Balancing Wildlife Habitat with Tree Risk

Ryan Gilpin
HortScience, Inc.
February 25, 2016

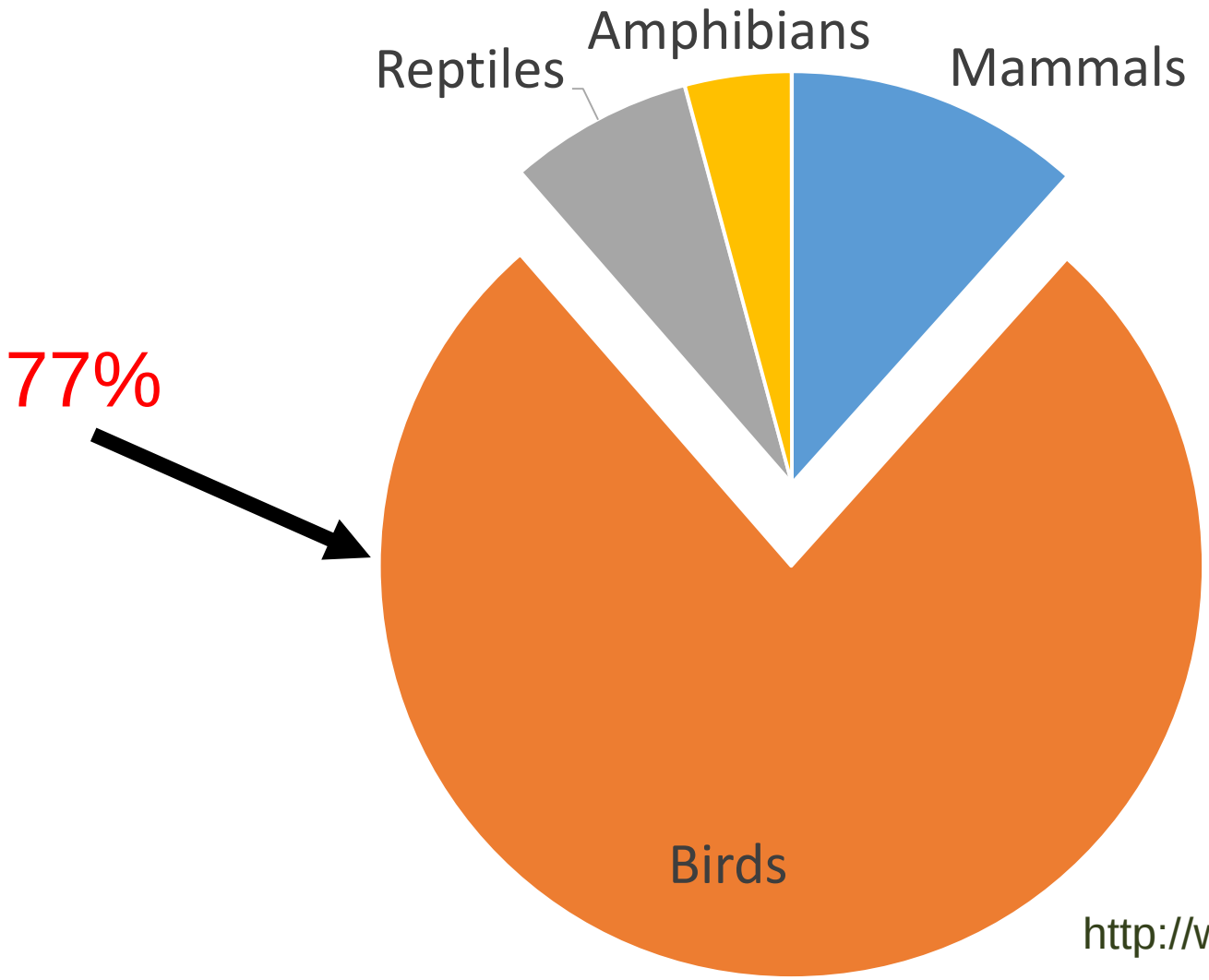
Splendid fairy wren

Outline

- Zoology primer
- Why is wildlife important?
- Risk primer
- Cavity nesting wildlife indicating likelihood of failure
- “Wildlife friendly” pruning

