Abstract

Around the world, youth are recognized as playing an important role in reducing the risk of disasters and promoting community resilience. Youth are participating in disaster education programs and carrying home what they learn; their families, in turn, are disseminating knowledge into the community. In addition to making a difference today, youth disaster education programs train the adults of tomorrow to be more prepared citizens. As social scientists and education researchers working in wildfire risk mitigation, we asked: how can wildfire education programs for youth help develop and support fire-adapted human communities? To begin to answer this question, we studied seven wildfire education programs for youth across the U.S. Programs were based in schools, public agencies, and nongovernmental organizations (NGOs). In a series of interviews, we sought information that would enable us to describe and analyze (1) the program’s characteristics and the local resources to support it, (2) ways in which the program increased knowledge and awareness of wildfire, promoted more realistic risk perceptions, and improved wildfire preparedness for youth and their families, and (3) ways in which the program contributed to the local community becoming more adapted to fire. We found that the extent to which the programs were integrated into local wildfire planning and management efforts varied, as did their effectiveness in reaching community members and homeowners. In this report we present findings from one case study—Etoile Firewise.
ETOILE FIREWISE

At Etoile School, 26 safety posters hang by clothespins across the cafeteria stage. The colorful posters are entries in a school-wide contest run by the students who make up the Firewise Advisory Board. Leading up to the poster competition, board members visited classrooms of younger students and organized discussions with their peers to explain the risks of wildfire and the actions to take in the event of a house fire. They invited the entire student body of 146 pre-kindergarteners to eighth graders to submit posters, judged the entries, and named six winners. Just outside the cafeteria, a Firewise Communities sign reminds students, teachers, and parents of the school’s commitment to lead its community in wildfire risk reduction. In fact, Etoile holds a special place in the history of the recognized Firewise Communities: it is the first community in the Nation where a school organized the effort to obtain and annually renew its national Firewise Communities status. As researchers conducting a national study of wildfire education programs for youth, we talked to individuals involved in the Etoile Firewise program to better understand program characteristics and the local resources that support it, and to learn more about the program’s direct and indirect impacts on youth, families, and communities—including how the program is contributing to creating a fire-adapted community. In this research note, we share what we learned in Etoile—lessons that can help other communities involve youth in reducing wildfire risk.

Twenty-six students at Etoile School created a poster at home to compete in the poster contest, which was organized by the student-led Firewise Advisory Board. Photo by Annie Oxarart, University of Florida.

1 The Firewise Communities program encourages local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from wildfire risks (www.firewise.org). The term “firewise” is generally used to describe actions for reducing wildfire risks around homes and in the community.

2 U.S. policymakers have identified a national goal for at-risk communities to be adapted to fire. Fire-adapted communities consist of “informed and prepared citizens collaboratively planning and taking action to safely co-exist with wildland fire” (Wildland Fire Leadership Council 2011, p. 33).
The small, unincorporated town of Etoile is located in the heart of the Piney Woods in eastern Texas—a region known for vast loblolly pine forests and large reservoirs scattered across the landscape. Most everyone knows everybody else in this rural, lakeside hamlet, and some residents have never ventured out of Nacogdoches County. Etoile School, the only school in the 80 square mile school district, is proud to be the center of activity for the community, and now the school athletic teams are not the only newsworthy story.

Since 2008, the school has become very involved in an issue that touches all community members, both young and old. A high risk of wildfire threatens the subdivisions and properties near Etoile. Prolonged drought has increased risk levels and extended bans on trash burning. With no garbage pickup and no nearby landfill, dry conditions are particularly challenging. Not only does yard and household debris accumulate during the burn bans, but some residents may ignore the ban in order to get rid of some of their waste—both situations creating fire hazards near homes. In the event of a wildfire, the narrow and winding roads leading to homes and subdivisions could impede evacuation and access for emergency personnel.

