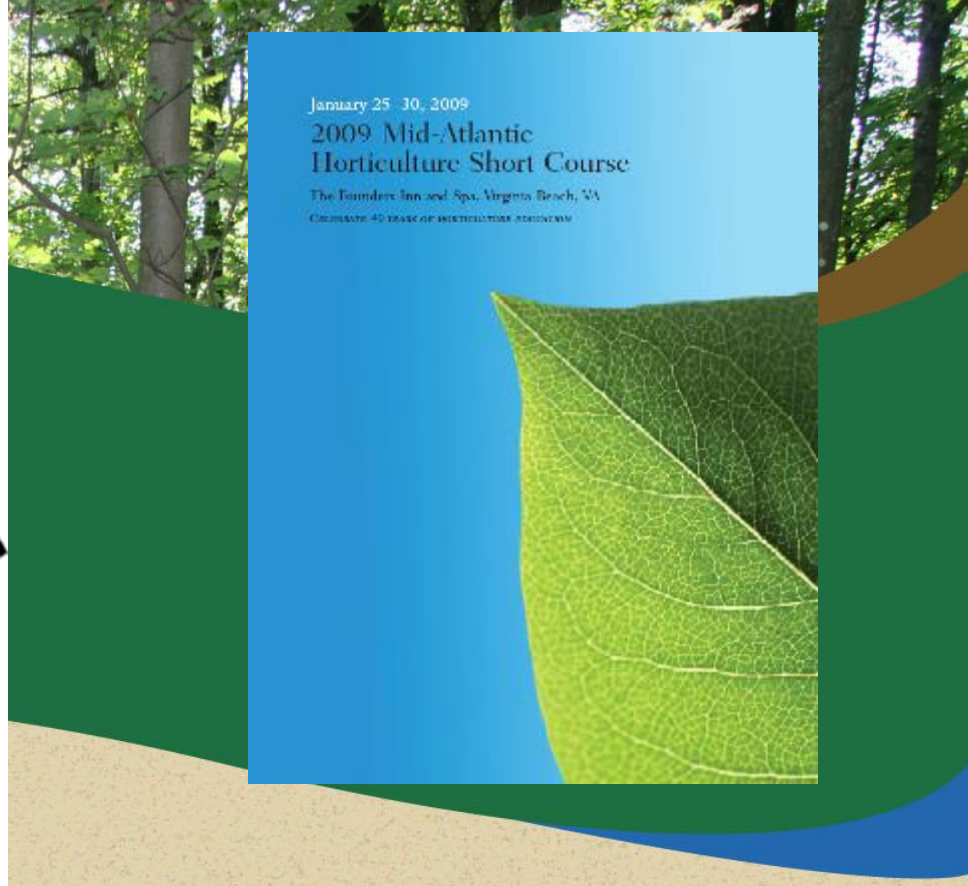
BE WISE
BE VERY WISE
BE FIREWISE

DEFENSIBLE SPACE




The Virginia
Horticultural Foundation

VIRGINIA
DEPARTMENT OF
FORESTRY

**Fred X. Turck**
**Assistant Director**
**Resource Protection Division**
**Virginia Department of Forestry**


**You can no more get to where you don't know where you're going, than you got to where you think you are, from where you don't know where you've been.**

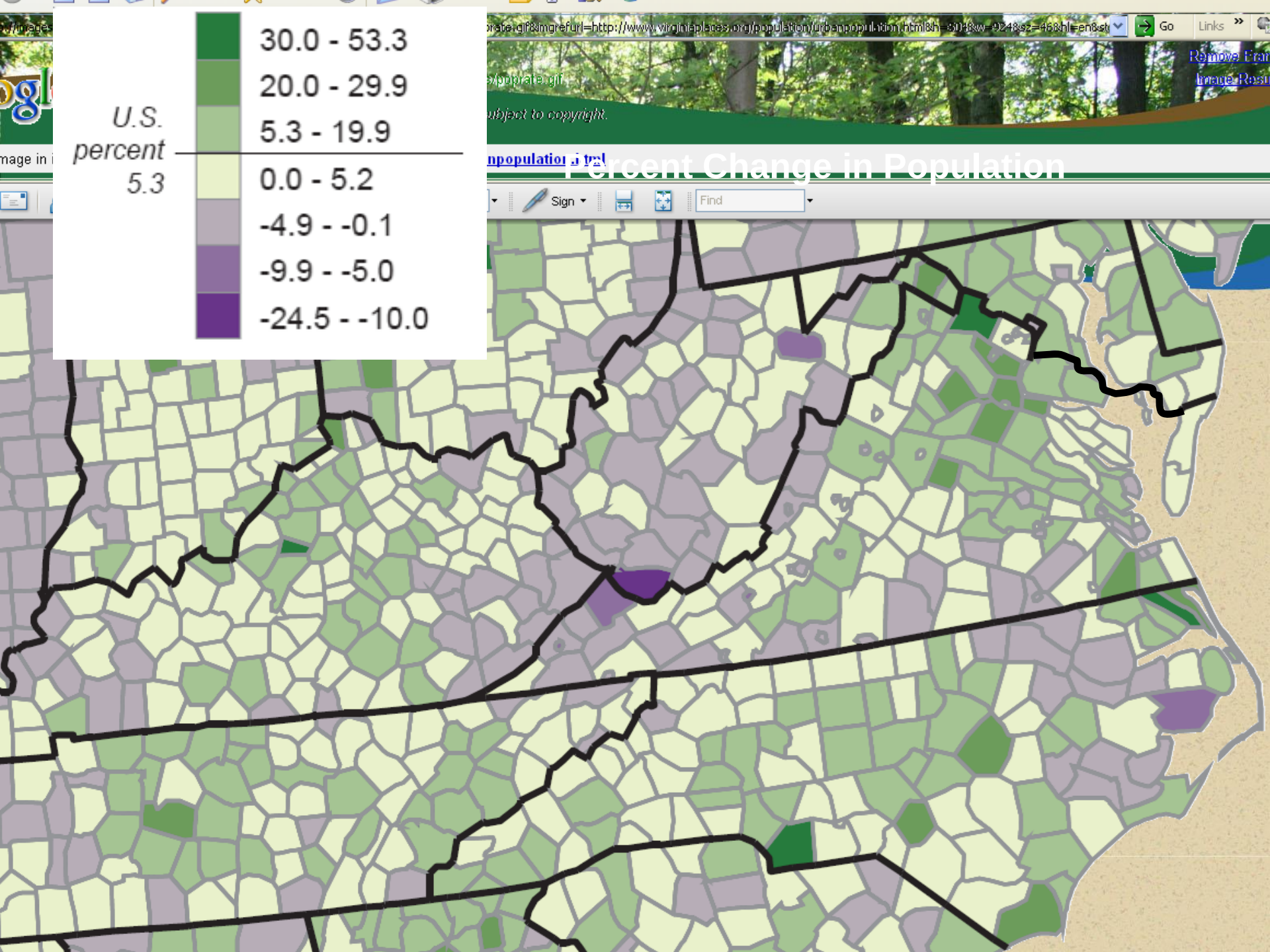
# How we define Wildland Urban Interface

- **The area where human development meets and/or intermingles with undeveloped wildland. Where individual and community values may be threatened by a wildfire.**
  - **Values such as**
    - **Personal property**
    - **Watersheds**
    - **Wildlife habitat**
    - **Recreation**
    - **Economic development**
    - **Public health**
    - **Land stewardship/emotional connectedness to the land**

# 100 Fastest Growing US Counties

| | Change, 2000 to 2004 | |
|---|---|---|
| | Number | Percent |
| 1. Loudoun County, VA | 69,557 | 41.0 |
| 20. Stafford County, VA | 22,335 | 24.2 |
| 24. Spotsylvania County, VA | 21,455 | 23.7 |
| 45. Suffolk City, VA | 12,909 | 20.3 |
| 48. Prince William County, VA | 55,773 | 19.9 |
| 69. Fluvanna County, VA | 3,597 | 17.9 |
| 80. Culpeper County, VA | 5,930 | 17.3 |

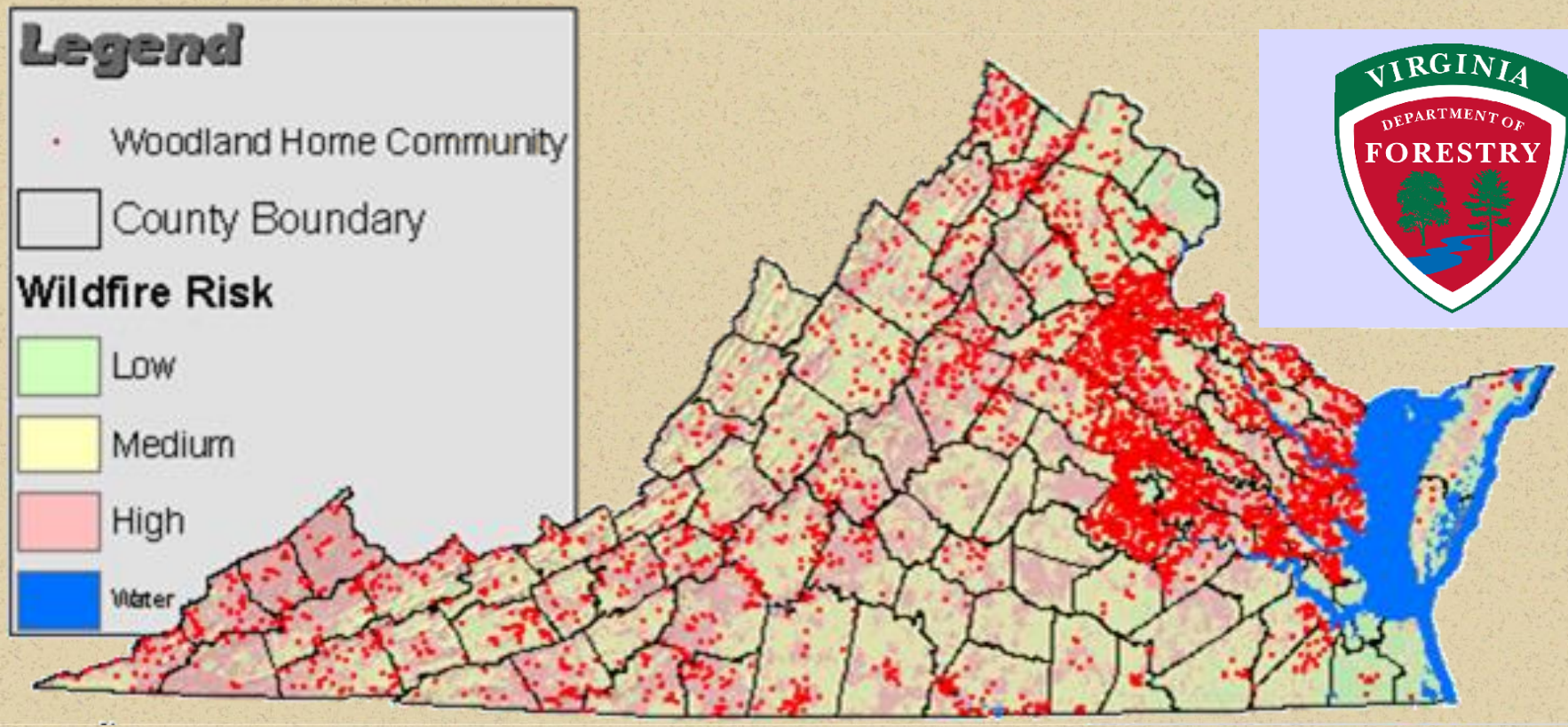
U. S. Census Bureau – Census 2000


30.0 - 53.3
20.0 - 29.9
5.3 - 19.9
U.S. percent 5.3
0.0 - 5.2
-4.9 - -0.1
-9.9 - -5.0
-24.5 - -10.0
Percent Change in Population