Burrowing owl

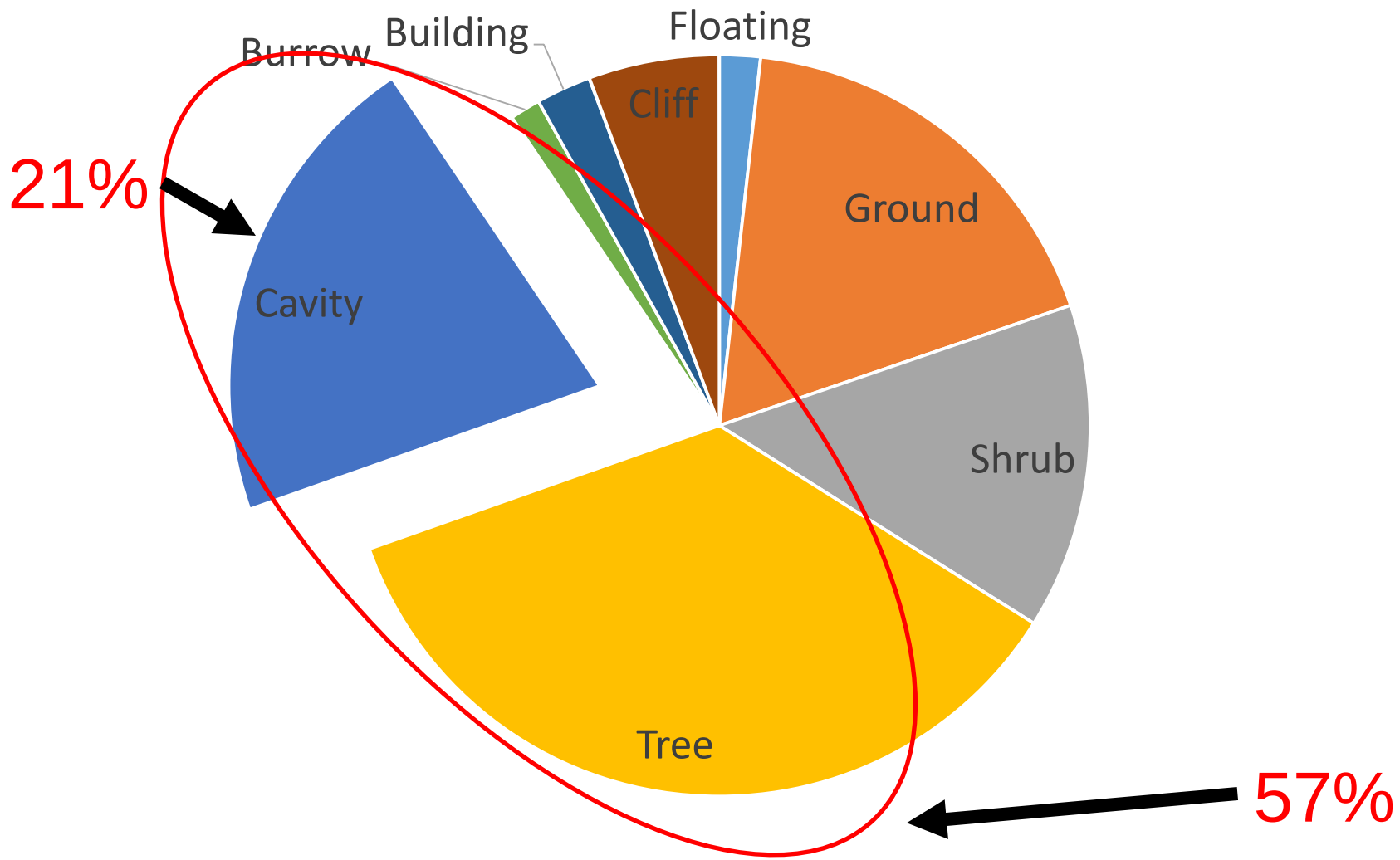
Wildlife species in Bay Area



http://www.sterlingbirds.com

http://sfbaywildlife.info

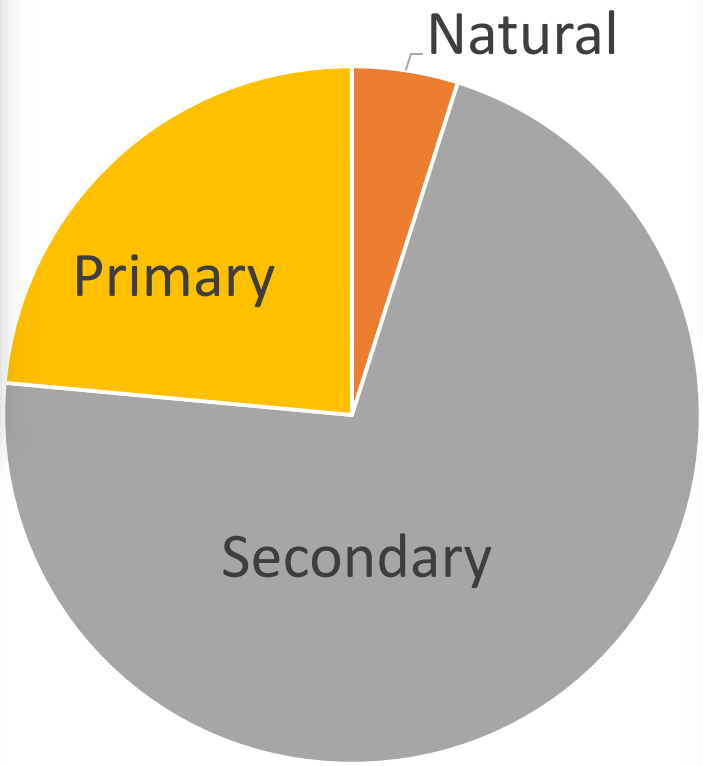