As one representative from the Etoile Volunteer Fire Department notes, “We’ve got 15 subdivisions and 11 have one way in and one way out, and they all are surrounded by pine plantations. If we get a fire in a pine plantation, we can guarantee it’s going to crown out, and it’s going to move extremely fast.” Recognizing the threats to the region and being charged with reducing risk levels, a Texas Forest Service (TFS) employee began considering the best way to introduce firewise goals in Etoile. As a resident of the close-knit community, the TFS employee thought the Etoile School was the best place to start.

After learning about firewise from TFS staff, the Etoile School administration fully supported involving students in the program. Firewise Communities must meet special requirements, which include having an advisory board and completing an annual project to reduce wildfire risk. Although these tasks are typically completed by adult volunteers, the Firewise Etoile program was designed so that youth could help organize and complete the program requirements. Initially, five fifth to eighth grade gifted students with leadership potential were selected to serve on the student-led Firewise Advisory Board. These students were introduced to the region’s wildfire risk and to the goals and requirements of being recognized by Firewise Communities. A TFS employee remembers how this first group of students enthusiastically responded to the challenge: “They were all excited about it, and they wanted to help. That was the bottom line.” To guide students, four adult leaders also served on the advisory board and included representatives from Etoile School, TFS, and the Etoile Volunteer Fire Department.
Soon after forming the advisory board, the entire student body was introduced to the program during a morning assembly. A teacher at Etoile School explains, “We got the fire department to come in and talk to the whole school in the morning. We had a little assembly, and they talked to the little ones about being fire safe in their home and what to do if there were fires. We talked to the bigger ones about how they could help.” Each student was asked to take home a firewise checklist to complete with their family. Thirty-seven families returned checklists; most students reported that they worked with their parents to create defensible space around their home by raking leaves, moving wood piles and other flammable materials, and cleaning gutters. In addition, about 60 people attended a Community Firewise Education Day held during the volunteer fire department’s auxiliary bake sale. In December 2008, the school held a Firewise Dedication Ceremony to celebrate becoming an official member of Firewise Communities. With excitement still in the air in early 2009, the advisory board used the school’s alligator mascot as the theme and helped plan the Great Gator Rake where students, parents, school staff, TFS staff, and Keep Nacogdoches Beautiful cleared leaves and debris around the homes of three elderly Etoile residents. News of this event made the local paper, and the volunteers enjoyed lunch together at the volunteer fire department after finishing their work.

To renew Etoile’s Firewise Communities status, at least one project to reduce the community’s wildfire risk has been completed each year; however, the students often planned more than one project and lent a helping hand whenever an opportunity arose. For example, during the 2009-2010 school year, advisory board members spent the day at nearby Lufkin Zoo setting up an educational exhibit, handing out firewise materials, and even wearing the Smokey Bear suit. TFS staff let the students take the lead: “The kids handed the adults the materials and when they did, they would say ‘would you like to know more about firewise?’ so they really had to interact and they had to know what they were talking about.” Other completed projects include creating an educational firewise booth for the school’s Spring Festival, organizing and judging two firewise poster contests for the entire school, and creating defensible space around two more homes in Etoile during a second cleanup day. Through TFS press releases and media contacts, several of these projects were covered in the local newspaper and on the television news.

Etoile Firewise activities occur both during and after school. Some of the projects require working outside of school hours, such as the cleanup days or event booth. The student advisory board meets during the school day, and events that are integrated into the school, such as the poster contests, occur while school is in session. The program is not currently part of any subject area or grade level, nor does it meet specified curriculum standards. All
students learn about fire safety, home evacuation, and firewise principles during Wildfire Prevention Week, both in their classrooms and in school assemblies when guest speakers from TFS and the Etoile Volunteer Fire Department give presentations. In addition, advisory board members share information with the student body by giving morning announcements, holding informational meetings, or going to younger classrooms to give presentations. Although the school’s new superintendent and teachers certainly see ways to connect the program to the curriculum, the program is important to the school because it goes to the heart of the school’s mission—“Our mission is to create leaders one child at a time. So this program is just one little way of helping them learn how to be a leader in their community,” explains one teacher.

