community participation, attitudes, and likelihood to take various actions to reduce wildfire risks at their homesite. In addition, project team members contributed to informal discussions about "what worked" and "what didn't work and should be changed" throughout the project.

Summary of evaluation findings

Program evaluation provided the following principal findings that affected the success of the Living With Wildfire" community education project, and more broadly suggested ways to improve wildland fire preparedness in the urban interface:

1. Most homeowners at the classes recognized the risks that wildfire poses to their property, and their responsibility to reduce risks of house ignition. When homeowners indicated what keeps them from feeling safe, their responses suggest a personal sense of responsibility, that is, wanting to know how houses burn and what to do.
2. Participants responded that they enjoy a variety of activities, such as gardening and privacy, in their "backyard," which need to be considered when landscape changes are made to reduce wildfire risks.
3. About 25% of the participants' houses were built before 1970 and 90% were built before 1990. Thus, older home construction techniques, especially in light of newer or more stringent codes, must be addressed when discussing rebuilding or retrofitting homes.
4. About 39% of the respondents were active in their HOA; about 10% were active in a FireSafe Council; about 10% were active in school meetings; and about 32% were not active in a

community group. This suggests that even among those motivated enough to attend these classes, sufficient community participation may be a barrier to success.

5. Participants in the Living with Wildfire classes were asked to state their expectations for the course. Of the 126 comments written, 28% related to learning about how to retrofit their house and 20% about how to landscape property to reduce fire risk. Therefore, residents are concerned about the safety of both house and yard, and education programs should maintain a balance between these two.
6. Overall, the classes were very successful at imparting important new information and instilled a more realistic sense of wildland fire risk. And the community context is once again highlighted as important. That said, the volume of information needed to better understand all aspects of wildland fire spread, home ignition, and how to assess one's own house can at times be overwhelming. Good message delivery and educational process is also important.
    a. After the Living with Wildfire classes attendees' knowledge of how fire spreads increased substantially (0.9 point on a 3-point scale), as did their knowledge of how houses ignite (0.6 point on 3-point scale).
    b. Living with Wildfire class post-survey showed that 59% of attendees perceived wildland fire risk to be "a lot higher," and another 24% to be "somewhat higher" than before attending the class.
    c. When asked "what keeps you from feeling safe from wildland fire effects?" more than half of the homeowners responded with "neighbor's actions" (56%) and/or knowing how to reduce houses burning (50%), but these responses dropped to 25 to 32% when participants completed the survey after the classes and workshops. Home improvement skills and money were identified by about a quarter of the participants after the first class, and increased to about 40% after the homesite assessments and action workshops.
7. While money is always an issue, the burden can be eased with assistance from insurance, resources, and skills. Substantial progress can be made with a multiple-year, individualized planning approach, and by providing some help with tradespersons to do the desired work.
    a. Respondents indicated they would be most motivated to make retrofits by insurance cost savings, regulations, and increased resources for doing the work (knowledge and labor).
    b. When homeowners indicated their biggest barriers to doing the retrofit and maintenance work to reduce wildfire risks, one-third noted money, one third noted either home improvement or landscaping skills, and the rest indicated time, physical abilities, and other.
    c. After the Homeowner Action Workshops, 50% indicated they were likely to spend between $100 and $1,000 and 32% were likely to spend more than $1,000 but less than $10,000.
    d. Almost half of the homeowners indicated that they would likely to hire a handyperson and/or contractor (76% and 31%, respectively), and about a quarter checked that they would hire a roof-, window-, deck- and/or fence-installer. About 20% said they would hire an arborist, landscape contractor and/or landscape architect.

Administration of surveys

Participants in the three Living with Wildfire classes and two Homeowner Action Workshops were asked to complete one-page pre- and post-event surveys, which are included as Appendix E. (Surveys were not used in the Homesite Assessment Classes.) Some of the questions were changed slightly as the project progressed, allowing the project team to offer more relevant questions, but also complicating the data summary and analysis. A few questions were asked pre- and post-class so that those responses could be compared. At times, some differences in responses (for the same question) may be due to a different mix of participants completing the surveys. Overall, the results give great insight into how well this project accomplished its goals, but we recognize that this section is still short of a full summative evaluation.

Survey questions were suggested, discussed with, and reviewed by team members and social scientist Jim Absher, Ph.D. This allowed the project team to learn from, and contribute to, research on factors affecting individual homeowners such as basic wildland fire knowledge, awareness of fire behavior, changes in attitudes towards homesite actions, and making plans to reduce their wildfire risks.

The Living with Wildfire classes were attended by 180, and a total of 74 pre-class surveys and 62 post-class surveys were completed by the attendees. Of these, 33 filled out both surveys (matched by first name), and 103 filled out at least one, for a response rate of about 60%. Participants in the Homeowner Action Workshops (attended by 101) were asked to complete surveys, and 41 were filled out, for a response rate of about 40%.

Descriptive information about participants

Homesite activities. Participants who attended the Living with Wildfire classes responded that they enjoy a variety of activities in their "backyard" that may be affected when landscape changes are made to reduce wildfire risks. Gardening and privacy were especially highly rated.

Table 1. Activities of homeowners in "backyard"

Question	Category	Percent
What activities do you enjoy in your "backyard?"	Gardening	71
	Privacy	68
(check all that apply)	View	51
	Shade	50
n=76	Wildlife	33
	Children	18
	Other	9

Age of houses. At the third Homeowner Action Workshop, participants were asked when their houses were built; a quarter of the houses were built before 1970 and almost 90% were built before 1990.

Table 2: Year that houses were built

Question	Category	Percent
When was your house built?	Before 1970	26
	1971 to 1980	37
n=27	1981 to 1990	26
	1991 to 2000	11
	2001 to 2008	0

Community participation. Attendees were asked about active participation in community organizations.

- Living with Wildfire class attendees indicated that 39% are active in their HOA, 39% are not active in any community organization, and most of the remainder did not indicate other groups.
- In the Homeowner Action Workshops, 46% said they are active in HOAs, 24% in Neighborhood Watch (not given as a choice for Living with Wildfire class attendees), and 28% not active in any community group. These percentages total to more than 100% because respondents indicated more than one group.

Expectations. Participants in the Living with Wildfire classes were asked to state their expectations for the course, and 123 comments were written. Of these, 35% of them wanted to learn about how to retrofit their house and 24% about how to landscape their property to reduce fire risk.