Bird nesting by habitat – San Mateo



Sequoia Audubon Society 2001

www.allaboutbirds.org

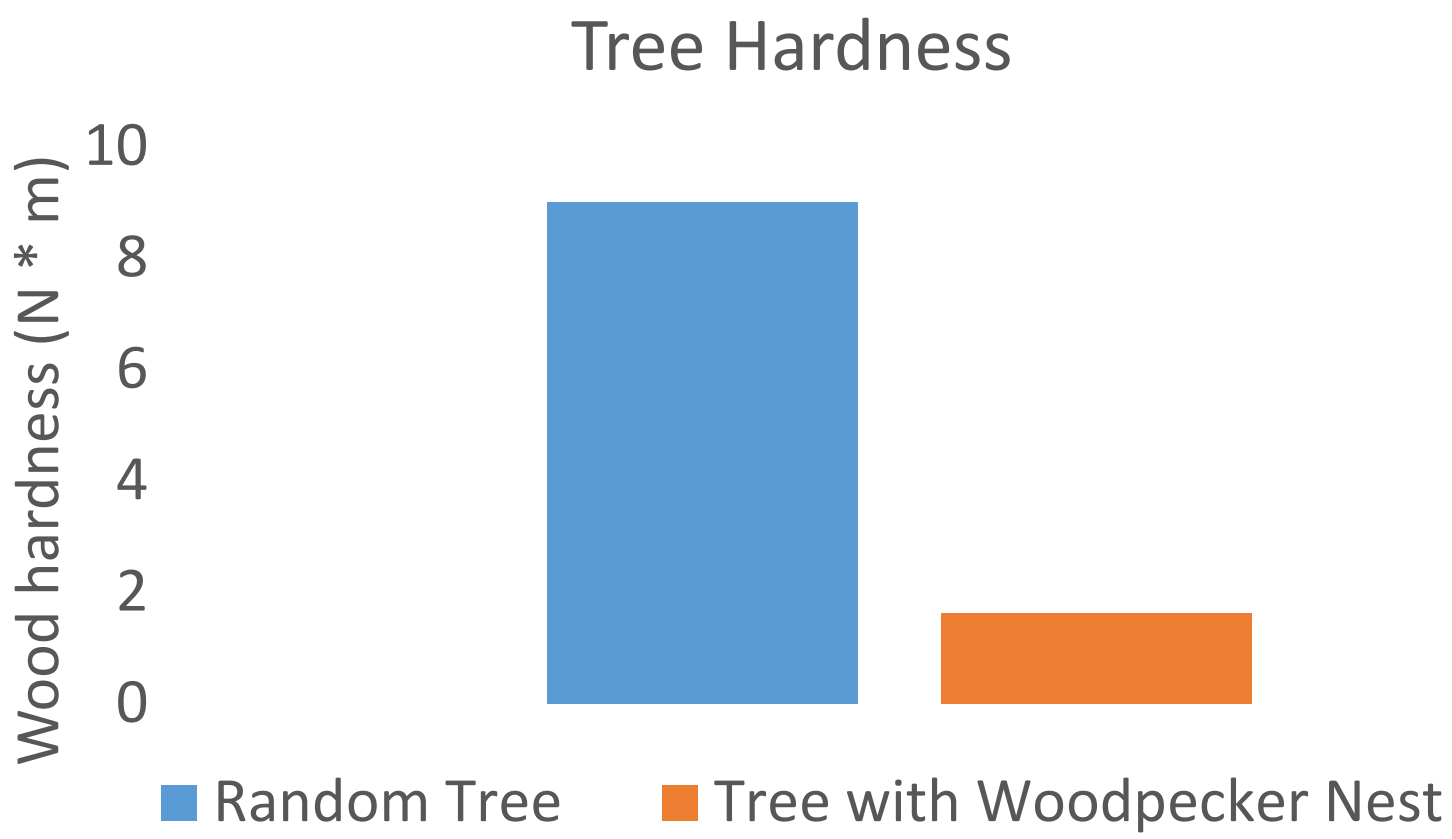
Primary cavity (excavator) vs secondary cavity nesters