As the program has grown, so has the advisory board. For the first three years, the board had five to eight invited members, adding new members to replace eighth graders who moved to high school. At the beginning of the 2011-2012 school year, membership was opened to all interested students, and the board mushroomed to 16 sixth to eighth graders. In addition, president, vice president, and secretary positions were created. Although a larger advisory board allows more students to be actively involved in the program, it also raises questions about the need for a decisionmaking process. As one Etoile School teacher notes, “We hadn’t had that in the past because it’s been small and we could just talk through everything.” This teacher serves on the advisory board, along with a representative from the TFS and the Etoile Volunteer Fire Department. Together the three adults help guide student discussions to determine relevant community projects for reducing wildfire risk. For example, if the teacher introduces an idea, she will then ask the students, “What do you think about this? Do you think this would be a good thing for us to do?”

The importance of fire safety and risk reduction took on a new meaning in 2011 as one wildfire after another occurred in Texas, communities were evacuated, and homes and two lives were lost. One teacher explains, “After all the fires, the students see the program for what it’s really meant to be. Now it’s something that’s keeping us safe. It’s really important. Before we were just floating along, ‘we’re doing a good thing, we’re doing firewise.’ But now I think the students’ eyes have been opened.” A student advisory board member echoes this heightened sense of importance. “We do this to help people. We go out there and we take it seriously. We want to make it a good process and maybe change something. There could be a possibility of a person’s house catching on fire, and we want to help prevent that.” The students believe anyone can make a difference and they want to help save lives in their community.

“I think it’s good for the kids to get out and do things like [the cleanup days]. It’s great for them to get out and see how things are done.”

(Teacher, Etoile School)
COMMUNITY CONTRIBUTIONS TO THE ETOILE FIREWISE PROGRAM

Etoile School, the TFS, and the volunteer fire department are the primary partners that collaborate to create and maintain the Etoile Firewise program. The school serves as the program’s hub and enables youth to share leadership roles. In particular, one teacher explains how she “helps guide the advisory board and gives them questions to get them thinking in other ways and about different things to do.” While the program is nested within Etoile School, it may have never come to fruition without the TFS bringing the idea to the school’s attention: “The thing that really got us involved is the Texas Forest Service coming in and saying ’Hey, how would you guys like to do this?’” In addition to providing the impetus to get the program started and continuously serving on the advisory board, the TFS has provided informational resources, Smokey Bear gift baskets for poster contest winners, and staff and equipment for cleanup days. Being connected to the TFS provides students with special opportunities, such as helping with the educational booth at the zoo or working with out-of-state fire crews during the cleanup days. The Etoile Firewise program directly benefits the TFS, because it meets their goals in increasing awareness, wildfire prevention, and mitigation, particularly in wildland urban interface areas.

The Etoile Volunteer Fire Department also plays a key role in leading the program. For many years, the fire department has helped Etoile residents become more aware of wildfire risks and keep their yards clear of leaves, limbs, debris, and trash. A fire department representative explains, “When the TFS started this with the school, we volunteered to provide them anything we possibly could and work with the kids as much as possible.” Indeed, the firefighters have given school presentations, participated in the cleanup days, and opened the firehouse to the community for education events and celebrations. The firefighters even help make the gatherings kid-friendly by using the fire truck hose to play a game called “nozzle ball” where getting wet is part of the goal!

Finally, the non-profit organization, Keep Nacogdoches Beautiful, has significantly contributed to both cleanup days. Not only has the organization brought supplies, such as rakes, gloves, and trash bags, it has also hauled away all of the debris and waste collected. Given the constraints of waste disposal in the area, this is a huge contribution to the program. Keep Nacogdoches Beautiful, an affiliate of Keep Texas Beautiful and Keep America Beautiful, works throughout the county to fulfill its mission—to enhance the community by encouraging individual responsibility. The organization already partners with Etoile School to implement recycling programs and to conduct educational programs. The reason to be involved in
the school’s firewise efforts is clear in one employee’s mind: “Based on the trash we have picked up, it is a benefit. It is beautification. I mean a burned landscape is not beautiful. It definitely fits right in. Keep America Beautiful might want to have a niche in this nationwide.”