# WUI in Virginia

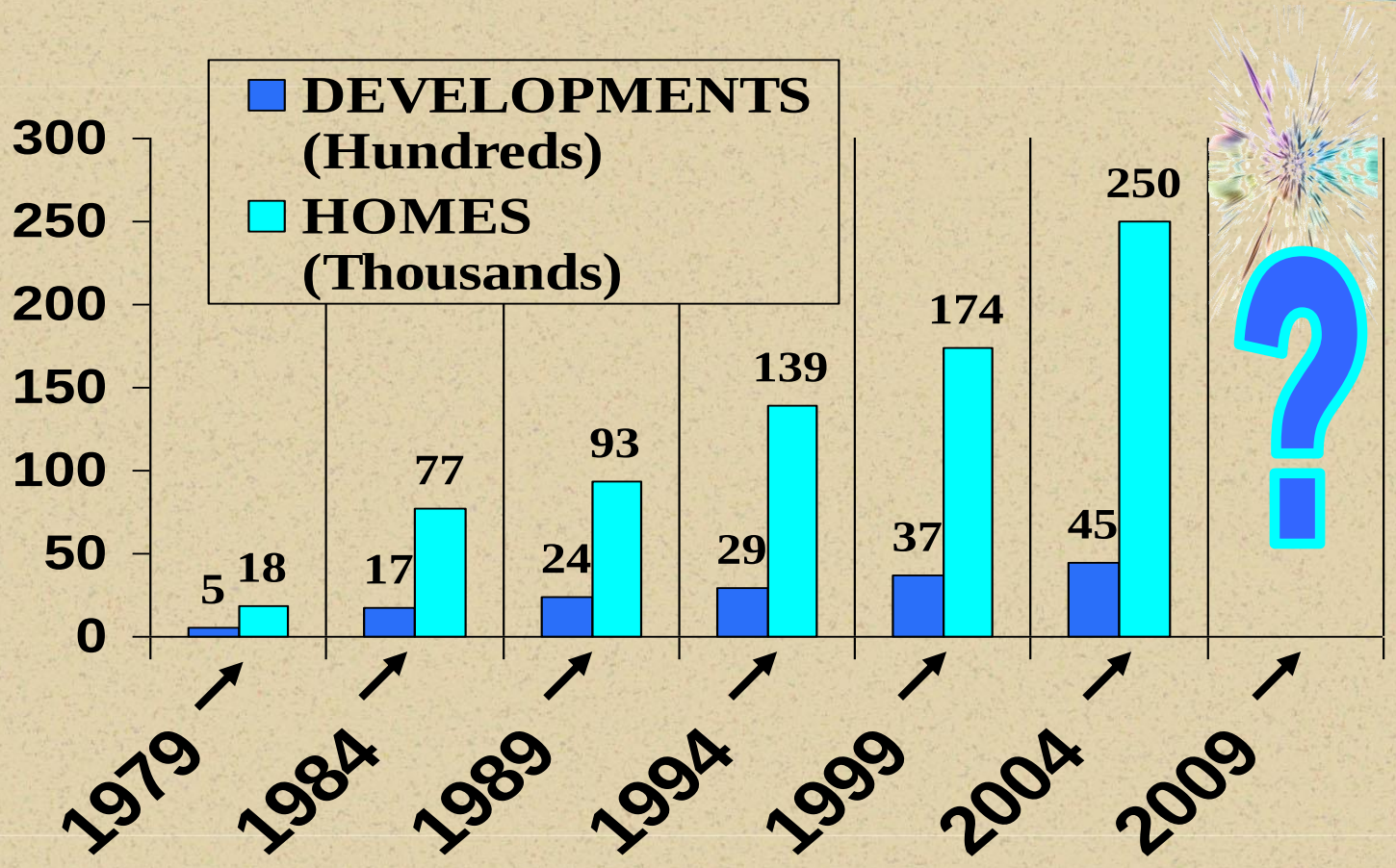


# WILDFIRE RISK ASSESSMENT




VIRGINIA DEPARTMENT OF FORESTRY

# Virginia's Woodland Homes

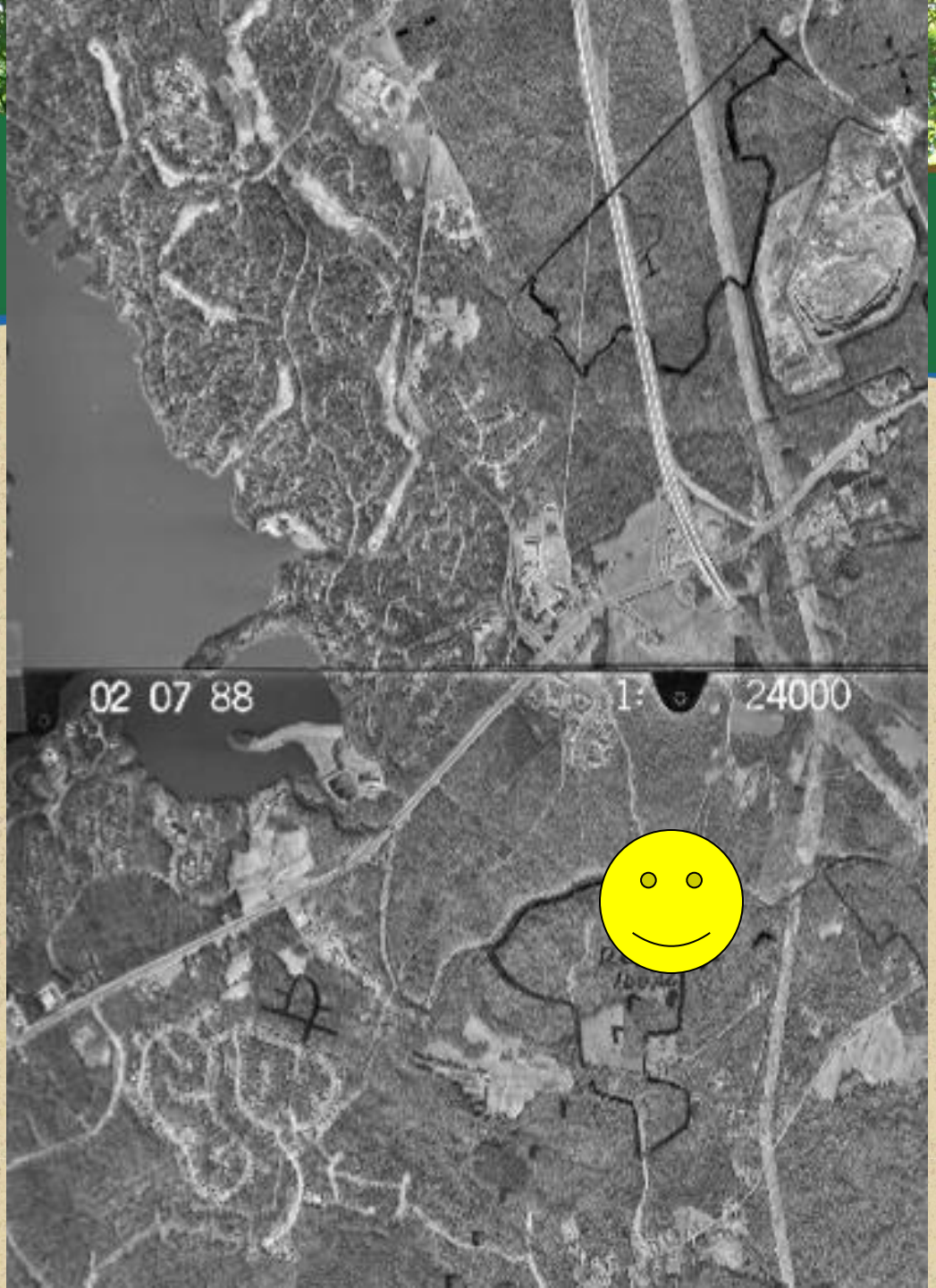


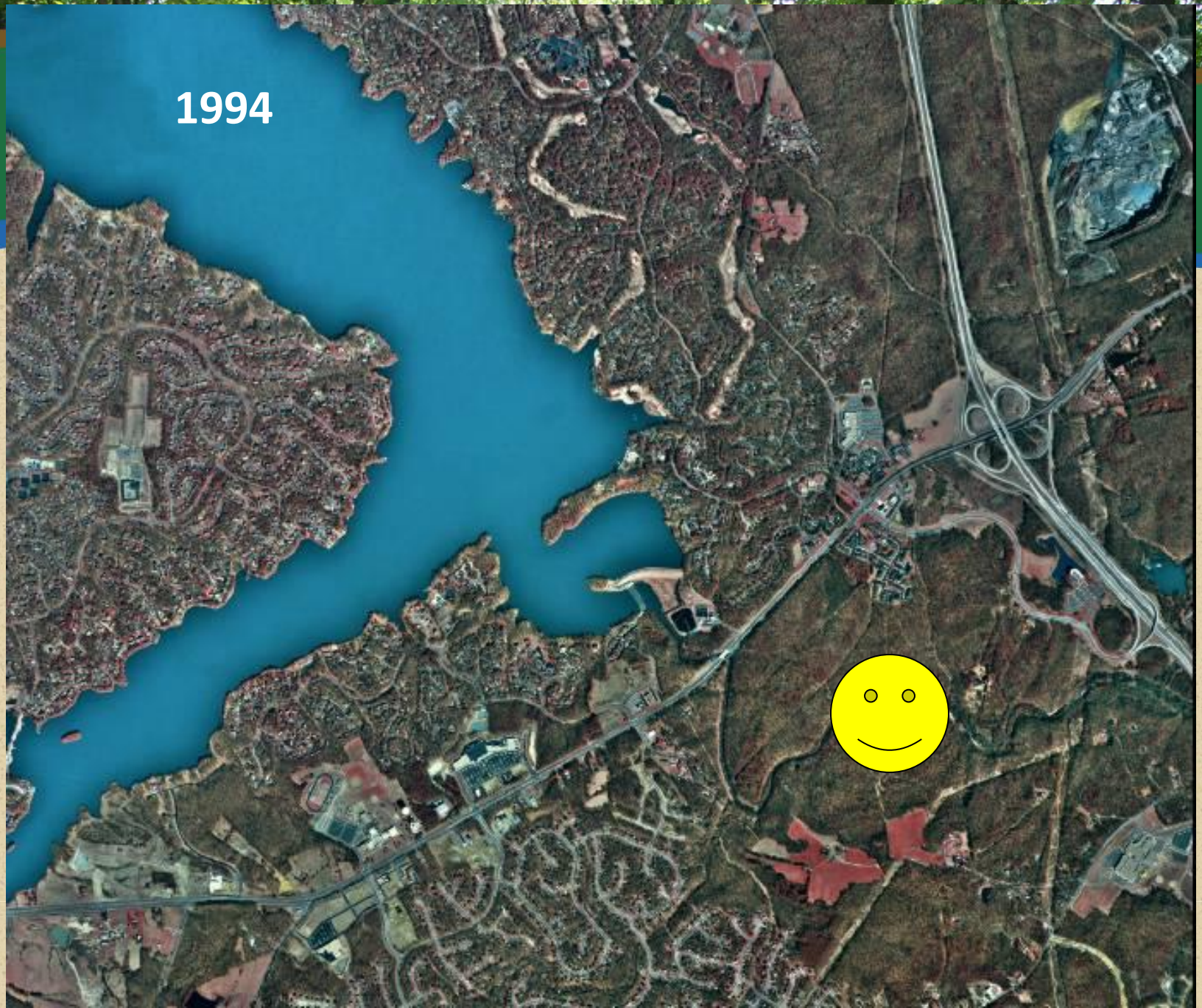
1/29/1955
Hull Street RT
288

# 2/18/1965

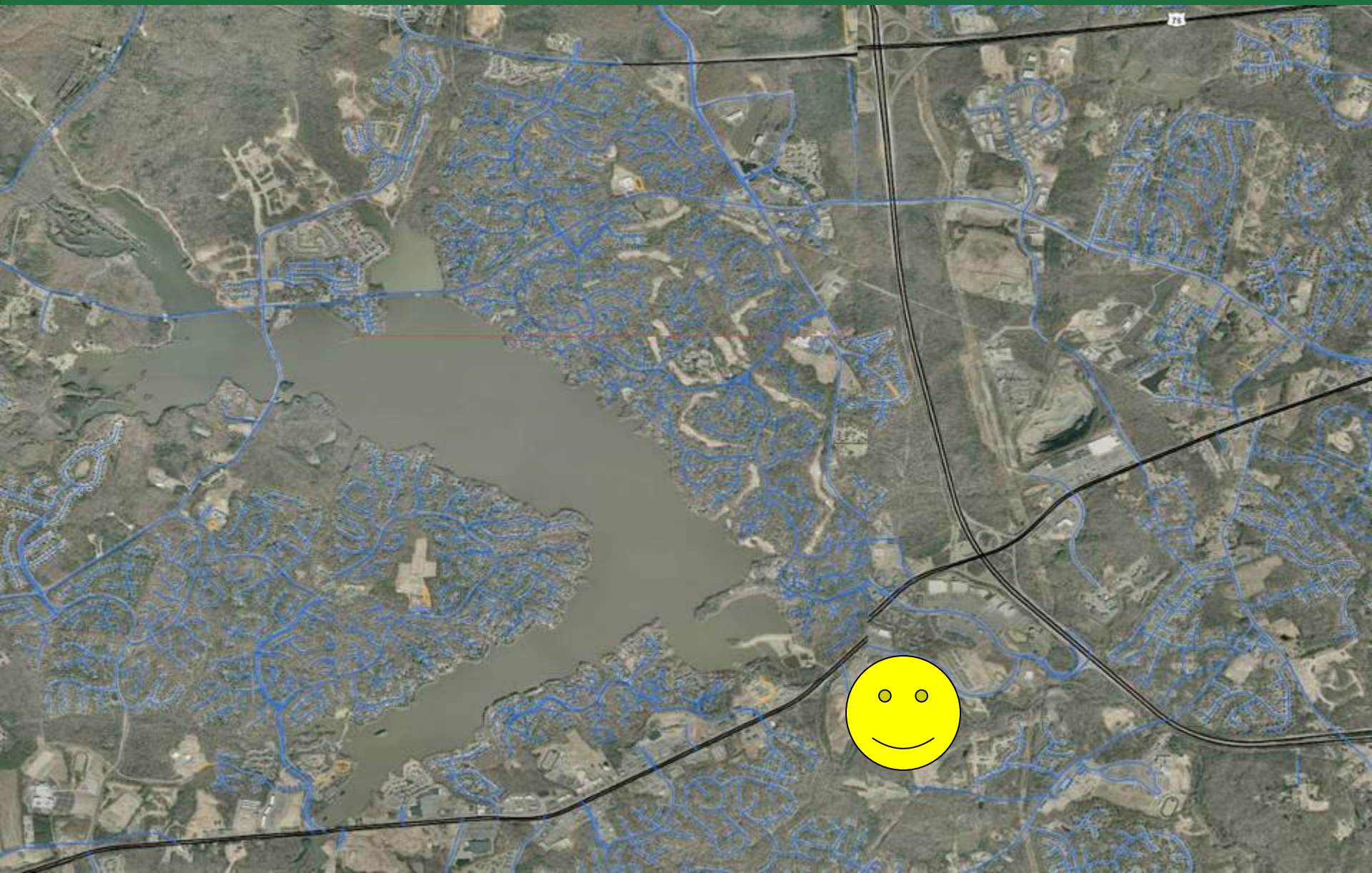

6/12/1972

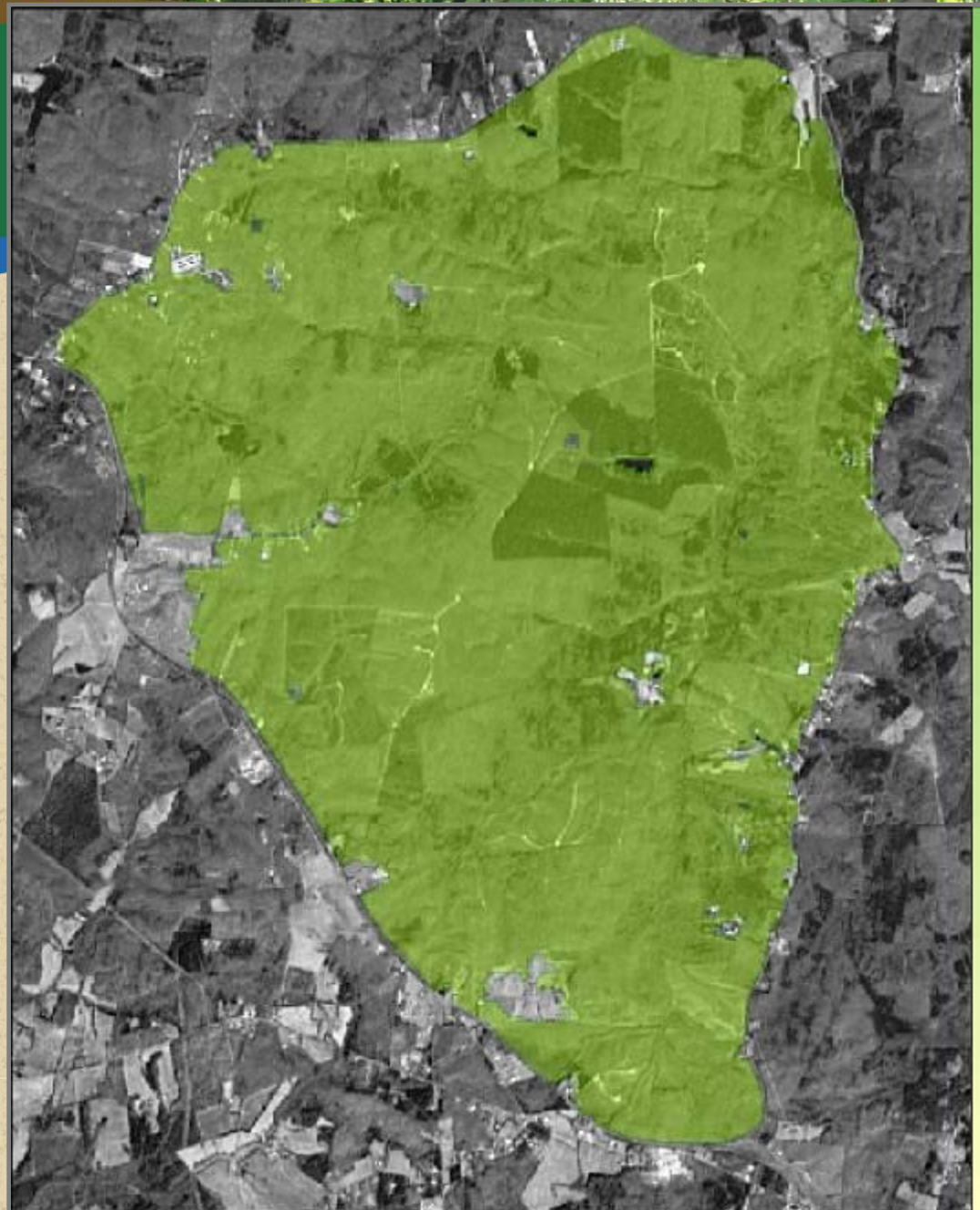
# 2/7/1988




1994

# 2007

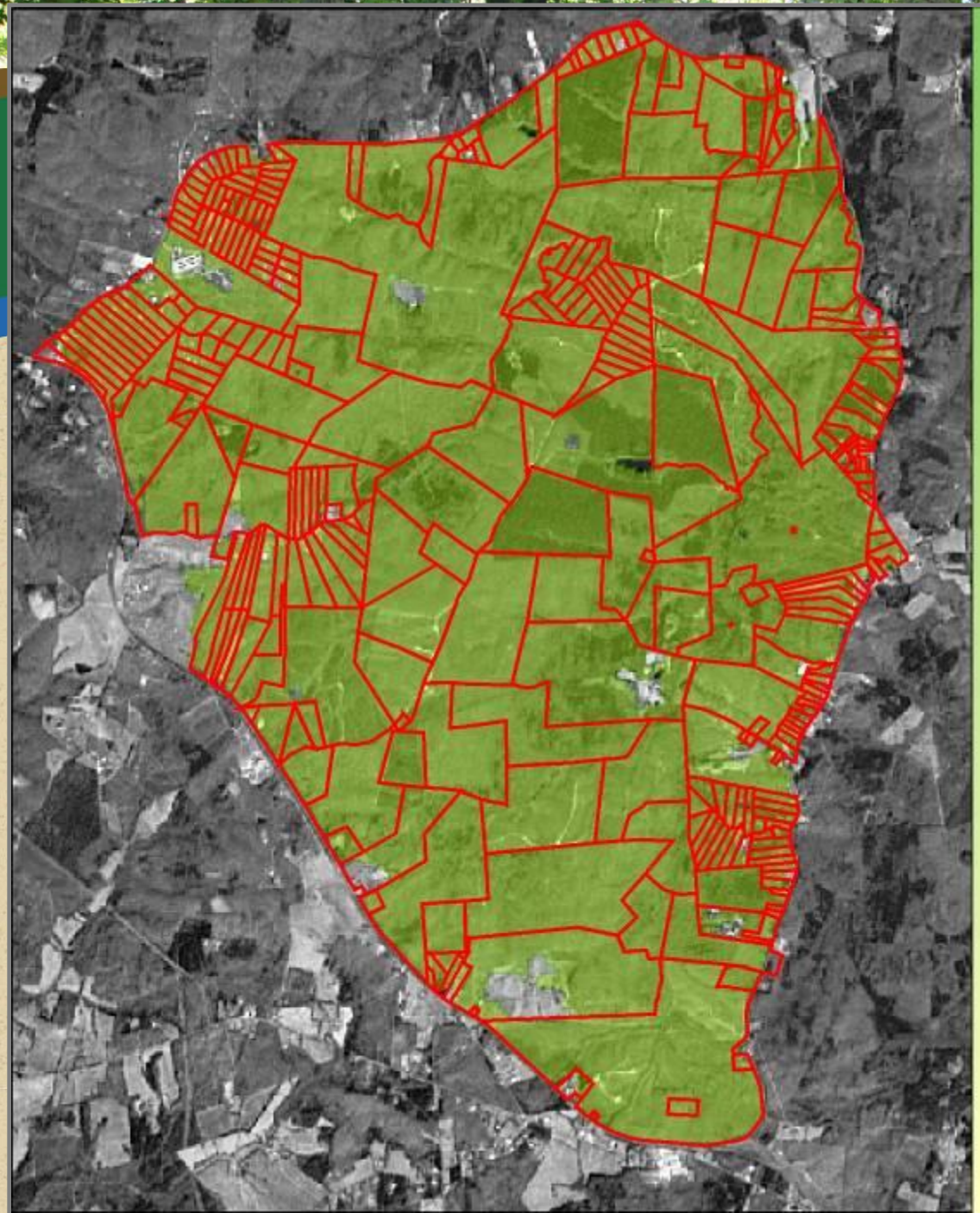




# Forest Fragmentation

7,500 Acres
Continuous Forest Cover

Derived from
Year 2000
Landsat Satellite
Image Analysis



# Forest Fragmentation

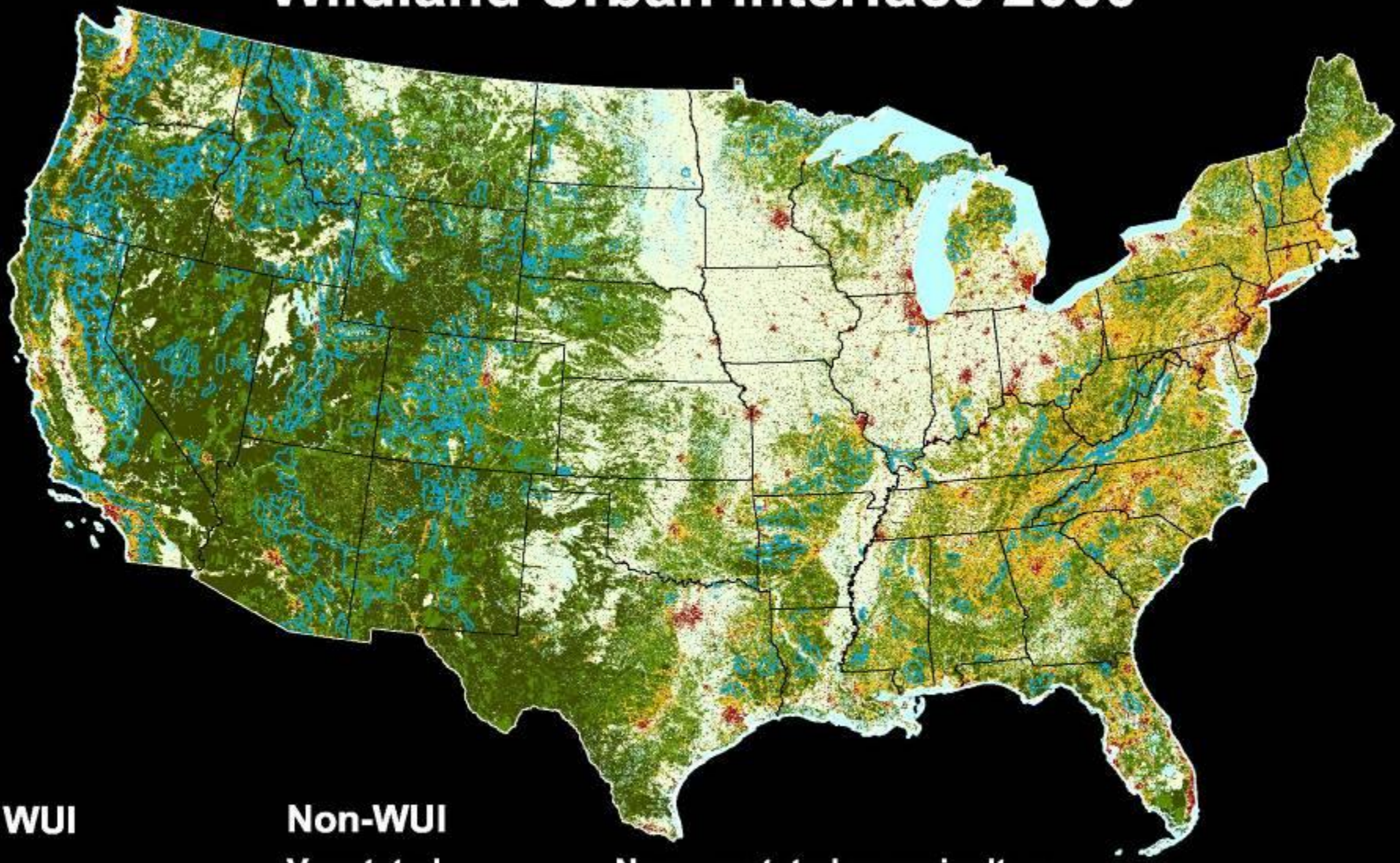