Sequoia Audubon Society 2001

www.allaboutbirds.org

Select trees with softer internal wood



Lorenz et al 2015

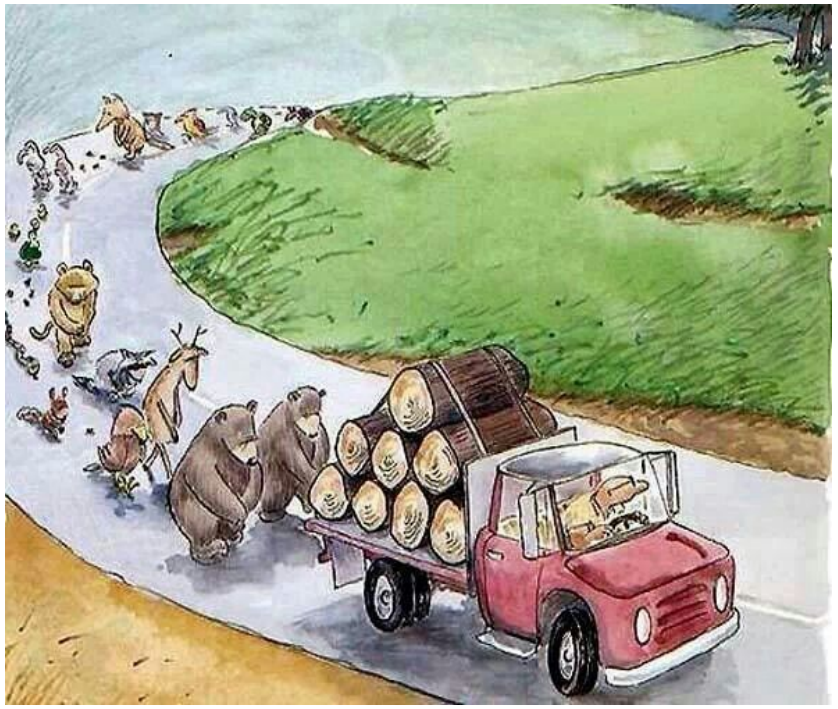
Cavities in dead, dying and decayed

Decaying, dying, dead important to wildlife

- All decaying, dying, dead tissue is important
  - Under represented

For cavity nesting

- The larger the better
  - Dead branch 8” DBH 36” in length
- Large mature trees best



Benefits of dead and dying trees/branches

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Northern flicker

Why is wildlife important?