**IMPACTS OF THE ETOILE FIREWISE PROGRAM**

In addition to gaining national recognition by Firewise Communities, the Etoile Firewise program has had far-reaching effects on the students, families, and the community. The projects that have been completed as part of the program can be divided into two categories:

1. raising awareness within the school and the community (e.g., poster contests, educational booths at the school festival and the zoo, community firewise education day)
2. taking action to reduce wildfire risk (e.g., home firewise checklist for students, cleanup days to clear defensible space around the homes of residents)

While students on the advisory board are certainly learning what it means to be firewise, they are also raising awareness throughout the school by involving the entire student body in projects. One teacher reports hearing students talk “about raking leaves and how to get them away from the house” and another teacher was told about the “fun cleanup event.” The 26 student posters show that students understand a range of concepts. About half of the posters included images related to house fire safety, while the other half contained images related to wildfire safety or a mix of both house and wildfire safety. Posters depicting wildfire safety included actions such as raking leaves, cleaning a chimney or roof, and using a water hose or fire hose, and sources of ignition such as a match or cigarette. As a fire department representative says, “I imagine even the little ones can tell you what firewise means in their own little way.”

“You don’t have to be big to be big; you can be little and be big.”
(Staff, Texas Forest Service, commenting on the power of a small group of committed students from a tiny spot on the map)

“They’re learning how to be safe and what to do when a fire occurs.”
(Teacher, Etoile School)

Students watch a firewise video clip and learn about wildfire risk and strategies to reduce that risk. Photo by Jan Amen, Texas Forest Service.
Activities such as the poster contest and home checklist help take the firewise message into the students’ homes: “I think the students are taking it home and sharing it with their parents; it was very apparent with this poster thing,” reports one teacher. By having the youth talk about wildfire issues at home, the information can begin to spread through the community. A fire department volunteer explains that in this small community, information is quickly shared: “the kids talk to momma, and momma talks to her coffee buddy, and kids talk to kids, and pretty soon the community is aware of what is going on.” This normal diffusion process, paired with the community education events and the increased media attention, is indeed creating change in Etoile. The fire department now finds that “we can mention the word firewise, and they know what that is because the kids and the community are talking about it.” And not only does the community seem to be more aware of wildfire risk, attitudes are slowly changing. “The majority of people listen to their kids, start thinking about it, and then if we have the opportunity or the time to go by a neighborhood and knock on doors or give them handouts, they’re a little more receptive and don’t reject it as quickly.”

In addition to raising community awareness and changing attitudes, the program has conducted on-the-ground activities to reduce wildfire risk. Through the home firewise checklist, students from 37 families worked with their parents to conduct some type of fuel mitigation at their home. The two cleanup days helped clear hazardous fuels from around five homes, most of which were owned by elderly residents unable to complete such work. These projects allow youth to experience firsthand what it takes to be firewise.

Since the beginning, the program has been motivated by enthusiastic youth on the advisory board who want to make a difference. As one teacher said, “We have a lot of kids who really do care and want to do things for other people and they enjoy doing this. I think it’s been successful in getting them to understand that you can be a helper too, help your community or wherever it is that you go.” The mother of a past advisory board member and teacher at the school is thankful that the program gave her daughter the opportunity to help others and to build intergenerational relationships. “I like to see my children taking care of somebody else. It is a good value that I like them to learn, especially the elderly because I think sometimes we forget about our elderly.” In fact, along with having fun with friends, volunteering and being able to help people motivates students to join the advisory board.
Serving on the advisory board has also helped increase the students’ confidence in their public speaking and leadership skills. “A lot of times, adults don’t listen to kids,” notes school staff. So when adults listen to their firewise message “it makes the students feel very important. And it is going to give them self-confidence later on in life to talk about the things they need to talk about and do the things they need to do.” Indeed, one mother found that the program “helped her daughter to get out there, speak out more, and be confident in who she is.” Finally, with increased media attention and opportunities to educate others, advisory board members are also gaining experience speaking to reporters and being on camera.