Table 3. Expectations of participants for Living with Wildfire class

Expectations for Class	Percent of all responses
Why houses burn, and retrofit house	35
Fire resistance of landscape, what to plant, and what not to plant	24
Open space vegetation	3
Dealing with neighbor	5
Fire prevention	10
Fire preparedness	6
Community networks	7
All other	11
	100

Knowledge of wildfire risk reduction

Surveys for the 33 participants who completed both pre- and post-class surveys in the Living with Wildfire classes were matched by first name. Two questions were asked the same way in both surveys. These can be compared to assess changes in knowledge of wildfire risk reduction

principles due to class attendance. On a 3-point scale their knowledge of how fire spreads increased 0.9 points to 2.4, and their knowledge of how houses ignite increased 0.6 point to 2.8.

Factors influencing homeowners' attitudes

Perceived wildfire risk. In post-surveys after the Living with Wildfire class, 57% of attendees perceived wildland fire risk to be a lot higher, and another 23% to be somewhat higher risks, than before attending the class.

Table 4. Perceived wildfire risks of participants in Living with Wildfire classes

Question	Category	Percent
Has your perception of wildland fire risk changed after this class?	A lot higher risk	59
	Somewhat higher risk	24
	No change	3
(check one)	A lot lower risk	5
n=59	Somewhat lower risk	8

Feelings of safety. When asked "what keeps you from feeling safe from wildland fire effects?" more than half of the homeowners responded with "neighbor's actions" (56%) and/or knowing how to reduce houses burning (50%). These responses dropped to 25 to 32% when participants completed the survey after the classes and workshops. Home improvement skills and money were identified by about a quarter of the participants after the first class, and increased to about 40% after the homesite assessments and action workshops.

Table 5. Feelings of safety, of participants in Living with Wildfire classes

Question	Category	Percent	
		After first class	After action workshop
		n = 70	n = 34
What keeps you from **feeling safe** from wildland fire effects?	Neighbor's actions	56	32
	Knowing what to do	51	25
	Knowing how houses burn	50	26
(check all that apply)	Landscaping skills	40	38
	Home improvement skills	24	41
	Money / $	21	44
	Other	13	9

Factors affecting homeowners' actions

Motivation to retrofit. Respondents indicated they would most be motivated to make retrofits by insurance cost savings, regulations, and increased resources for doing the work (knowledge and labor).

Table 6. Motivation for retrofit investments, of participants in Living with Wildfire classes

Question	Category	Percent
What **two factors would most motivate you** to retrofit your house to reduce wildfire risks? (check two)	Lower insurance premiums	55
	Required by code	41
	List of risks for your house	34
	Hiring someone to do it	21
n=29	Required by HOA	21
	Increased house value	17
	Low-interest loan	10

Barriers to retrofit and maintenance. When homeowners indicated their biggest barriers to doing the retrofit and maintenance work, one-third noted money, one third noted either home improvement or landscaping skills, and the rest indicated time, physical abilities, and other.

Table 7. Barriers to doing retrofit and maintenance work to reduce wildfire risks

Question	Category	Percent
What is your biggest barrier to doing the retrofit and maintenance work to reduce wildfire risks? (instructed to check cone, but some checked more than one)	Money	45
	Home improvement skills	34
	Time	30
	Landscaping skills	18
	Physical abilities	23
n=60	Other	6

Likely expenditures. After the Living with Wildfire classes, 64% indicated they were likely to spend between $101 and $10,000 and 18% were likely to spend more than $10,000. After the Homeowner Action Workshop, 80% indicated they were likely to spend between $100 and $10,000 and 13% said they would spend more than $10,000 in the next year.

Table 8. Likely expenditures to reduce wildfire property risks

Question	Category	Percent	
		After first class	After action workshop
		n = 51	n = 28
How much are you likely to **invest in property risk reduction** in the next year? (check one)	Not likely to make changes	4	3
	Labor only	2	0
	Less than $100	12	5
	$101 to $1,000	27	49
	More than $1,000	37	31
	More than $10,000	18	13
	(Total)	100	100

Almost half of the homeowners indicated that they would likely to hire a handyperson and/or contractor (76% and 31%, respectively), and about a quarter checked that they would hire a roof-, window-, deck- and/or fence-installer. About 20% said they would hire an arborist, landscape contractor and/or landscape architect.

Table 9. Professionals hired for retrofit and maintenance

Question	Category	Percent
What **professionals** are you likely to hire to reduce your property risks, in the next year? (check all that apply)	Handyperson	76
	Contractor	31
	Roofer or window-installer	28
	Deck- or fence-installer	24
n=29	Arborist	21
	Landscaper	28
	Landscape architect	7
	Other or none	14

Online Wildfire Risk Assessment Tool

Of the homeowners that completed the Online Wildfire Risk Assessment Tool and reviewed the resultant action list in August 2008, nineteen gave the following responses to a series of eight questions about affordability and incentives (not all summarized here). The respondents were given a 5-point scale, with 5 as very important or relevant, and 0 as not important at all. Combining the ratings of 4 or 5 to represent "important" gives the following results:

Table 10: Online Wildfire Risk Assessment Tool

Item	Percent "important"
Make home more safe from wildfires	89
Get a discount on your insurance	74
Affordability is a barrier	42
Neighbors do their plan too	42
Referrals to qualified people who can do the work	32
Low interest loans to cover the cost	11

A summary of responses was generated from the first 45 homeowners who completed the Online Wildfire Risk Assessment Tool, reflecting the conditions of structures and landscaping for houses in the Rancho Bernardo Area. The risks are based on the research at the University of California at Berkeley. Appendix G lists the responses, and the following table outlines the highest risks among this very small, non-representative group of homeowners. Only 2 percent (one house) had a combustible roof.