***Ownership Patterns affect Forest Fragmentation***

7,500 Acre Forest Patch

328 Ownership Parcels
22 Acre Average

Range:
0.07 Acre
to 518 Acres

# Wildland Urban Interface 2000



**WUI**

- intermix and interface

**Non-WUI**

**Vegetated**

- very low density housing
- no housing

**Non-vegetated or agriculture**

- high and medium density housing
- low and very low density housing

- water

# A Wildfire Risk ?

## This is VIRGINIA not California !

- Many Virginians are generally unaware that wildfire poses a real threat to their forest land, their homes and themselves.

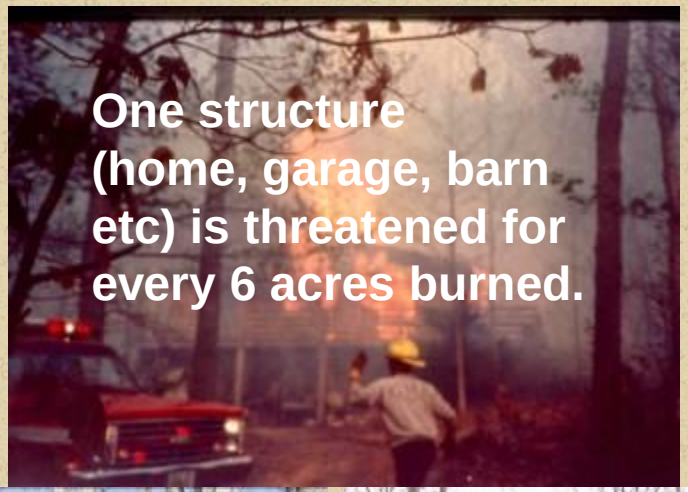
# Wildfire in Virginia

- 1,200+ wildfires per year
- 10,000+ acres burned per year
- Most wildfires in Virginia are kept small due to rapid response by Fire Departments working cooperatively with the Department of Forestry.

# Virginia Statistics

**Homes/Structures Damaged or Destroyed by Wildfire**

| Year | Number |
|---|---|
| 2000 | 178 |
| 2001 | 121 |
| 2002 | 50 |
| 2003 | 22 |
| 2004 | 56 |
| 2005 | 27 |
| 2006 | 62 |
| 2007 | 44 |
| 2008 | 66 |








# 2008

- 16 homes damaged or destroyed
  - 50 other structures damaged
  - 1,325 fires
  - 25,709 acres burned*