The success of this program is attributed to the youth’s involvement. TFS staff recognize that not only do the youth bring a high level of enthusiasm and motivation, they also approach the issue differently from adults involved in Firewise Communities. “I think the students are more proactive than adults. The kids come up with innovative ideas…and adults are not going to go out and work in other people’s yard. Whereas the kids, they are getting out there and helping people.” The fire department agrees that youth are the catalyst to community change. “When we get the young people involved, it filters down, it filters up, and we can see the benefits. To put your finger on a particular benefit, we haven’t been able to do that yet. But we’re seeing the attitude change.”

“**You get to help people and the environment. You get to do good things, but also have fun at the same time.**”

(Student, Etoile School)
NEXT STEPS FOR THE ETOILE SCHOOL FIREWISE PROGRAM

The program, seen as highly successful, plans to continue indefinitely. With partners and students generating new ideas for the advisory board to consider, the future is rich with possibilities. A few of the board’s ideas are listed below:

• Build fire concepts into the curriculum. Students can use the firewise concepts and experiences as writing prompts, research assignments, and vocabulary in English; calculate defensible space perimeters in math; and learn about the fire triangle and fire-prone ecosystems in science.

• Increase parental involvement. Students could make a presentation at the Parent Teacher Student Organization to share information. This group can collaborate on future firewise activities.

• Provide informational handouts at events. Having a stock of firewise brochures and handouts at the school will help ensure that this information is available at all school events.

• Initiate more community education activities. Students could visit homes in their neighborhood and talk about being firewise and what actions make the homes safer. They could produce informational door hangers to provide simple steps to reduce risk.

• Explore issues around policy change. Students could gather data and develop a presentation to the Army Corps of Engineers to explain why a local campground should be allowed to reduce vegetation at the edge of a lake. This would require an in-depth knowledge of the policies that govern watershed development as well as fire behavior and the advantages and disadvantages of a firewise plan.

• Involve more partners. Local business owners could meet with the advisory board to learn how they can take a leadership role in demonstrating firewise landscaping and promoting awareness. Small signs could be used to identify supportive businesses and firewise landscapes.

• Expand to other schools in the county or in the nearby cities of Lufkin and Nacogdoches. Board members can help generate enthusiasm among students and provide guidance for organizational development and leadership. In larger communities, of course, the risk of wildland fire may not be as great, but local TFS and fire departments could identify areas of significant risk.

Researchers also offer the following next steps based on case study analysis:

• Integrate specific fire research and information into the curriculum. Experiments on plant flammability, weather records, and regional maps to determine the frequency of wind direction in different seasons could be built into lesson plans.

• Provide media tips and training. Board members could receive media training to hone their public speaking skills and increase their comfort with reporters.

“We would like to do something with the businesses because we feel like that’s going to help us to be more visible.”

(Teacher, Etoile School)
• Expand depth of outreach opportunities. Students could become youth ambassadors for the TFS and the volunteer fire department in regional expositions and events. Board members could talk to parents about fire risk and teachers or youth about developing a school-based Firewise Communities program.

• Consider group management strategies for the advisory board. The adult leaders can help students explore a committee structure, Robert’s Rules of Order, group discussion and facilitation techniques, and decisionmaking procedures.

• Prepare for leadership transition. Original leaders may retire or move on to new projects and someone needs to be in training to continue a project like this.

• Ask partners to reflect on what they need to achieve through this relationship and help the youth develop new projects that will serve all partners’ objectives. Demonstrate to youth how relationships are formed and managed.

LESSONS FOR OTHER YOUTH WILDFIRE EDUCATION PROGRAMS

From the information we learned through exploring the Etoile Firewise program, we offer the following advice for educational organizations and fire management agencies interested in youth wildfire education.

• Schools are excellent partners to help achieve wildfire risk reduction goals; however, the school staff may not be aware of the opportunity and need to be able to adapt the opportunity to meet their goals.

• Pairing the fire expertise of agency personnel with the guidance of experienced educators is important to creating successful programs.

• While incorporating programs into the curriculum creates long-term continuity, program goals can also be meshed with the school mission, core values, and leadership principles.

• Children can make a difference and help create community change. The enthusiasm of youth is contagious.