Table 11: Key homesite risks, from Online Wildfire Risk Assessment Tool (from 45 participants)

Structural and landscape elements	Percent
With tile or metal roof, bird stops installed to seal the openings at the edges of the roof	31
No gutter covers installed to help keep gutters clean	75
Open eaves (i.e. exposed rafter tails)	77
Gaps where the roof meets the wall	33
Single pane windows	67
All vents screened with metal screens that have a mesh size between 1/8" to 1/4"	53
Siding made of a combustible material	33
Deck, exterior staircase or patio made from combustible materials attached to house	38
Combustible materials on, under or within 3 feet of decks	33
Fence within 10 feet of house or in direct contact with it	42
Wooden yard structures such as play houses, storage facilities, trellises or arbors within 30 feet of the house	62
High-risk vegetation within 5 feet of vents, eaves, wooden decks, windows or the foundation	40
Trees and bushes on your property not separated or pruned to eliminate ladder fuels	40
Branches of all trees less than 10 feet from the chimney and all of the eaves	49
Fan palm trees with dry fronds	33
Dead or dying vegetation or trees, debris or green waste within 100 feet of house	24
Any of immediate neighbors' properties at high risk	33

Feedback and suggestions

From project participants: Eleven participants, attending the Homeowner Action Workshop on August 21, took time to answer these questions about the overall project: "what worked well," and "what didn't work and should be changed." Their comments about the classes are provided in Appendix F. These can be summarized as:

- For the Living with Wildfire classes, they mentioned the presentation quality, informal format, knowledgeable instructors, and specific information about retrofit items. Several commented that the information is "too much" and overwhelming.
- Several noted the expertise of the "retired fireman" and landscape architect.
- Most also mentioned the Online Wildfire Risk Assessment Tool, describing it as concise and informative. Some suggested rewriting questions to be less confusing and adding space for notes.
- The presentation of information in several project elements was considered redundant by some, and effective repetition by others.
- Overall, they wrote that handouts and printouts were good; that multiple classes and comments from others were helpful; and that the expert instructors gave the course a lot of credibility.

From project team: During the course of the project, team members made observations about elements that worked well, and that could be improved. They are outlined in Appendix G, and summarized below.

Attention should be paid to the following in future programs:

- Emphasize marketing through email lists and webpages of community groups such as HOAs, CERT, FireSafe Councils, and Neighborhood Watch.
- Announce program widely in local newspapers and "calendar of events."
- Provide adequate staff at registration tables to get contact information.
- Plan for extra attendees.
- Hand out the assessment worksheets at the first class, and carefully explain the value of completing it before the next class, for their house.
- Be more insistent that homeowners attend all classes in the series, and that all attendees bring completed assessments to this third class.

Some elements need considerable additional attention:

- Completion of assessments for homeowners with physical limitations, who cannot inspect the structural elements of their house.
- Assistance for those who cannot afford to hire someone for maintenance and retrofits.
- Sources for retrofit vents and other materials, referrals for contractors, "handypersons," and landscape contractors, and other resources to make the changes.

Reflections on surveys and evaluation instruments

Based on observation and attendance at the public education sessions and comments made on the surveys the following methodological observations were also noted by project staff:

- The question, "what keeps you from feeling safe from wildland fire effects," could be reworded to reveal why homeowners may not feel the need to take responsibility for their home and property, that is, why they feel safe; and possible responses are that firefighters will protect my home, I live in a fire wise neighborhood, I have cleared 100 ft (bare ground) around my house, I have faith in the developers that built my complex (experts) according to fire codes, I live in a subdivision far from open space, and others.
- For further surveys to assess three different parts of the class, the questions need to be changed so they are not redundant but similar enough to be compared to other surveys.
- Based on feedback from these surveys, questions need to be finalized and administered consistently over the next year.

Project Management and Staff

Project management included scheduling, telephone and email updates with designated contact (Ms. Valerie Brown, Project Coordinator, RB United Coalition), conduct of classes, and evaluation. A detailed project work plan was developed in June, with tasks assigned to project team members.

The professional services to assist RB United, homeowners' associations, and homeowners to reduce wildfire property risks were provided by a project team.

- Three wildfire experts contributed to the classes, homesite assessments, and action planning workshops: Dave Bacon, Fire Behavior Specialist from Firewise 2000, Inc.; Landscape Architect Kay Stewart; and Anne S. Fege, Partner, BEC.
- Anne Fege, BEC, provided overall project management, handled administrative details, hired consultants, and served as the fiscal agent.
- KD Nyegaard and Deborah Knapp are co-founders of CGS and contributed their time to this project.
- Jim Absher provided project guidance, particularly on the wording of evaluation questions and analysis of surveys.
- Jenny Mayberry served as project assistant and provided the evaluation of class participants.
- Outstanding project support was provided by Valerie Brown, Project Coordinator, and Jan Rasmussen, Outreach Coordinator, both staff to the RB United Coalition.

The following are the principal contacts for the project:

- Project Advisor: Anne Fege, Botany Research Associate, San Diego Natural History Museum and Partner, Business and Ecology Consulting, 12934 Texana Street, San Diego, CA 92129, phone 858-472-1293, email afege@aol.com
- Valerie Brown, Project Coordinator, RB United, 16776 Bernardo Center Drive, Suite 110, San Diego CA 92128, phone 858-485-8502, email projectcoordinator@rbunited.com.

Business and Ecology Consulting (BEC) is a small business that seeks to create value by helping government agencies, small businesses, professionals, and non-profit entities increase their productivity through empirically validated management techniques. BEC intends to meet the environmental planning and natural resource management needs of Southern California government agencies and businesses by providing a "one stop shop" for the very best environmental scientists, technicians, managers, and educators. This includes advancing science-based wildfire education for professionals and the public.

Community Green Scene (CGS) was established to raise grassroots awareness of environmental risks to homes and neighborhoods, and empower individuals and communities to make a difference by providing a new set of interactive user-friendly online tools to assess these risks, develop and implement action plans and offer other incentives encouraging individual and community wide efforts to reduce those risks based on the best science available.

ANNE S. FEGE, Ph.D., M.B.A., Project Manager, Business and Ecology Consulting
Anne Fege is partner in Business and Ecology Consulting, Botany Research Associate at the San Diego Natural History Museum, and Adjunct Faculty in the Department of Biology at San Diego State University. Fege's thirty-year career in natural encompass land management, biodiversity and habitat conservation, recreation and urban interface issues, wildland fire preparedness and recovery, water resources and conservation, community involvement, financial and personnel accountability, and environmental education. Fege is widely known as a co-founder of the San Diego Partners for Biodiversity and San Diego Fire Recovery Network; co-curator of the recent *Earth, Wind & WILDFIRE* exhibition at the San Diego Natural History Museum; and Forest

Supervisor of the Cleveland National Forest (460,000 acres in Orange, Riverside, and San Diego Counties) from 1991 to 2004.