**1:23**

* 2/10/08 335 fires for 16,000 acres

$1.5 million structure $13.25 million timber $873,500.00 suppression costs

# $1,021,037,913.00

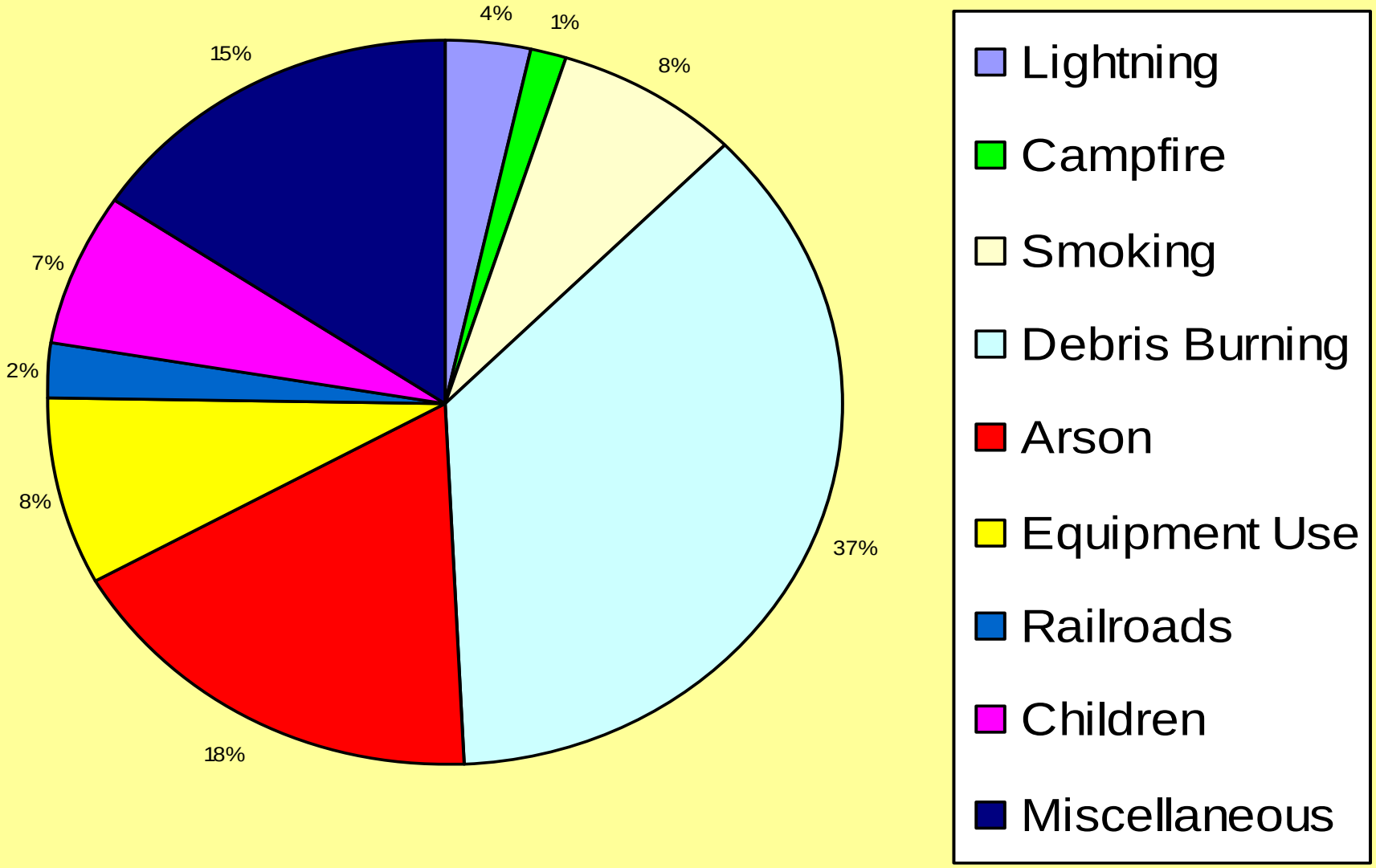
# Value of homes "protected" 1998-2008

# Where there are people, there is fire!


- **95% of all wildfires are started by people**

- **Top fire causes in Virginia**
  - **Escaped Debris Burning**
  - **Arson**

## VIRGINIA WILDFIRE CAUSE 1995-2008 # OF FIRES

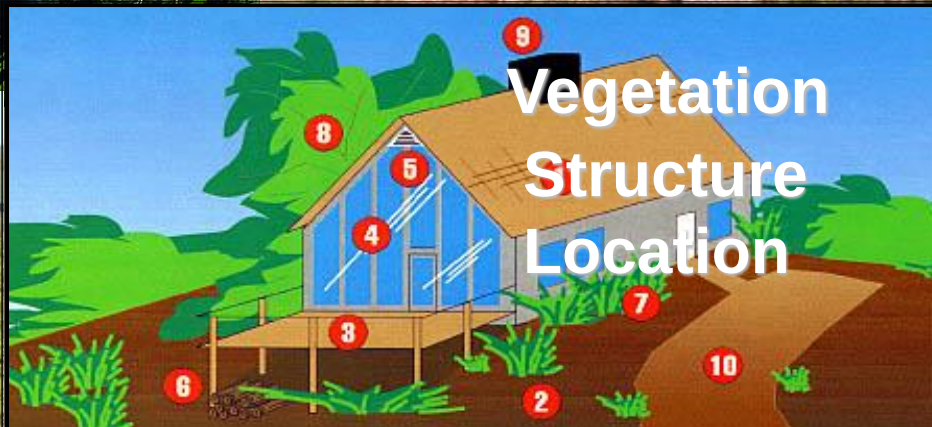


# How a firefighter sees a woodland home

**Defendable**

**Non-defendable**

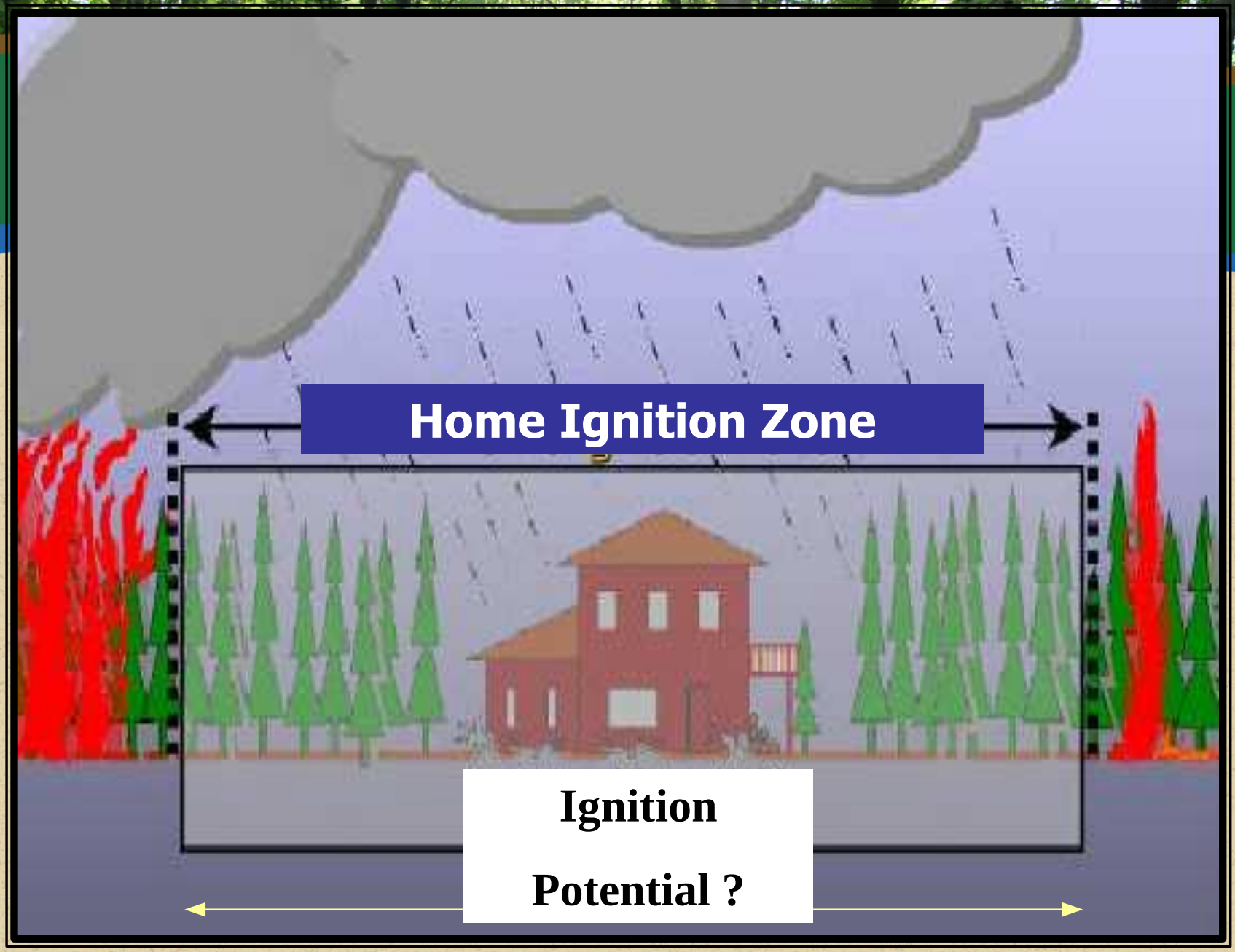
# Why are Woodland Homes at Risk?

# The Home Ignition Zone

## KEY CONSIDERATIONS

- **It's what happens in the home ignitability/ignition zone that's important**
- **If it's connected to the structure, it's part of the structure**
- **Little things matter in defending against firebrands**


Home Ignition Zone
Ignition
Potential ?

# Home Wildfire Hazard

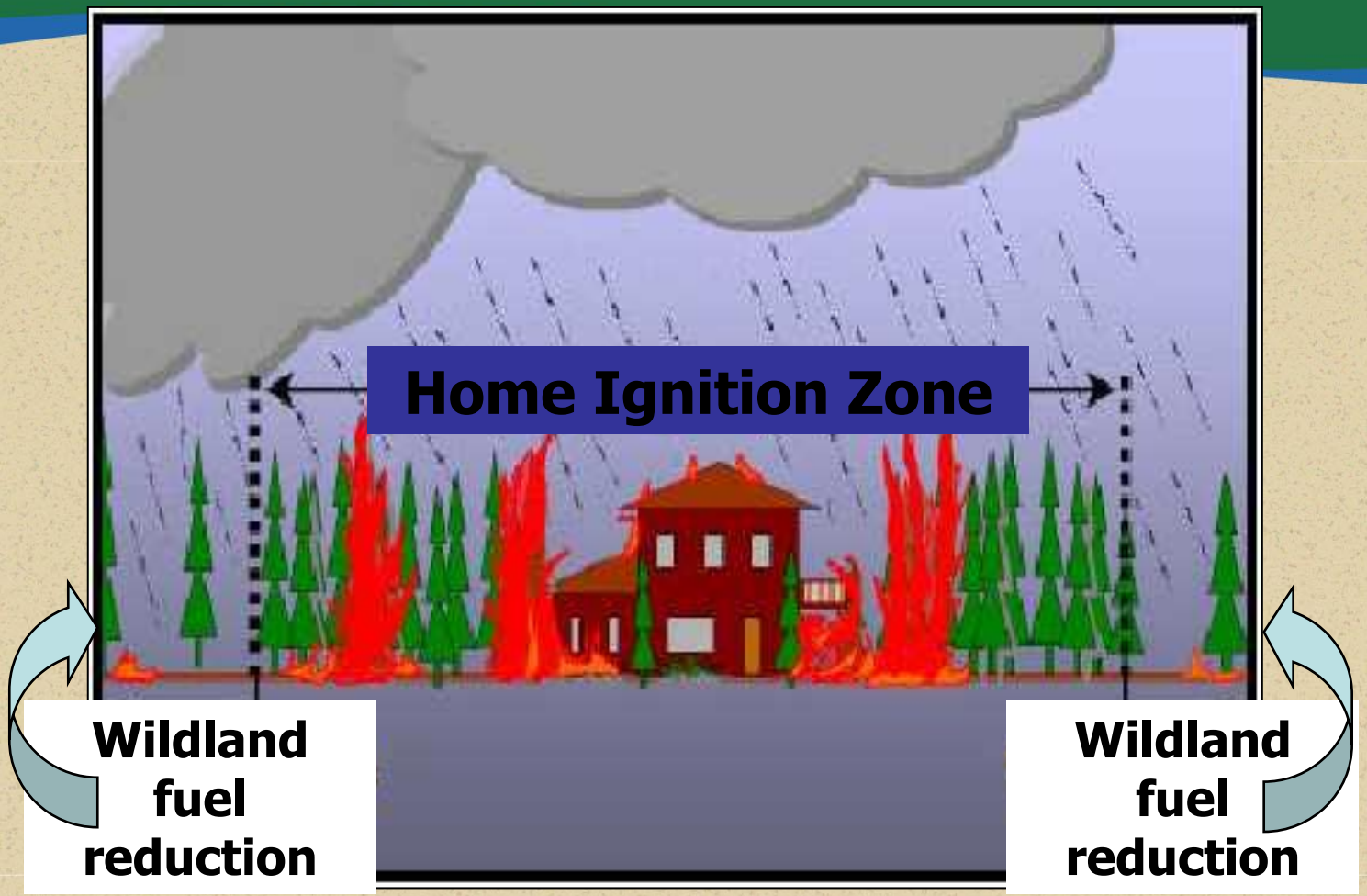
*(0 to 10)* **LOW FIRE RISK** The chances of your home surviving a wildfire are GOOD. There's not much you need to do but keep up the good work!

*(11 to 20)* **MODERATE FIRE RISK** The chances of your home surviving a wildfire are FAIR. Minor improvements will make it even more fire resistant.