• In a small town, student leaders may be involved in competing activities, such as basketball and track. Events should be planned so that they do not conflict with other student or community partner activities.

• Using media to attract attention can help spread the message through the community and empower student leaders. Everyone will watch the news when they know the kid being interviewed.

• Strategies must be identified to recruit and build leaders for sustaining the program after the originators retire.

“People will listen because we’re younger, and if they see us making a difference, maybe they’ll try too.”
(Student, Etoile School)

“We’re all learning together.”
(Staff, Texas Forest Service)
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Students bring enthusiasm and innovative ideas to wildfire risk reduction activities. Photo by Jan Amen, Texas Forest Service.
Figure 1.—Research framework for understanding the link between wildfire education programs for youth and fire-adapted human communities, where youth wildfire education programs, using environmental education methods, influence students and families and contribute to communities becoming adapted to fire, with local community resources supporting the wildfire education program.

ABOUT THIS SERIES

This is one in a series of Forest Service publications presenting descriptions of individual case studies included in the National Fire Plan study “Promoting fire adapted human communities through youth wildfire education programs.” Other research notes in the series can be found by searching the title “Youth Working with Communities” at Treesearch, http://treesearch.fs.fed.us, or by contacting a member of the research team.

METHODS

This report is part of a larger investigation of how youth wildfire education programs contribute to the development of fire-adapted human communities. The National Cohesive Wildland Fire Management Strategy defines a fire-adapted community as consisting of “informed and prepared citizens collaboratively planning and taking action to safely co-exist with wildland fire” (Wildland Fire Leadership Council 2011, p. 33). A working group of the Wildland Urban Interface (WUI) Mitigation Committee of the National Wildfire Coordinating Group3 has identified four types of adaptations a community must make to become adapted to fire: (1) social adaptations, (2) political adaptations, (3) ecological adaptations, and (4) emergency management adaptations. In studying wildfire education programs for youth, we looked for ways in which the program contributed to adaptations in these four areas.

3The WUI Mitigation Committee provides coordinated leadership, input, and recommendations to public wildfire management agencies for the achievement of fire-adapted communities in the wildland urban interface. http://www.nwcc.gov/branches/ppm/wuimc/index.htm
We explored the environmental education and community wildfire management literature and developed a model to explain how education programs and fire-adapted human communities interact (Fig. 1). The case study reported here is helping us further define and characterize the model. Our first step was to describe the program, focusing on program content and the extent to which the program employed experiential, place-based, and service learning activities (blue box in Fig. 1). Next, we collected data on whether and how the program increased knowledge and awareness of the physical, ecological, and social aspects of wildfire, promoted more realistic risk perceptions, and improved wildfire preparedness for youth and their families (down arrow in Fig. 1). We then looked for ways the program may be contributing to the local community being more adapted to fire (green oval in Fig. 1). Finally, we identified community resources that supported the program (up arrow in Fig 1).

The case study approach is a common research method applied when scientists want to study “who, what, how, and why” for a contemporary event within a real-life context (Yin 2003). We selected programs for case studies that would represent (1) programs that are contributing (even in a small way) to the development of a fire-adapted human community or have the potential to do so in the near future, (2) a range of program types (based in schools, clubs or organizations, and NGOs), and (3) different regions of the country. We used purposive sampling to select interviewees (Lindlof and Taylor 2002). This selection process is appropriate when scientists need to identify people who have specialized knowledge about the program being studied. Data were gathered using semi-structured, face-to-face interviews following an analytic induction approach (Glaser and Strauss 1999). Analytic induction is ideally suited for this study because it allows us to identify patterns and themes surrounding concepts that have received little empirical study. For the Etoile Firewise case, we interviewed 13 individuals, including Texas Forest Service staff, volunteers from the Etoile Volunteer Fire Department, Keep Nacogdoches Beautiful staff, and people associated with the school (administrators, teachers, and students). Additional data were collected from secondary sources such as the Etoile Community Wildfire Protection Plan (CWPP), reports or handouts on the program, and newsletter or newspaper articles.

**LITERATURE CITED**