KAY STEWART, M.A., Owner, Kay Stewart Landscape Architect
Katherine "Kay" Stewart received a BA and MA in biology, and positions between 1969 and 1983 included lab technician, naturalist, and biological technician for Scripps Institute of Oceanography, CA State Parks, Oregon Department of Fish and Wildlife, and the US Forest Service. After earning a second Bachelor's of Landscape Architecture in 1984, Stewart worked for David Reed, Landscape Architect on residential, institutional, and commercial projects. She was registered as Landscape Architect #2967 in California in 1989 and opened her own practice. Stewart has planned landscapes for 300 clients to date, serving homeowners and small natural preserve landholders. Her expertise includes practices to promote water conservation and fire-risk reduction in the landscape.

DAVE BACON, Owner, *FIREWISE* 2000, Inc.
FIREWISE *2000, Inc.* creates proactive fire safe and wildland fire resistant protection plans for single family dwellings, residential communities and subdivisions, industrial and commercial properties, new construction and retro-fits that meet or exceed all local, county, and state ordinances. Utilizing decades of experience in the field as firefighting professionals and BEHAVE Plus analysts, they have developed a comprehensive interdisciplinary approach that creates fire safe communities while protecting the natural environment. *FIREWISE 2000, Inc.* employs recognized experts in fire prevention planning and the development of detailed risk assessments of potential fire hazards for residential and commercial properties.

KD NYEGAARD, Community Green Scene
KD Nyegaard is co-founder of Community Green Scene and former Chief Executive Officer and co-founder of ERISS Corporation, that develops technologies and methodologies to serve business, economic development, workforce professionals and jobseekers. A fire survivor himself, as he lost his Scripps Ranch home in 2003, Nyegaard has a 15-year track record of creating and fielding successful high-tech systems for the public sector in collaboration with companies such as Accenture, The International Economic Development Council, the American Chamber of Commerce Executives and others.

DEBORAH KNAPP, Community Green Scene
Deborah Knapp is a former environmental law attorney and specialist in community organization. She recently led the Anza-Borrego Institute, organizing educational and scientific programs in support of Colorado Desert District of California State Parks, including the Anza-Borrego Desert State Park. Among those were an environmental camp for fifth-graders, Parks Online Resource for Teachers and Students (PORTS) program, and hundreds of field trips and lectures about desert ecology and archaeology.

JAMES ABSHER, Ph. D., US Forest Service, Pacific Southwest Research Station
Jim Absher is a Research Social Scientist for the US Forest Service who works out of the Pacific Southwest Research Station's Riverside Fire Laboratory in Riverside, CA. For over thirty years he has conducted a broad range of social science studies related to natural resource management issues, and has been involved with wildland fire studies for over seven years. His focus in this

area is primarily on homeowners' defensible space behaviors and the policies and programs that enable loss mitigation and preparedness at the individual and community level. He has authored or co-authored more than thirty journal articles, book chapters, technical reports and conference presentations on the human dimensions of wildland fire.

JENNY MAYBERRY, Project Assistant, **Business and Ecology Consulting**
Jenny Mayberry is a Masters' candidate at Humboldt State University, with a strong interest in grassroots community initiatives around wildfire and place-based education. She has previously worked as an Environmental Educator in the Santa Cruz Mountains.

Credits

Photos on the report cover were taken by Anne Fege, during Living with Wildfire events and site visits in Rancho Bernardo July and August, 2008.

Appendix A: Living with Wildfire Reference List

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WEB LINKS:

Bushfire Cooperative Research Center, Australia, research projects focused on managing bushfire risk to the community in an economically and ecologically sustainable way, http://www.bushfirecrc.com/

City of San Diego, Brush management and inspections, http://www.sandiego.gov/fireandems/inspections/brush.shtml

County of San Diego, Department of Planning and Land Use, Fire and defensible space, http://www.co.san-diego.ca.us/dplu/fire_resistant.html

County of San Diego, links to fuel/brush management codes for municipalities, compiled by UC Cooperative Extension in partnership with the San Diego County Dept. of Planning and Land Use, http://www.wildfirezone.org/editor/docs/Fire,%20Brush%20and%20Building%20Information%201-28-08.pdf

FireSafe Councils of San Diego, community-based wildfire education and preparedness www.firesafesdcounty.org

Firewise Communities/USA, community-based programs for community planning, home construction and design, landscaping, and maintenance, www.firewise.org

Institute for Home and Business Safety, http://www.disastersafety.org/main.asp?id=1136

Quail Botanical Gardens, Landscape for Fire Safety Garden, 230 Quail Gardens Drive, Encinitas CA, 760-436-3036, www.qbgardens.org

Water Conservation Garden, Firewise Garden, 12122 Cuyamaca College Drive West, El Cajon, California, 92019, 619-660-0614, http://www.thegarden.org/gardensExhibits.html

Wildland Fire Codes Applicable to San Diego

Fire codes for municipalities and fire departments in San Diego, compiled by UC Cooperative Extension in partnership with the San Diego County Department of Planning and Land Use, http://www.wildfirezone.org/assets/images/resource_docs/fbb_revised_11_15_07.pdf

Consolidated Fire Codes for 17 fire protection districts in County of San Diego, http://www.co.san-diego.ca.us/dplu/docs/firecode.pdf

California Department of Forestry and Fire Protection, Office of the State Fire Marshal, http://osfm.fire.ca.gov/. Wildland building code information, http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_codes.php

City of San Diego, Building codes, http://www.sandiego.gov/development-services/industry/codes.shtml

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Wildfire Course Development

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For additional information, contact Anne S. Fege, Ph.D., M.B.A., Business and Ecology Consulting, 312 Highland Avenue, El Cajon, CA 92020, 858-472-1293, afege@aol.com 2aug08