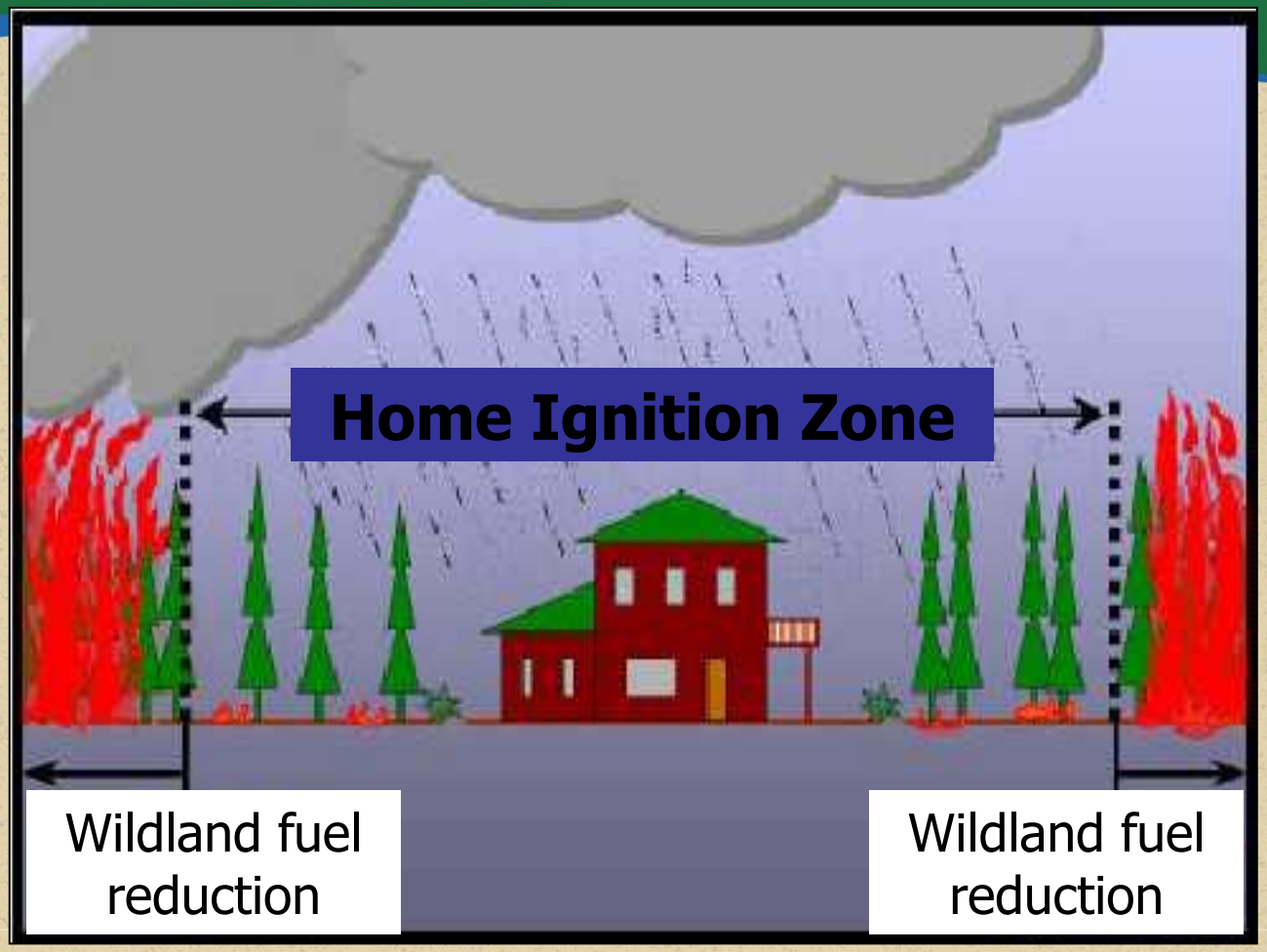
*(21 to 40)* **HIGH FIRE RISK** The chances of your home surviving a wildfire are NOT GOOD. Many improvements are necessary to improve your situation.

*(over 40)* **EXTREME FIRE RISK** Your home MAY NOT SURVIVE if a wildfire passes through the area. Take a serious look at your property and make improvements to prevent a possible major loss.

Forest management outside the zone may limit damage to the forest, but the home is still threatened.



Fuel mitigation treatments AND structure modifications in the *zone* will provide better protection to a home in a wildfire.



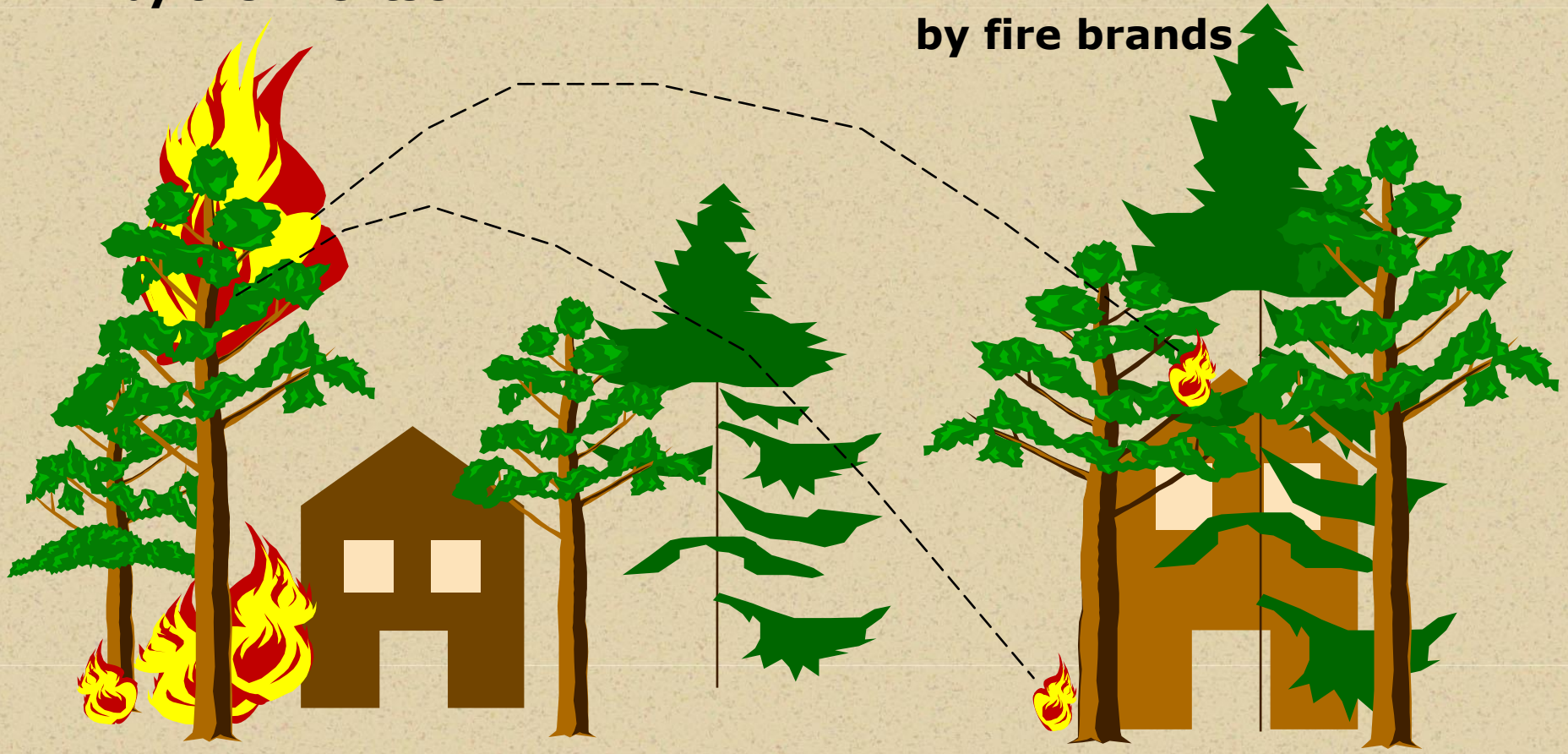
# A typical large wildfire in Virginia, started by careless debris burning.

# How do woodland homes ignite?

**Directly…**
**by the fire itself**

**Indirectly…**

**by fire brands**



# What is Firewise Landscaping?

- Firewise Landscaping creates or changes the vegetation around a woodland home to improve fire protection and prepares your property or community in the event of a wildfire.

# Firewise Landscaping

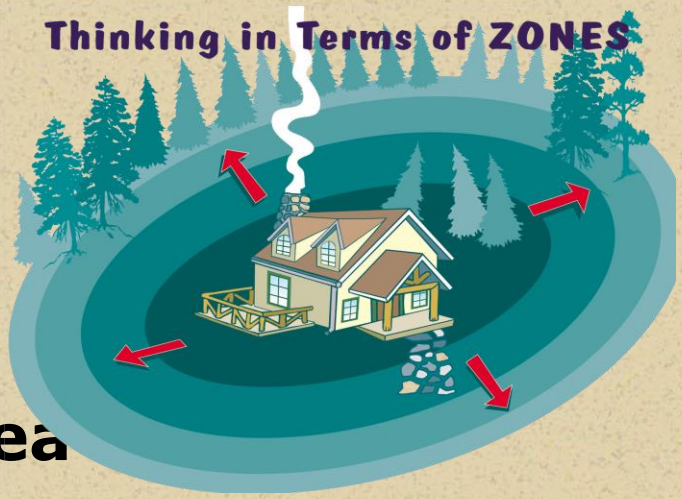
- The Concepts:
  - 30-100 feet wide safety zone
  - Minimize the amount of "fuel"
  - Eliminate the opportunity for flames to come in direct contact with homes or other structures
  - Prevent plant-to-plant spread of fire
  - Use fire-resistant mulches and ground covers
  - Use fire resistant plants

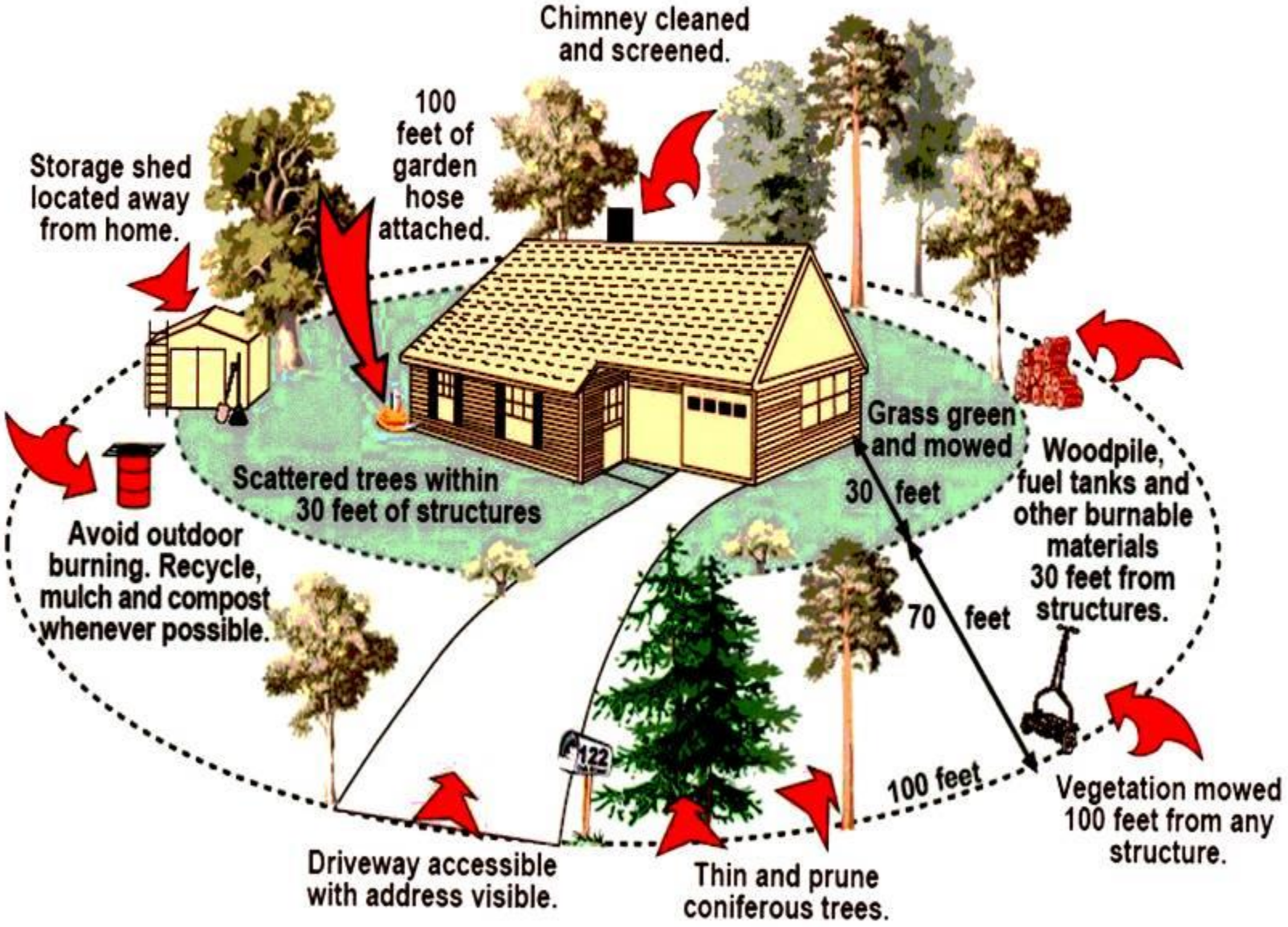
# Defensible Space

- Should be at least 30’ wide → 100’ on steep slopes
- Minimizes “fuel” between house and surrounding forest
- Provides a safe area for firefighters to work
- Can help a house to stand alone and survive an approaching wildfire if firefighter do not arrive in time.

