

MODULE 4: BECOMING FIRE ADAPTED IN THE SHRUB STEPPE

Outline

- A. Becoming Fire Adapted in the Shrub Steppe
- B. Assessing Risk
- C. Planning a Property-Specific Defensible Space
- D. Implementing the Defensible Space Plan
- E. Evaluating Your Defensible Space Plan

MODULE 4 GOALS

The goal of Module 4 is to provide landowners with resources and templates to guide their development of a customized wildfire mitigation plan (a defensible space plan). Assessing wildfire risks, creating a plan, implementing the plan, and evaluating efforts over time ensures that human life, wildlife, property, crops, and livestock are more protected than if no plan exists.

The objectives for this module are to:

- Increase participants' ability to assess the risks of wildfire on their property(ies).
- Increase participants' ability to design a defensible space plan tailored to their specific property(ies).
- Increase the likelihood that participants will implement a defensible space plan.
- Increase participants' ability to evaluate the effectiveness of their defensible space plan

ASSESSING RISK

Part of emergency planning is assessing risk. Risk assessment is a systematic process for identifying, analyzing, and controlling how potential hazards (in this case wildfire) may negatively impact individuals, property, or the environment. It addresses challenges around vulnerabilities and the risk of potential harm. Risk assessment is critical to helping landowners make the most informed decisions about mitigating risks.

There are four basic elements of risk assessment that are relevant to wildfire mitigation: (1) asset identification, (2) risk analysis, (3) impact of risk, and (4) cost. Asset identification requires an inventory of both physical and non-physical assets. Physical assets are items with material existence that have economic, commercial, or exchange value (e.g., structures, tools equipment, feed, seed inventory, livestock, crops, haystacks). Non-physical assets consist of things that are not physical in nature (e.g., goodwill, brand equity, intellectual properties, licensing, customer lists, and research and development). They are usually more closely

associated with risk assessment in corporations or businesses. While they may not be as applicable to the risk assessment undertaken by most homeowners, they deserve mention since every situation will be unique to each landowner.

Risk analysis is the process of determining the probability of risk (wildfire), the qualitative and quantitative costs of said risk, and the strategies that can be used to mitigate the risk. After identifying assets, then, the landowner should ascribe a value to each one. The table below suggests using a value scale of one to ten, with ten being a very valuable asset and one being an asset of little or lesser value, but any values can be ascribed to assets as long as they are used consistently across all assets.

Determining the impact of risk is the process of assessing short-term and long-term costs due to loss by wildfire. Costs may be economic, emotional, or environmental; they also may include health issues and the possibility of loss of life.

Finally, costs of solutions that mitigate loss must be examined. If the cost of the solution outweighs the likelihood of a wildfire event, then creating a defensible space may not be justified. That said, it is clear, from previous modules, the probability of wildfire in the shrub steppe is increasing. Not only is the number of fires growing, but the intensity of wildfires is also on the rise. It is highly unlikely, then, that any large property owner who relies on crops or livestock for his/her livelihood would find the costs of mitigating the impacts of wildfire too costly to consider.

One benefit of risk assessment is that it is performed **before** a wildfire starts. Assessing risk beforehand allows property owners and landowners to plan and prepare for an emergency if one arises. Table 1 provides a template for completing a risk assessment of properties located in the shrub steppe. In the category of potential risks, consider all those things of value on your site. Among other things, you might include loss of livestock or crops; delayed delivery of products; compromised quality of product produced; cost increases; or damage to reputation.

Then, rate the impact based on the “value” of the risk to you and your family. Create one or more solutions to mitigate the risk. Solutions should be practical, doable, and cost effective. After solutions are identified, list the resources needed to effect the solution. Finally, estimate

the cost of putting each solution in place. Table 1 provides an example of one way to assess risk.