Appendix B: Common Space Workshop Agenda

Time	Agenda Items	Staff
8:00	Optional walk around Carlyle at Montelana HOA common area with consultants (meet at Location)	Anne Fege Kay Stewart Dave Bacon Bret Black Kim Nyegaard
9:00	Walk around The Legends HOA common area with consultants, all participants (meet at Location)	[Same]
9:50	Travel to meeting room, Location	
10:00	Introductions (name, organization, what you expect from this project) Objectives of the "Common Space Workshop" • Understand principles of landscape design, plant materials, and maintenance to reduce wildfire property risks • Understand options for managing natural areas to reduce wildfire property risks • Review master landscape plans and possible modifications to submit to the City of San Diego for approval, to reduce wildfire risks and enhance quality of common areas in 10 HOAs	Valerie Brown Anne Fege
10:15	Principles of "how houses ignite" and defensible space	Anne Fege
10:30	Principles of fire-wise landscaping, including plant flammability, plant selection and maintenance in landscaped areas (zone 1)	Kay Stewart
11:00	Break	
11:10	Principles of fuels/vegetation management areas, including what to consider in managing natural vegetation adjacent to landscaped and developed areas (zone 2)	Anne Fege
11:30	Description of Living With Wildfire project for homeowners (3 parts) • Classes, "Living with Wildfire: Reducing Property Risks, Habitat Losses, and Costs" (3 hours, offered 3x, Tues. Wed. eve Sat am) • Homesite Assessments (2 hours, offered 3 times) • Homeowner and Community Action Plans (2 hours, offered 3 times) (get feedback on how to maximize homeowner participation)	Anne Fege Kim Nyegaard
11:40	Review of master landscape plans, grading plans, and current conditions, for The Legends and Carlyle at Montelana HOAs	Kay Stewart
11:50	Break	
12:00	Discussion of "what is needed to reduce wildfire property risks and fuels and sustain healthy plants" (zones 1 and 2)	All
12:20	Time for questions/answers about approval of revised master landscape plans, with Mr. Terre Lien, landscape architect, City of SD	Kay Stewart Terre Lien
12:40	Action plan for RB United (maps of current plantings, photos, landscape designs, irrigation, City of SD approval, and more)	Anne Fege Valerie Brown
1:00	Adjourn	

Appendix C: Observations about Common Areas

Observations made on June 20 during Common Space Workshop, and on June 23 with selected HOA representatives, Valerie Brown, Landscape Architect Kay Stewart, and Project Manager Anne Fege.

Lancashire

- East side open space, first hundred feet generally well established red apple ice plant (Aptenia) though one area had very poor Aptenia growth. One member of the HOA noted that the water had been turned off, but one member said one section was running. The condition of the Aptenia was still good, proving that it doesn't need the frequent water that is often delivered.
- The slopes lack deep rooted plants, and reliance to such an extent on one species is dangerous (disease/pest organism monoculture risk). Around the custom lots where homes were totally destroyed, erosion and dense growth of flashy weeds (mustard and grasses) where the soil was not eroding.
- Discussed value of irrigating trees on separate valve/line in case water rationing occurs that would limit irrigation of groundcovers. Discussed correct size for trees to not impinge on view nor create high maintenance expense.

Moondance east side open space with stream and trail:

- East facing slope ranging from estimated 50' to 70' out from yard fences (homes have setbacks of approx. 15-20') has been planted to Aptenia recently. Resprouting scrub oak is coming back from crowns.
- Deficient in deep rooting plants, small erosion tracks developing. Nice 8' or so wide trail separates this planting from a riparian planting with Sycamores, Elderberries, and blackberries thriving from original planting and large willows and mulefat which may have established naturally
- Heavy infestation of non-native yellow Asteraceae (Sonchus? Cirsium? not sure), some tamarisk, some pampas grass.
- The fire burned willows well beyond 100' that are resprouting and burned parts of other trees that are probably within 100' of the structures, but are fully recovered, though unsightly.
- One house burned along this small canyon on the third day of the fire, likely from embers.

Open space behind homes on west side of Alborada and below the yards of homes on Monticook Court:

- A very low-growing coastal sage scrub stand that appeared from a distance to be in very good condition, unharmed in fire except at the lowest point where this open space meets the intersection of Alborada and Smoke Signal, where it also appeared weeds in the (irrigated?) landscaping at the point was damaged in the fire.
- Noticed many homes along Alborada with wood fencing and gates connecting homes and separating them from the rear slope. Many with very dense tree canopies hanging over house

roofs, near chimneys, with very dense tall shrubs under these trees. These conditions are quite unsafe due to ember attack, which could come from below.

Escala Drive East of Pomerado

- The common space along Escala has had Lantana, Acacia redolens, Pittosporum Tobira variegata and alyssum under Canary Island Pines. Near Pomerado, there are rows of about a dozen Italian Cypress line each side. As Escala goes eastward, private lots extend to the street, with wildfire risks that include Mexican fan palms with dead skirts, dried thatches of annual and perennial plants, and bare spots with erosion.
- Escala meets Cloudesly and on this brow of the hill, the properties overlook a coast live oak woodland/riparian area estimated over 1/4 mile away that is part of the San Dieguito Conservancy property. Some oaks in this woodland were burned somewhat but are recovering.
- Montelana homes facing east and south at this area have very deep back yards that extend over 100' from the backs of the houses. These lots have weeds, trees in poor condition, and other fire risks. Between the Montelana properties and the Conservancy stream is a large hillside (of uncertain ownership) which has largely flashy-fuel weeds standing 2-3' high.

Eastview Patio 2: off Bellechase/Tretagnier, Colonnade, and Escala:

- Large open space extending east and north, with an interior hillside planting extending from the northerly point of the street. Several homes were destroyed at this area, and the mapping showed that shake roof homes were located in clusters with adjacent neighbor's homes been destroyed.
- Nine more homes in their development have shake roofs, and the cost to replace with Class A would be about $10,000 each. There is likely is no legal means to require action.
- The homes are separated from the irrigated slope by glass and masonry fencing. The existing landscapes near the homes being rebuilt on Bellechase/Tretagnier had some excessively long stands of 3'-plus shrubs that would create fire ladders, large expanses of honeysuckle groundcover, and a number of healthy large trees from the original planting.
- There is an area that was native open space that was recently cut to the ground, and that is probably within 100' of the homes at the end. It will need to be considered part of the fuel management planning, contrary to the original development plans.
- On Escala, about twenty California peppers were burned and are regenerating, and the suggestion was made to contact the Center for Sustainable Energy for free shade trees to replace the pepper trees.
- On Colonnade, the narrow irrigated landscape on the east behind the homes meets up with natural vegetation, in some areas beyond and in other areas less than 100' from structures. Some of this open space area was recently cut to the ground but most is still intact though it has a light infestation of mustard. Otherwise a rich and healthy mix of California native shrubs, mostly small species and well spaced, that were regenerating from the fire.
- A storm drain at the lowest point on Colonnade has accumulated sediment at the mouth and needs to be dug out. In this area tamarisk and hemlock, invasive flammable exotic species, are growing. An area up at top of hill by Bellechase/Tretagnier below the irrigated red apple has

some Mexican fan palm and pampas grass. These two areas should be quickly weeded and the invasive plants removed. If the seed from the mustard can be cut, that will reduce future infestation.