# The Zone Concept

- **<u>Zone 1</u> → 5-10’ from the house**
  - Prevent direct flame contact
- **<u>Zone 2</u> → 10-30’ from the house**
  - Stop fire spread
- **<u>Zone 3</u> → 30-100’ from the house**
  - Slow down or stop fire
- **<u>Zone 4</u> → the surrounding area**
  - Minimize the intensity of an approaching fire




Chimney cleaned and screened.
100 feet of garden hose attached.
Storage shed located away from home.
Grass green and mowed
Woodpile, fuel tanks and other burnable materials 30 feet from structures.
30 feet
70 feet
Scattered trees within 30 feet of structures
Avoid outdoor burning. Recycle, mulch and compost whenever possible.
122
100 feet
Vegetation mowed 100 feet from any structure.
Driveway accessible with address visible.
Thin and prune coniferous trees.

## QUESTION ONE: WHAT IS DEFENSIBLE SPACE?

- Defensible space refers to that area between a house and an oncoming wildfire where the vegetation has been modified to reduce the wildfire threat and which provides an opportunity for fire fighters to effectively defend the house or for the structure to defend itself.

## QUESTION TWO: WHAT IS THE RELATIONSHIP BETWEEN VEGETATION AND WILDFIRE THREAT?

- Many people do not view the plants growing on their property as a threat. But in terms of wildfire, what is growing adjacent to their homes can have considerable influence upon the survivability of their houses.
- All vegetation, including naturally occurring native plants and ornamental plants in the residential landscape, is potential wildfire fuel.

## QUESTION TWO: WHAT IS THE RELATIONSHIP BETWEEN VEGETATION AND WILDFIRE THREAT?

- If the vegetation is properly modified and maintained, a wildfire can be slowed down, the length of flames shortened, and the amount of heat reduced, all of which contribute to a house surviving a wildfire.

# QUESTION TWO continued: WHAT IS THE RELATIONSHIP BETWEEN VEGETATION AND WILDFIRE THREAT?

- The key is to reduce fire intensity as a wildfire nears the house.
- This can be accomplished by reducing the amount of flammable vegetation surrounding a home.

## QUESTION THREE: WHY IS DEFENSIBLE SPACE NECESSARY? WON'T THE FIRE DEPARTMENT PROTECT MY HOUSE?

- Some individuals incorrectly assume that a fire truck will be parked in their driveway and fire fighters will be actively defending their homes if a wildfire approaches.
- During a major wildfire, it is unlikely that there will be fire fighting resources available to defend every home.
- Even with adequate resources, some wildfires may be so intense that there may be little that fire fighters can do to prevent a house from burning.

# QUESTION FOUR: DOES DEFENSIBLE SPACE REQUIRE A LOT OF BARE GROUND AROUND A HOUSE?

- No. While bare ground would certainly provide an effective defensible space, it is not necessary and looks bad. Bare ground may also cause soil to erode.

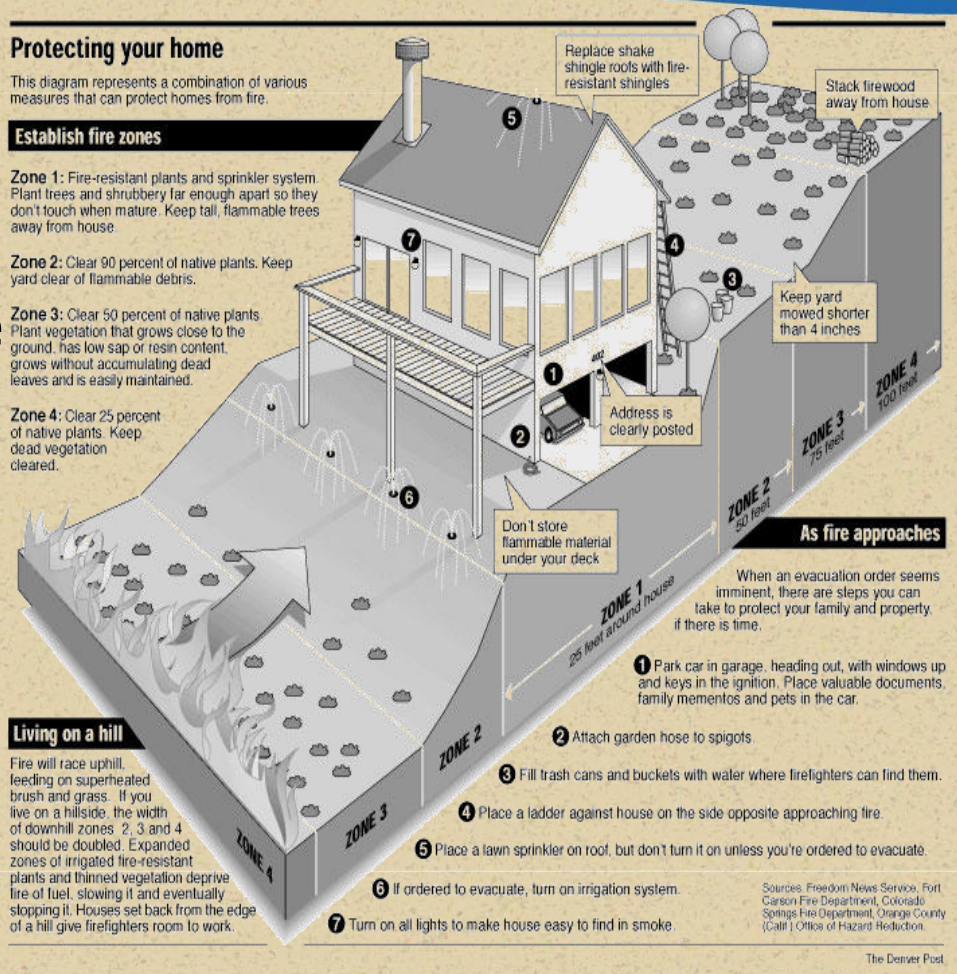
- Many homes have yards that are both effective defensible spaces and attractive landscapes with little or no bare ground.

# QUESTION FIVE: DOES CREATING A DEFENSIBLE SPACE REQUIRE ANY SPECIAL SKILLS OR EQUIPMENT?

- No. For the most part, creating a defensible space employs routine gardening and landscape maintenance practices such as pruning, mowing, weeding, plant removal, appropriate plant selection, and irrigation.
- The necessary equipment consists of common tools like a chain saw, pruning saw, pruning shears, loppers, weed-eater, shovel, and a rake.

# QUESTION SIX: HOW BIG IS AN EFFECTIVE DEFENSIBLE SPACE?

- Defensible space size is usually expressed as the distance from the house in which vegetation is managed to reduce the wildfire threat.
- The necessary distance for an effective defensible is not the same for everyone, but varies by slope and type of native vegetation growing near the house.
- If your recommended distance exceeds your property boundaries, contact the adjacent property owner and try to work cooperatively on creating a defensible space.
- The effectiveness of defensible space increases when multiple property owners work together.



# QUESTION SEVEN: WHAT SHOULD I DO TO MAKE MY PROPERTY DEFENSIBLE?

- Within the recommended defensible space distance, conduct the following activities:
  - Remove dead vegetation (i.e., dead trees and shrubs, dried grass and flowers, dead branches, fallen leaves, etc.).
  - Remove lower branches from mature trees to a height of eight feet from ground level.
  - Also, remove small trees and shrubs growing under mature trees.
  - Remove tree branches within 15 feet of a chimney or stove pipe.
  - Keep vegetation clear of power lines and decks.

# QUESTION SEVEN: WHAT SHOULD I DO TO MAKE MY PROPERTY DEFENSIBLE?

- Remove the majority of shrubs and trees within 30 feet of the house.
- Retaining a few well maintained native shrubs and trees within the 30 feet is acceptable.
- Avoid leaving trees/shrubs in front of large windows and adjacent to decks.
- Beyond 30 feet, remove native shrubs to provide a separation between shrubs of approximately three times the shrub height (i.e., if shrub height is 2 feet, then 3 x 2 feet = 6 feet separation).

# QUESTION SEVEN: WHAT SHOULD I DO TO MAKE MY PROPERTY DEFENSIBLE?

- Selecting plants for use in the defensible space should emphasize:
  - herbaceous plants (i.e., non woody plants such as turf grass, perennial and annual flowers, etc.) over shrubs and trees.
  - shorter growing plants over taller plants.
  - deciduous plants over evergreens
  - Avoid extensive plantings of coniferous plants (e.g., junipers, pines, and spruce).

More in a moment

# QUESTION EIGHT: DOES HAVING AN EFFECTIVE DEFENSIBLE SPACE MAKE A DIFFERENCE?

- Yes. Investigations of homes threatened by wildfire indicate that houses with an effective defensible space are much more likely to survive a wildfire.
- Furthermore, homes with both an effective defensible space and a nonflammable roof (e.g., composition shingles, tile, metal, etc.) are many more times likely to survive a wildfire than those without a defensible space and flammable roofs. wood shakes or shingles.

# QUESTION NINE: DOES HAVING A DEFENSIBLE SPACE GUARANTEE MY HOUSE WILL SURVIVE A WILDFIRE?

- No. Under extreme conditions, almost any house can burn.
- But having a defensible space will significantly improve the odds of your home surviving a wildfire.

# QUESTION TEN: WHY DOESN'T EVERYONE LIVING IN A HIGH WILDFIRE HAZARD AREA CREATE A DEFENSIBLE SPACE?

- The specific reasons for not creating a defensible space are varied. Some individuals believe that "it won't happen to me". Others think the costs (i.e., time, money, effort, etc.) outweigh the benefits (i.e., improved protection for property).
- But some have failed to implement defensible space practices because of lack of knowledge or misconceptions.


# Selecting and Maintaining Firewise Plants for Landscaping

**All vegetation, naturally occurring and otherwise, is potential fuel for fire. Its type, amount and arrangement has a dramatic effect on fire behavior. There are no truly "fireproof" plant species, so plant choice, spacing and maintenance are critical to defensible space landscaping. In fact, where and how you plant may be more important than what you plant. However, given alternatives, choose plant species that tend to be more resistant to wildfire.**

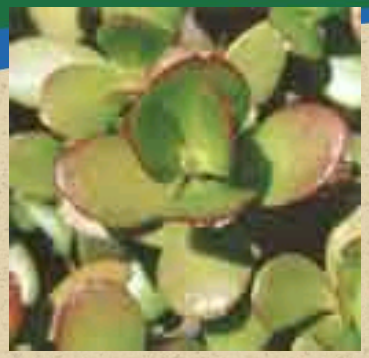
# Introduction

- Selecting landscape plants based on their flammability can be challenging.
- Few existing plant guides list firewise plants or rank plants by their flammability.
- However, by considering several key plant characteristics we can make an informed decision about which plants to select.