Potential Risk	Impact (1-10)	Solution	Resources	Cost
Loss of wheat crop	10	Bare space firebreaks	Time, grader, diesel	\$50
Loss of fences	10	Replace wood w/wire or metal or virtual	Time, metal posts, wire, fasteners	\$15000
Loss of barn	8	Clear vegetation	Apply weed/grass killer	\$100
Loss of Livestock	10	Shelter in place plan Evacuation plan	Time, trailer, travel expenses	\$3000

See Appendix A: Printable Forms and Templates for a Blank Risk Assessment Form

Completing a risk assessment is a very important as part of creating a wildfire mitigation plan. It assures that careful thought and analysis has been given to all aspects of potential risks from wildfire and that the mitigation plan includes reasonable and practical solutions to all potential risks.

PLANNING A PROPERTY-SPECIFIC DEFENSIBLE SPACE

One of the first steps in creating a defensible space plan is to prepare a site map. Oscar Newman (1976) defined a defensible space as a “residential environment whose physical characteristics—building layout and site plan—function to allow inhabitants themselves to become key agents in ensuring their safety. Although he was speaking about protection against criminal behavior, the definition is applicable to defensible spaces associated with wildfire mitigation as well. For the purpose of this module, this definition will be expanded to include the larger environments associated with owning rangeland and farmlands in the shrub steppe.

Using the concept of zones discussed in Module III, the landowner should create a site map that includes all land and structure features of his/her property. The location of specific crops and livestock should be noted as well. The more details that can be included, the better! Zone 1 will be areas that surround structures no matter where they are located on the property. Zones 2, 3, and 4 are areas that spiral out from buildings and include crop fields, pastures, and their associated structures such as windmills, watering troughs, fences, loafing sheds, and haystacks.



The next step in the process is to determine the best wildfire defense strategies and apply them to the site map. Using the risk assessment completed above and the site map, overlay the wildfire mitigation strategies onto the map (see above). A blank site map is provided in Appendix A.

Strategies may include, but are not limited to

- Removing flammable materials by eliminating things such as brush, weeds, grass, ground debris around buildings and other structures such as propane and fuel tanks
- Creating hardscapes such sidewalks, driveways, retaining walls that use concrete, pavers, or gravel

- Creating firebreaks such as those mentioned in Module III
- Changing out flammable building materials for inflammable materials such as wood fences for metal; shingled roofs for metal roofs; wood siding for metal siding on structures; wood steps and stairs for stone or concrete
- Relocating haystacks

The costs of proposed strategies have already been determined. Now is the time to determine whether the work can be done all at one time or if it will need to be completed in phases. If phases are required, place each activity into the appropriate phase and create a timeline for completion. Phase one could be those things that are most easily accomplished with very little effort and minor expenditures. Or, phase one could be the things that are at highest risk and require immediate attention to assure maximum risks are minimized to the greatest extent.

Adding a timeline will help keep the project on target. This is especially valuable if fiscal resources from private or public agencies will be needed to accomplish project activities. In some cases, timelines may be very rigid due to the manner in which resources are allocated. In most situations, however, timelines can be flexible and take into consideration unexpected events such as changes in the weather, delays in procuring needed materials and supplies, illness, or insufficient time allotted to complete a task or phase.

The final step is identifying the resources needed to implement the defensible spaces plan. There are two major resources to consider—human and physical. Human resources, of course, are the people needed to complete the project; they may include everything from contractors, to specialized services personnel, to equipment operators, to fence builders and ditch diggers. Physical resources include all the materials, supplies, tools, and equipment needed to bring the project to fruition. For example, to create a retaining wall to serve as a firebreak, you may need concrete blocks, sand, gravel, shovels, picks, trowels, mortar, and any number of other supplies and materials. This is the step where all those required resources are listed to give structure to the implementation of your plan. In scenarios like these, it is important to track and record all expenditures so that if financial assistance is available through a funding source, landowners

have a thorough understanding of the costs that were required to address these issues and may have a better chance of being reimbursed for the expenses.

By following these steps, landowners wishing to create a defensible space will have a project management plan to guide their work. A template for developing a Project Management Plan, that puts all the planning elements into one place, can be found in Appendix A. The template can be adapted to accommodate small projects, large projects, multiple projects, and projects that require phases.