Poblado/Smoke Signal: Open Space in the La Terraza Apartment Complex Open Space, backs up to Meridian, HOA homes on Matinal Circle.

- At the northerly end by Poblado (Duenda) serious invasive species problem with pampas grass and tamarisk developing thickets of growth. Along the stream bottom, dead willows, were not burned but perhaps scorched. Thick stands of non-native Asteraceae (Cirsium? Sonchus? don't know) and at southerly end by Matinal/ Matinal Circle.
- Standing burned Mexican fan palms that are still alive and that were observed as the source of the embers that ignited the apartments above them. The condition of this open space is very poor on this side of the stream channel, and clearly poses a fuel hazard to the homes that back up to it. The homes are especially vulnerable having wood siding, wood fencing, small dimension lumber garden structures.
- Discussion about how to work with La Terraza owners, such that they accept responsibility to carry out necessary work to protect the La Meridian home owners who are threatened by the fuel buildup in the La Terraza open space.

Appendix D: Press Release

RB United
rebuilding RB together

Call for Action against Wildfire

RB United Coalition Introduces Exciting Groundbreaking Community Effort to Reduce Wildfire Risk in Rancho Bernardo

Assessing wildfire risk in urban areas—and empowering homeowners to take action to reduce that risk—just got a lot easier for Rancho Bernardo residents.

July 15, 2008 -- Rancho Bernardo United, a coalition of community, led by the Rancho Bernardo Community Foundation, formed after the 2007 wildfires to help with the rebuilding of Rancho Bernardo, in cooperation with Business and Ecology Consulting, a group of veteran wildfire and ecology scientists, and *Community Green Scene*™, a San Diego-based partnership, is about to launch this first-of-its-kind wildfire risk assessment and action tool. Rancho Bernardo homeowners are invited to combine science-based education programs and on-line tools to help understand, assess and reduce wildfire risks for homeowners and communities. The project is funded by The San Diego Foundation's After the Fires Fund and is led by local wildfire experts.

This project is based on recent research that has shown that we *can* indeed reduce loss of lives, property, and resources during wildland fires. The problem has been that most homeowners are still not clear what steps they can take to

reduce the risk. This new program is taking this challenge head on, and being piloted right here in our own community.

What's new about this system is that each homeowner can learn exactly HOW and WHY his or her home could burn in wildfire, make an individualized assessment of their own home's fire risk and a customized action plan, and get assistance to guide them through the process of mitigating the risk. Homeowners will discover that, more times than not, the little things can make the biggest difference. Simply choosing the correct roof covering, thinning overgrown landscaping, and removing combustible clutter around your home has been proven to save most homes from ignition and community disaster.

The program also provides opportunities and real incentives for communities to tackle these issues collectively by sharing resources, buying bulk materials at a discount, and organizing community action plans.

"This goes far beyond our original expectations," RB United Coalition Project Coordinator Valerie Brown stated. "Not only can we deliver effective and sustainable wildfire risk reduction options to our community, but we can actually assess how we are progressing and debug the process. This will make a tremendous difference in preparation for future disasters and generate a feeling that we can actually do something to reduce this risk before the next one hits."

Mark your Calendars!!!

The program is offered free of charge to Rancho Bernardo, Poway, and Rancho Santa Fe residents and consists of a series of workshops, online surveys of wildfire risks, and planning. All are based on scientific principles, dialogue, and activities that are focused on YOUR Everyone rolls up their sleeves and gets their hands We promise a lot of good information, energy and

"Mitigation is a choice – we can be participants or victims." Jack Cohen, USDA Forest

action class house. dirty. fun.

Here's the schedule, with options to attend one or more activities, on different days and times of the week. Attend all three classes on Tuesday or Thursday evenings, or on Saturday mornings. Or mix up the dates and locations. Complete the personalized home assessment online, and make an action plan. Details will be available at www.rbunited.com. For more information, contact rbunitedfirewise@gmail.com or 858.485.8502.

I. LIVING WITH WILDFIRE CLASS. This three-hour class will focus on "how houses ignite," attributes of ignition-resistant structures and firewise landscaping, responsible fuel/brush management and the costs of excessive vegetation

reduction, quick low-cost maintenance and retrofits to reduce property risks, community assessments, and more.
Dates and Locations: Tuesday, July 22, 6-9 pm at Westwood Club Gymnasium; Thursday, August 7, 6-9 pm at the Rancho Bernardo Library; and Saturday, August 2, 2-5 pm at RB Swim & Tennis Club (all classes are identical, attend only one!)

II. HOMESITE SELF-ASSESSMENT CLASS.
This two-hour session is conducted by a local fire behavior specialist, who will inspect and assess property risks at two homesites for structures as well as landscaping. Learn how to complete your own home assessment, and discover what is going on next door and down the street.
Dates and Locations: Tuesday, July 29, 5-7pm; Thursday, August 14, 5-7pm; and Saturday, August 9, 2-4 pm. Locations will be provided to those who register at RB United, 858.485.8502; homeowners can attend all three or only one.

III. PERSONALIZED HOME ASSESSMENT. Each homeowner will have the opportunity to conduct a simple 15-minute on-line survey that will produce an individualized risk assessment of their home. After completing the assessment, each homeowner will also get an easy-to-understand checklist of action items rated by priority, cost and ease of implementation, and list of resources for those interested in taking action. Based on science developed by researchers at the Center for Fire Research and Outreach based at UC Berkeley's College of Natural Resources, *Community Green Scene* has created a user-friendly neighborhood wide action focused application of the concept. Data collected from the project can also be used to identify community-wide risks and start developing action plans to reduce homeowner and community losses in the next wildfires.

IV. HOMEOWNERS' ACTION PLANNING WORKSHOP. During this 2-hour session, you will be guided through your personalized checklist and develop action plans for maintenance and retrofits for your house.
Dates and Locations: Tuesday, August 5, 6-8 pm at Westwood Club's gymnasium; Thursday, August 21, 6-8 pm at the Rancho Bernardo Library; and Saturday, August 16, 2-4 pm at RB Swim & Tennis Club (all classes are identical, attend only one!)

Registration is encouraged but not required for classes. For more information, contact rbunitedfirewise@gmail.com, 858.485.8502 or visit www.rbunited.com.