# What Plant Parts 'Fuel' the Fire?

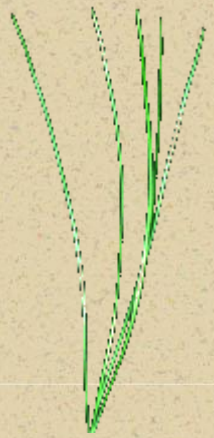
- **Plants (vegetation) are the primary fuel during wildfires, both living and dead plant material will burn.**
- **When comparing the flammability of different plants, one should first consider the leaves and small branches.**
- **The most important characteristics of light fuels that influence their flammability are:**

# The amount of water in the leaf, or its moisture content.



**The moisture content of leaves varies significantly by season, as well as by local weather and site conditions, such as air humidity and soil moisture, but**
**differences also exist between plant species growing under the same conditions. Plants that have thick, succulent leaves, such as cacti, aloe and century plants, generally maintain high leaf moisture content, even during droughts, and thus have a low flammability. M**
**Most living leaves are at least 50% water by weight. When exposed to heat or a flame, a leaf will not catch fire until most of its water is lost (primarily through**
**evaporation). Therefore, leaves with the highest moisture content generally take the longest to ignite.**

# The size and shape of leaves.



# The presence of oils, resins (tree sap), waxes, or other chemicals in leaves or branches.

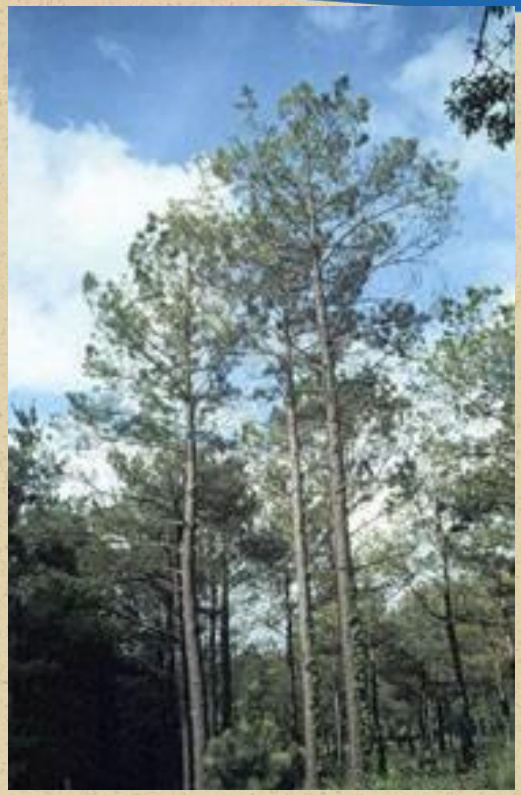
# Whole-Plant Flammabitity

- The overall flammability of a plant is dependent on the relative flammability of its leaves and branches, and how they are arranged.
- Shrubs and trees differ in their flammability based on several characteristics.

# Branching Patterns

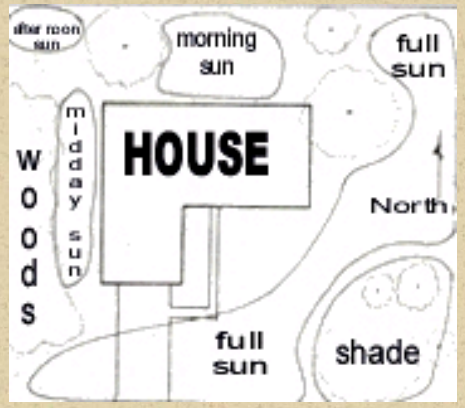
# Deciduous vs. Evergreen

# Retention of dead leaves and branches.



# Vertical and Horizontal separation.

# Planting the right plant in the right place.




# Plant Arrangement within the Landscaped Area … and Beyond.

- Similar to individual plants, the flammability of groups of landscaped plants is influenced significantly by their vertical and horizontal arrangement.
- To discuss how plant arrangement influences the overall flammability, it is useful to first discuss general differences between broad categories of plants.

# Grasses

# Shrubs

# Trees

# Flowers

# Routine Maintenance is Essential !

- Maintain vertical and horizontal separation.
- Prune trees and shrubs periodically.
- Remove dead leaves and branches.
- Remove dead annual plants.
- Water plants adequately.

# Summary

- High moisture content.
- Broad and thick leaves.
- Low chemical content.
- Open and loose branching patterns.
- Deciduousness.
- Low amounts of dead material.

# 4 R's

- RISK
- RESPONSIBILITY
- REWARDS
- RESPECT

- **There will always be coast…. Costs of landscaping, costs of improvements…**
- **Balance these against the cost of replacing your home, your belongings, your memories. So in the grand scheme of things the costs of being firewise far outweigh the cost of not!**

# Your House Can't Stop Drop and Roll !


**Is Your House Firewise ?**

**Are You Firewise?**

**Learn ways to PREPARE your home and PROTECT your family and pets. Take action now to make your home safer from the effects of a destructive wildfire.**

www.dof.virginia.gov www.firewisevirginia.org www.firewise.org


Virginia
Welcomes You


Virginia
Welcomes You
To A Firewise State

## Websites¶

www.firewise.org¶
This·is·the·national·site,·find·lots·of·information·and·also·take·online·classes·here·as·well¶
¶
www.firewisevirginia.org¶
This·site·has·lots·of·information¶
¶
www.interfacesouth.org¶
This·site·deals·with·the·wildland·urban·interface·in·the·south,·good·information·here·as·well¶
¶
www.advancedmastergardener.org¶
This·is·the·program·I·was·talking·about·in·my·presentation¶
¶
www.ext.vt.edu/pubs/turf/430-300/lists.html¶
A·Firewise·Plant·list·for·Virginia¶
¶
www.livinggreen.ifas.ufl.edu/landscaping/index.html¶
Goes·over·landscaping·and·other·topics¶
¶
There·are·lots·of·sites·out·there·but·here·are·a·few·to·get·you·started.¶
¶


Fred·X.·Turck¶
ASSISTANT·DIVISION·DIRECTOR·FOR·RESOURCE·PROTECTION··
WILDFIRE·PREVENTION·&·EDUCATION·/·FIREWISE·/·PRESCRIBED·FIRE¶
DEPARTMENT·OF·FORESTRY·····
135·BANK·STREET·WAVERLY·VA·23890····or··
900·NATURAL·RESOURCES·DRIVE·SUITE·800·
CHARLOTTESVILLE,·VA·22903¶
OFFICE:·804-834-2300·or·434-977-1375·EXT·3100·
FAX:·804-834-3232·or·434-977-9839·····
EMAIL:·fred.turck@dof.virginia.gov¶
www.dof.virginia.gov·····www.firewisevirginia.org·¶


## Additional Sites

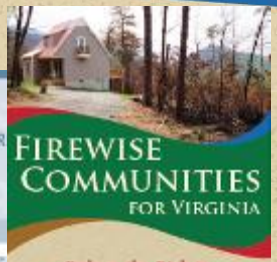
www.invasive.org

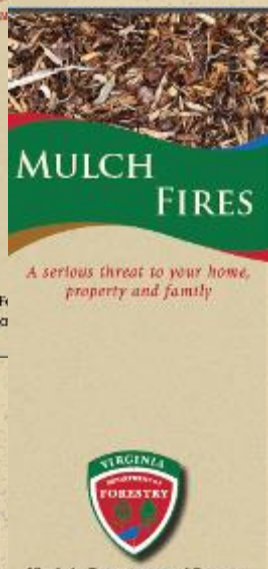
Everything you always wanted to know …





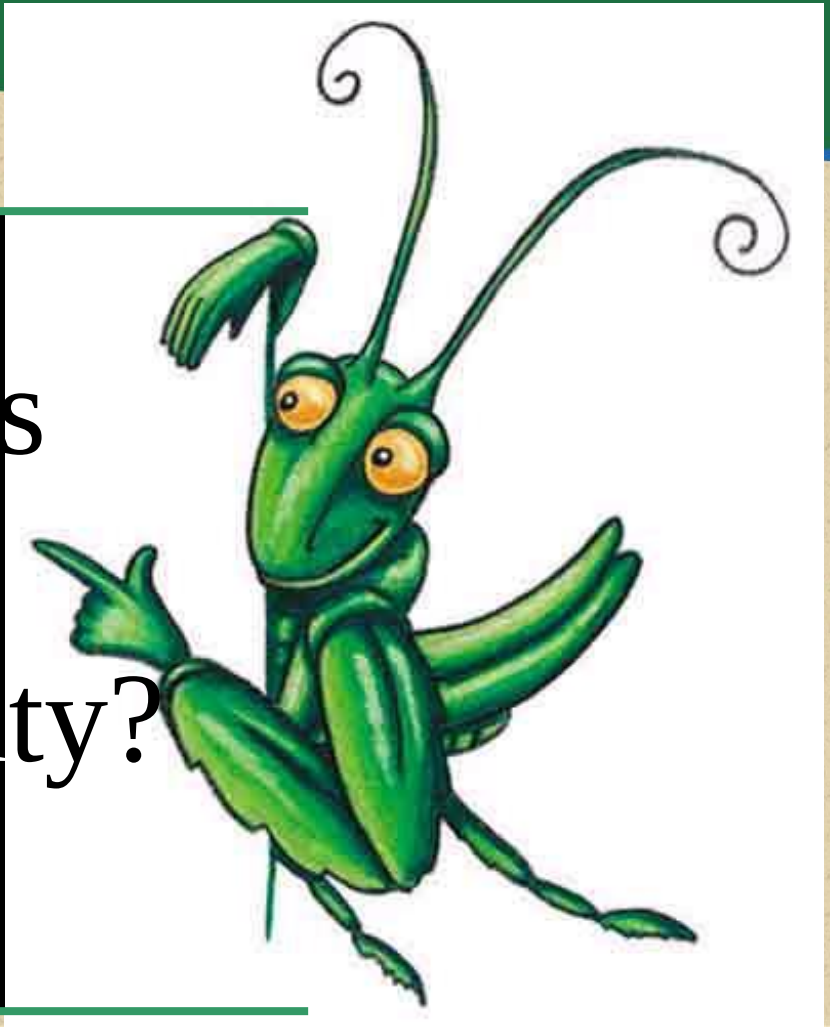





LIVING WITH FIRE

So What is YOUR Responsibility?



- ***How to add value to your landscape business promoting Firewise concepts***

  The home landscaping you design and construct for your clients adds beauty, value and functionality to their property. It can also increase or reduce the chance of the structures on the property surviving a wildfire.

- **Business opportunities**

  Whether you are a landscape architect or a yard service there are opportunities where you can increase your revenue while providing a valuable service to your clients. As a designer, look for opportunities to implement Firewise landscaping into the overall design. Highlight this Firewise landscaping as a special feature of your design, to protect the home your client so highly values, while adding beauty and functionality to the property. As a yard maintenance professional, use the tips we discusses to identify fire prone situations on your client's property. Offer to mitigate these situations as an additional service.

# Questions ?

# Bad Situation


**911 Call:**

**“There’s a fire in the woods behind my house”**

# Only Got Worse