IMPLEMENTING A DEFENSIBLE SPACE PLAN

When the project management plan (See Appendix A for a template) is complete, it is time to gather both human and physical resources for each project in the phase and set to work. Smaller projects, as expected, will require less expense and are less labor intensive. A landowner may be able to complete smaller projects alone and with equipment and materials on hand. Larger projects, however, may require consultation with experts, the acquisition of permits, specialized personnel, and construction or other job specific equipment. Larger projects may require significantly more fiscal resources as well. For projects that require more funds to implement, there are financial supports in place to assist. Local entities such as conservation districts, fire districts, university extension agencies, and land trusts receive funds from private foundations as well as local, regional, state, and federal agencies. Funds are usually designated for specific projects that mitigate wildfires or to rebuild after a wildfire occurs. If you have questions about funding, contacting one of these local agencies may get some or all the financial relief required to implement your project. Appendix C has contact information for some organizations and agencies in Chelan, Douglas, and Grant counties that provide support to landowners for creating defensible spaces.

EVALUATING YOUR DEFENSIBLE SPACE PLAN

In addition to regular maintenance of the defensible space you create, evaluation of your plan is also important. Changes, such as the addition of property, the establishment of invasive species, and changing weather patterns require landowners to review their defensible spaces plans on an annual basis. Revisions to the plan, as needed, assure the plan will remain effective.

The following checklist may be of help in assessing the readiness of your defensible space plan to protect your property, crops, livestock, and loved ones.

TABLE 2: DEFENSIBLE SPACES ANNUAL EVALUATION CHECKLIST	
ZONE 1: Within 30 feet of all structures of the property line	
	All branches within 10 feet of any chimney or stovepipe outlet are removed
	Leaves, needles, vegetation on roofs, gutters, decks, porches, stairways are cleaned away
	No dead or dying trees, branches, shrubs, or other plants adjacent to or overhanging buildings
	No other dead or dying grass, plants, shrubs, trees, branches, leaves, weeds, or needles
	Flammable ground cover and shrubs have been removed or separated
	Flammable vegetation and items below decks, stairs, balconies have been removed
	Woodpiles, not covered with a fire-resistant material have been relocated outside Zone 1
	Address numbers are displayed in contrasting colors on a structure, post, or mailbox and are easily read from the lane, street, or highway
	Chimney or stovepipe openings are covered with a metal screen with an opening of 3/8 to 1/2 inch
	Soffits have metal screen with an opening of 1/8 inch

ZONE 2 and 3: Within 30-100 feet of all structures or the property line	
	Annual grasses and forbs are no higher than 4 inches
	Fuels have been removed or separated
	Exposed woodpiles have a minimum of 10 feet clearance to bare mineral soil in all directions
	Dead and dying woody surface fuels and aerial fuels are removed
	Loose surface litter (leaves, needles, twigs, bark, cones, small branches) are 3 inches or less

ZONE 4: Beyond 100 feet of all structures or to the property line	
	Logs or stumps are removed or isolated from other vegetation
	Outbuildings and liquid propane tanks have 10 feet of bare mineral soil clearance and no flammable vegetation for an additional 10 feet around their exterior
	Field fire breaks remain consistent with guidelines for their original installation
	Fences and gates are metal or other fire-resistant materials to the extent possible
	Property lines are clear of tall grasses, weeds, and other flammable materials

A printable form of this checklist is available in Appendix D.

This concludes Module IV, the final module in the current series. These modules (I-IV) have been designed to promote awareness and knowledge about wildfire, comprehensive planning to mitigate the effects of wildfire, and to enable safe and effective wildlife management by home- and landowners.

The information in this module and the three that preceded it, if you took advantage of them, should have prepared you well to create a defensible space plan for your home and the outlying areas of your property. If questions arise, do not hesitate to contact the staff at Foster Creek Conservation District or any of the other resources provided in the four modules. There are people whose job it is to help homeowners and landowners if needed.

These modules will be updated and new modules created. Future learning modules will take a deeper dive into activities and management strategies that show promise or are being successfully implemented by communities and professionals around the shrub steppe.