Appendix E: Participant Surveys

LIVING WITH WILDFIRE:
REDUCING PROPERTY RISKS, HABITAT LOSSES, AND COSTS
Rancho Bernardo, July 22, 2008

Before-the-class survey

1. Check 3 ways that fire **spreads**.	❑ Conduction ❑ Convection ❑ Ignition	❑ Radiation ❑ Topography ❑ Wind
2. Check 3 **common** habitats/plant communities in San Diego	❑ Alder-sycamore riparian ❑ Chaparral ❑ Coastal sage scrub	❑ Oak-woodland ❑ Pinon-juniper ❑ Ponderosa pine
3. Check 3 components of a house that determine its **ignitability**.	❑ Decks ❑ Doors ❑ Hallways	❑ Fire hydrant ❑ Sprinklers ❑ Vents
4. What activities do you enjoy in your "backyard?" (check all that apply)	❑ Children's play ❑ Gardening ❑ Privacy ❑ Others (describe)	❑ Shade ❑ View ❑ Wildlife
5. In the past year, have been active in any of these groups? (check all that apply)	❑ School meetings ❑ Homeowners' Associatn ❑ CERT Team ❑ Others (describe)	❑ Canyon group ❑ FireSafe Council ❑ Not at all
6. What keeps you from feeling safe from wildland fires? (check all that apply)	❑ Knowing how houses burn ❑ Knowing what to do ❑ Money $ ❑ Others (describe)	❑ Home improvement skills ❑ Landscaping skills ❑ Neighbor's actions

List three expectations for learning about wildfire risk reduction (this class and other programs).
1.

2.

3.

How did you learn about this class?

LIVING WITH WILDFIRE:
REDUCING PROPERTY RISKS, HABITAT LOSSES, AND COSTS
Rancho Bernardo, July 22, 2008

After-the-course, before-you-leave survey!

1. Check 3 ways that fire **spreads**.	❑ Conduction ❑ Convection ❑ Ignition	❑ Radiation ❑ Topography ❑ Wind
2. Check 3 components of a house that determine its **ignitability**.	❑ Decks ❑ Doors ❑ Hallways	❑ Fire hydrant ❑ Sprinklers ❑ Vents
3. How much are you likely to invest in property risk reduction in the next year? (check one)	❑ Labor only, no $$ ❑ Up to $100 ❑ $101 to $1000	❑ Over $1,000 ❑ Over $10,000 ❑ Not likely to make changes
4. What professionals are you likely to hire to reduce your property risks, in the next year? (check all that apply)	❑ Landscaper ❑ Architect ❑ Handyperson ❑ Others (list)	❑ Insurance agent ❑ Realtor ❑ Day laborer
5. What is your biggest barrier to writing your personal action plan to reduce wildfire risks? (check one)	❑ Need time ❑ Need information	❑ Need help to write the plan ❑ I have enough information and time
6. What is your biggest barrier to doing the retrofit and maintenance work to reduce wildfire risks?	❑ Time ❑ Money $ ❑ Physical abilities	❑ Home improvement skills ❑ Landscaping skills ❑ Other
7. Has your perception of wildland fire risk changed, after this class?	❑ Somewhat higher risk ❑ A lot higher risk	❑ Somewhat lower risk ❑ A lot lower risk
8. What new knowledge did you gain, in **EACH** of these topics?		
Fire environment		
Building design and materials		
Landscaping and defensible space		
Working with the community		
Laws and regulations		

Suggestions for improving this class or workshop?
1.

2.

Other comments:

LIVING WITH WILDFIRE: HOMEOWNERS' ACTION WORKSHOP

Action plan for _____, Rancho Bernardo, August 21, 2008
(name, house address)

What motivates you?

1. What activities do you enjoy in your "backyard?" (check all that apply)	❑ Children's play ❑ Entertaining ❑ Cooking ❑ Gardening ❑ Others (describe)	❑ Privacy ❑ Shade ❑ View, sunrise/set ❑ Wildlife viewing
2. What keeps you from **feeling safe** from wildland fire effects? (check all that apply)	❑ Knowing how houses burn ❑ Knowing what to do ❑ Home improvement skills ❑ Others (describe)	❑ Money $ ❑ Neighbor's actions ❑ Landscaping skills
3. What **two factors would most motivate you** to retrofit your house to reduce wildfire risks? (check two)	❑ Increased house value ❑ Low-interest loan ❑ Required by HOA ❑ Required by code ❑ Other (describe)	❑ Lower insurance premiums ❑ List of risks for your house ❑ Hiring someone to do it ❑ Neighborhood event

What investments will you need to make?

4. When was your house built?		
5. How much are you likely to invest in property risk reduction in the next year? (check one)	❑ Labor only, no $$ ❑ Up to $100 ❑ $101 to $1000	❑ Over $1,000 ❑ Over $10,000 ❑ Not likely to make changes
6. What is your biggest barrier to **doing the retrofit and maintenance work** to reduce wildfire risks? (check one)	❑ Knowledge of what to do ❑ Time ❑ Money $ ❑ Other (list)	❑ Physical abilities ❑ Home improvement skills ❑ Landscaping skills
7. What **professionals** are you likely to hire to reduce your property risks, in the next year? (check all that apply)	❑ Landscape contractor ❑ Arborist (tree care) ❑ Landscape architect ❑ Handyperson ❑ Others (list)	❑ Contractor ❑ Roofer or window-installer ❑ Deck- or fence-installer ❑ None

What resources does our community have, for working together to reduce wildfire risks?

8. In the past year, have been active in any of these groups? (check all that apply)	❑ School meetings ❑ Homeowners' Association ❑ CERT Team ❑ Neighborhood Watch ❑ Others (describe)	❑ Land trust/friends group ❑ FireSafe Council ❑ Rotary or other service club ❑ None

Appendix F: Feedback from Participants on Four-part Program

Living with Wildfire classes

- Presentation style--slides, written information, showing products
- Appreciated informal format, didn't feel like a lecture
- Open to questions
- Quality of information
- Knowledgeable instructors
- Specific information on fire ladder vegetation calculation; vent information
- Information about structures and how to retrofit
- Suggestions: Section one should be limited to 20 minutes, information is "too much," overwhelming

Homesite visits

- Visits to homesites (4)
- Excellent information on tour of Carol's house
- Live walkthroughs with retired fireman and landscape architect
- Suggestion: start with home tour and assessments

Home assessment survey and instructions

- GreenScene website is wonderful and concise
- Good website (GreenScene) (3)
- Suggestions: Phrasing of questions is confusing on survey, make some questions less confusing, and separate patio and deck questions; provide place to enter notes

Homeowners' Action Workshop

- Action workshop motivated me to fill out survey
- Not enough time to get action plan; a lot that was covered in first two classes were covered again

Overall

- Good handouts, printouts (2)
- Very good, would like to see more people from Poway
- Multiple classes, repetition
- Hearing other people's comments
- Having the retired fireman helped a lot and gave this series a lot of credibility
- Suggestions: Classes should be relevant to each area of town, give information given over more time

Appendix G: Wildfire Risks Reported in Online Assessment

Percent responses and risks, from 45 homeowners who completed assessment

Ques. #	Question	% High Risk	% Moderate Risk	% No risk	% N/A or don't know	Sum
1	Do you have a combustible or nonClass “A” fire rated roof?	4	0	94	2	100
2	If you have a tile or metal roof, are bird stops installed to seal the openings at the edges of the roof?	31	0	48	21	100
3	Is the roof in good condition (e.g., no broken pieces, openings or badly curled shingles)?	13	0	81	6	100
4	Are your roof and gutters clear of combustible debris such as leaves, needles or branches?	0	19	69	13	100
5	Have you installed gutter covers to help keep your gutters clean?	75	0	13	13	100
6	Does your roof have open eaves (i.e. exposed rafter tails) as opposed to boxed eaves (with soffit)?	77	0	13	10	100
7	Can you see a gap anyplace where the roof meets the wall?	33	0	37	30	100
8	Are there unscreened vent holes in the between rafter blocking?	9	0	61	30	100
11	Are there unscreened vents in the soffits (the covered part of the eaves between the wall and eave rafter tails)?	67	0	30	2	100
12	Is the soffit material made of wood (combustible material)?	0	53	31	16	100
13	Does your home have any single pane windows?	0	33	47	20	100
14	Are all vents screened with metal screens that have a mesh size between 1/8” to 1/4"?	0	38	62	0	100
15	Is your siding made of a combustible (flammable) material?	0	33	33	33	100
16	Is there a deck, exterior staircase or patio made from combustible materials attached to the house?	0	42	29	29	100
17	Are there any combustible materials on, under or within 3 feet of decks?	0	62	36	2	100

Ques. #	Question	% High Risk	% Moderate Risk	% No risk	% N/A or don't know	Sum
20	Does a fence come within 10 feet of your house or come in direct contact with it?	0	42	44	13	100
21	Are wooden yard structures such as play houses, storage facilities, trellises or arbors within 30 feet of the house?	0	40	49	11	100
22	If you have firewood, is it stacked less than 50 feet from the house?	0	40	53	7	100
23	Are there any gaps under or around doors, including garage doors or garage access doors?	0	49	44	7	100
24	Are plants and shrubs within 35 feet of your home irrigated and fire resistant?	33	0	67	0	100
25	Do you have highrisk vegetation that is within 5 feet of vents, eaves, wooden decks, windows or the foundation?	0	24	73	2	100
26	Are trees and bushes on your property separated and pruned to eliminate ladder fuels?	0	22	71	7	100
27	Are the branches of all trees at least 10 feet from the chimney and all of the eaves?	33	0	58	9	100

Appendix H: Project Team Observations

	What worked	What didn't work	What can be changed
Marketing	Many learned about the class from local newspapers (evaluations)		"More of the same," since the attendance was fairly high at the July 22 and August 2 classes, and July 29 homesite assessment
	Many distributions of email messages were made through Rotary Club and other community organizations	Most HOAs did not forward the email messages to their members	Tailor and follow an email strategy, based on structure of community groups and identification of "champions"
Registration and attendance	Attendance met or exceeded expectations	Some attended without registering (for example, 42 registered for Aug. 7, and 75 attended), and class lists inaccurate because people shifted to classes on other dates	Plan for extra attendees Assign 1-2 volunteers to get correct names, phone number, address, and email address at beginning of class
		Registration tables were crowded and lines moved slowly, resulting in some delayed class starts	Simplify steps at registration table, or add more space and lists at other tables
		Confusion about sequence of three classes, given three times at different locations	
		Few CERT members attended	Develop relationships with local CERT leaders, as project is planned
Classes	Attendees "loved" Dave Bacon, and his son-in-law	Sometimes there weren't enough handouts	Val and Jan returned to the RB United office to make copies
		The room at RB Swim and Tennis club was crowded	Extra chairs were brought, and attendees were patient
		Paper versions of slide presentations were not provided, for participants to follow	Reevaluate printing costs, and who is willing to pay for them
		There aren't good answers yet, to questions, "who can do the work?" and "Where can I buy the vents?"	Continue to address this, plus assistance for those who cannot afford to hire someone for maintenance
On-line	CERT volunteers have been	Some questions confusing, and some	Technical review of online assessment will

	What worked	What didn't work	What can be changed
assessment	enthusiastic and constructive participants in the "alpha" test of the online assessment	landscaping questions need refinement	be completed in early September
Home assessment classes	High interest in seeing examples of high-risk structural elements and landscaping, and low-risk elements	When sessions covered similar houses (or only one house), the time could have been shortened	
		Many had not done their own homesite assessments or reviewed the assessment worksheets	Hand out the assessment worksheets at the first class, and carefully explain the value of completing it before the next class
Homeowner action workshops	Repetitive information in classes and homesite assessment was reinforcing for some	Repetitive information in classes and homesite assessment was redundant for some Repetitive of classes and homesite assessment, and	Remove some of the redundancy
		For some, the action workshop was their first "class" and their questions distracted from others' more advanced questions	Be more insistent that homeowners attend all classes in the series, and that all attendees bring completed assessments to this third class
		Computer screen did not match handouts	Reevaluate how online assessment is used in classes
	Questions and answers provided information to the entire group	No time scheduled for participant interaction about action lists or motivation to retrofit	Consider dividing into smaller groups for part of the Action workshop
Evaluations	Evaluations provide information on where homeowners learned about the project	Evaluation questions were modified throughout the project, which made analysis more confusing	Review evaluation results with Jim Absher and prepare a set of integrated surveys for the next Living with Wildfire project
	Questions were asked about participants, about their attitudes, and likelihood of taking action	Some questions were redundant, for participants who attended more than one class and did several surveys	Tracking system can be established for participants who have already completed a survey. First time" surveys can be created.
Communi-cations		Email messages not reaching all project team members	Create "project team" list at beginning of project, and send cc of email messages to project team as well as attendees