1. It’s the law.

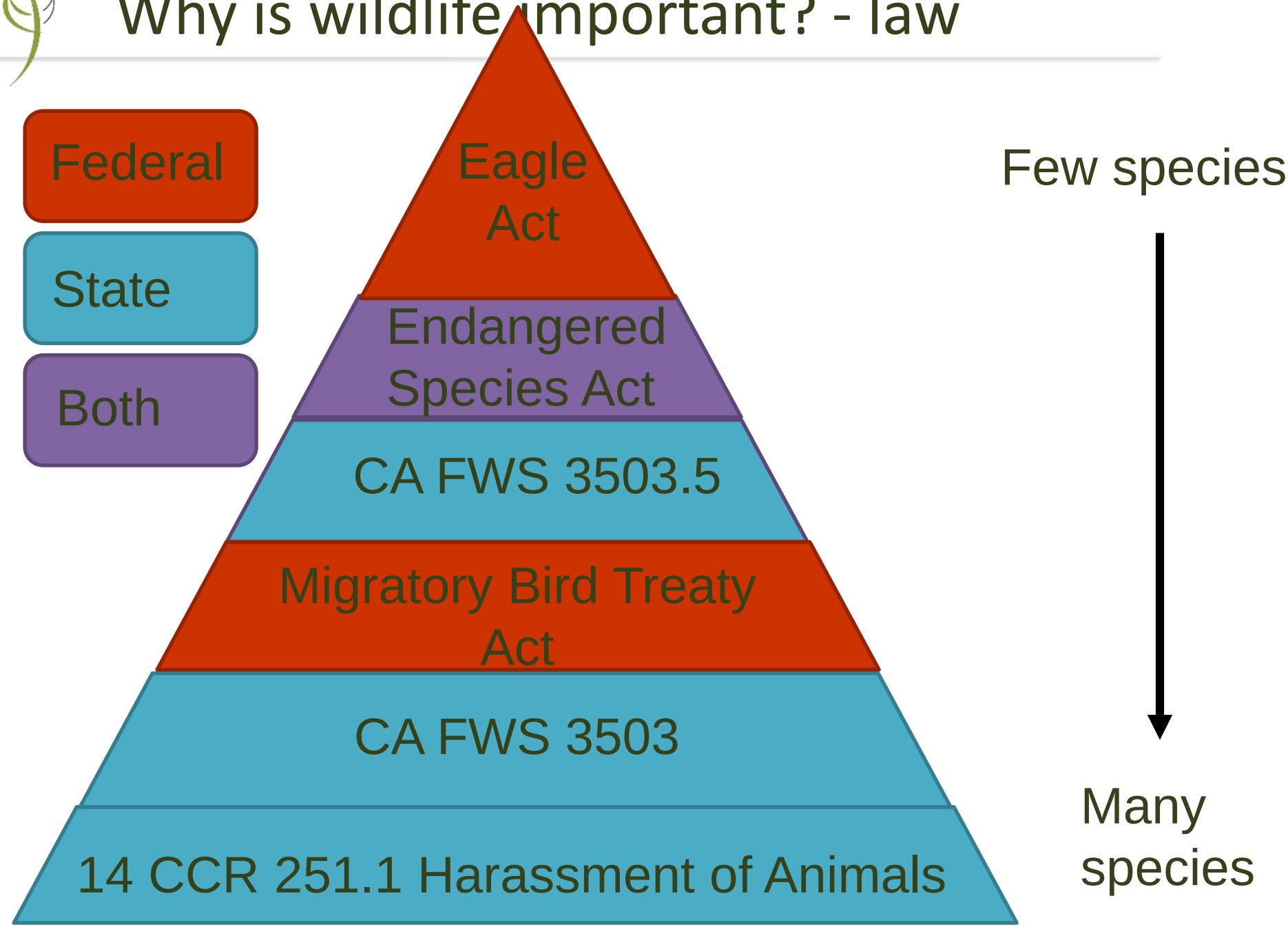
Red-tailed hawk with nest in blue gum

Why is wildlife important? - law

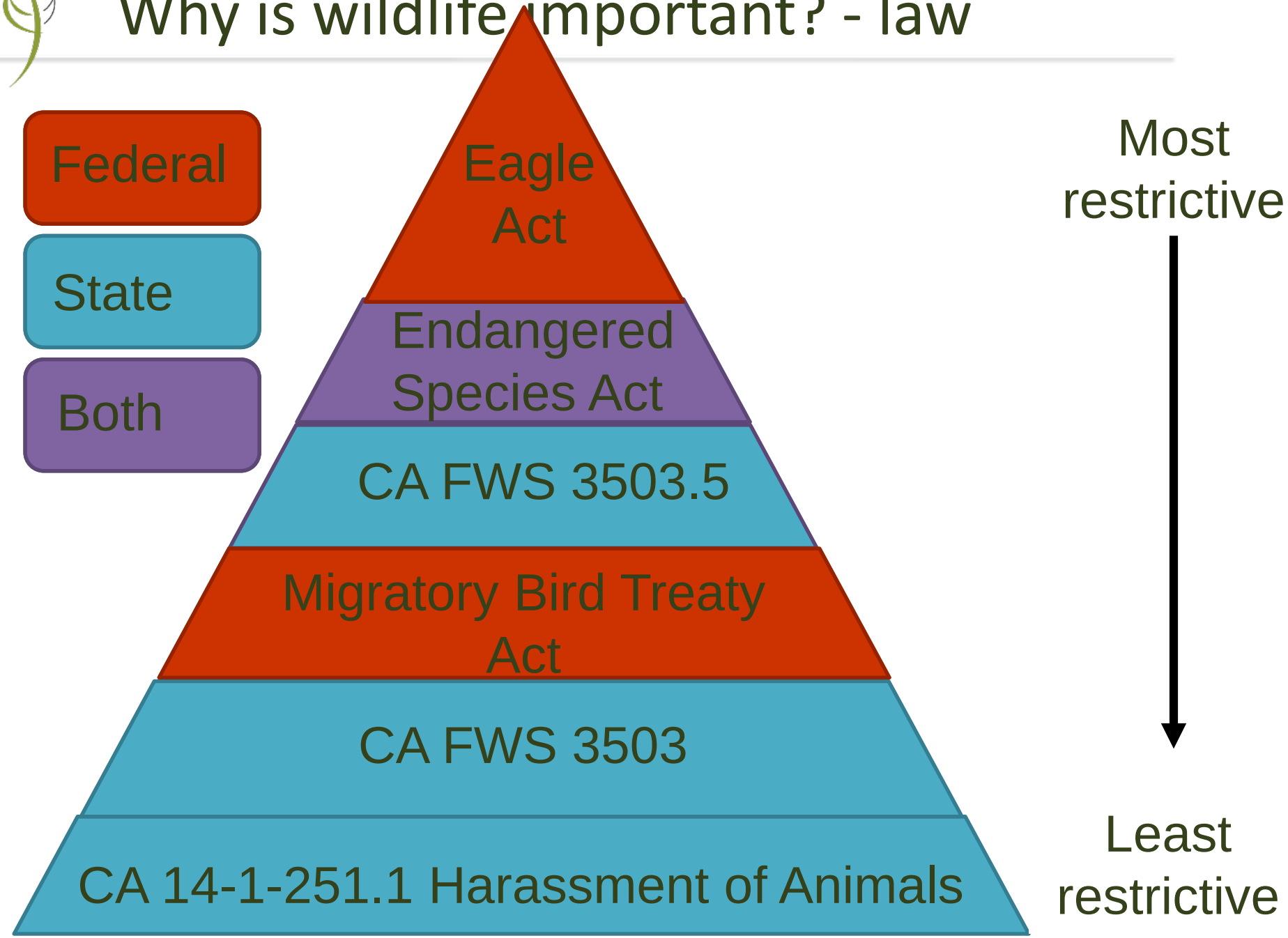
Migratory Bird Treaty Act 1918

- Don’t kill or injure native birds, fledglings, eggs or active nests.
- Active – occupied of eggs or nestlings, or is otherwise essential to the survival of a juvenile bird
- Would include scaring off parents leaving young or eggs to die.
- $15,000 fine and jail
- Congress discussing changes
  - California has similar law

Why is wildlife important? - law



Why is wildlife important? - law



Why is wildlife important? - law

Why do we focus on breeding season?

- Restricted to nest
- Vulnerable

Northern mockingbird nest in plum tree

Why is wildlife important? - law

'It was a catastrophe': Tree with birds' nests torn down in Newport Beach, angering neighbors

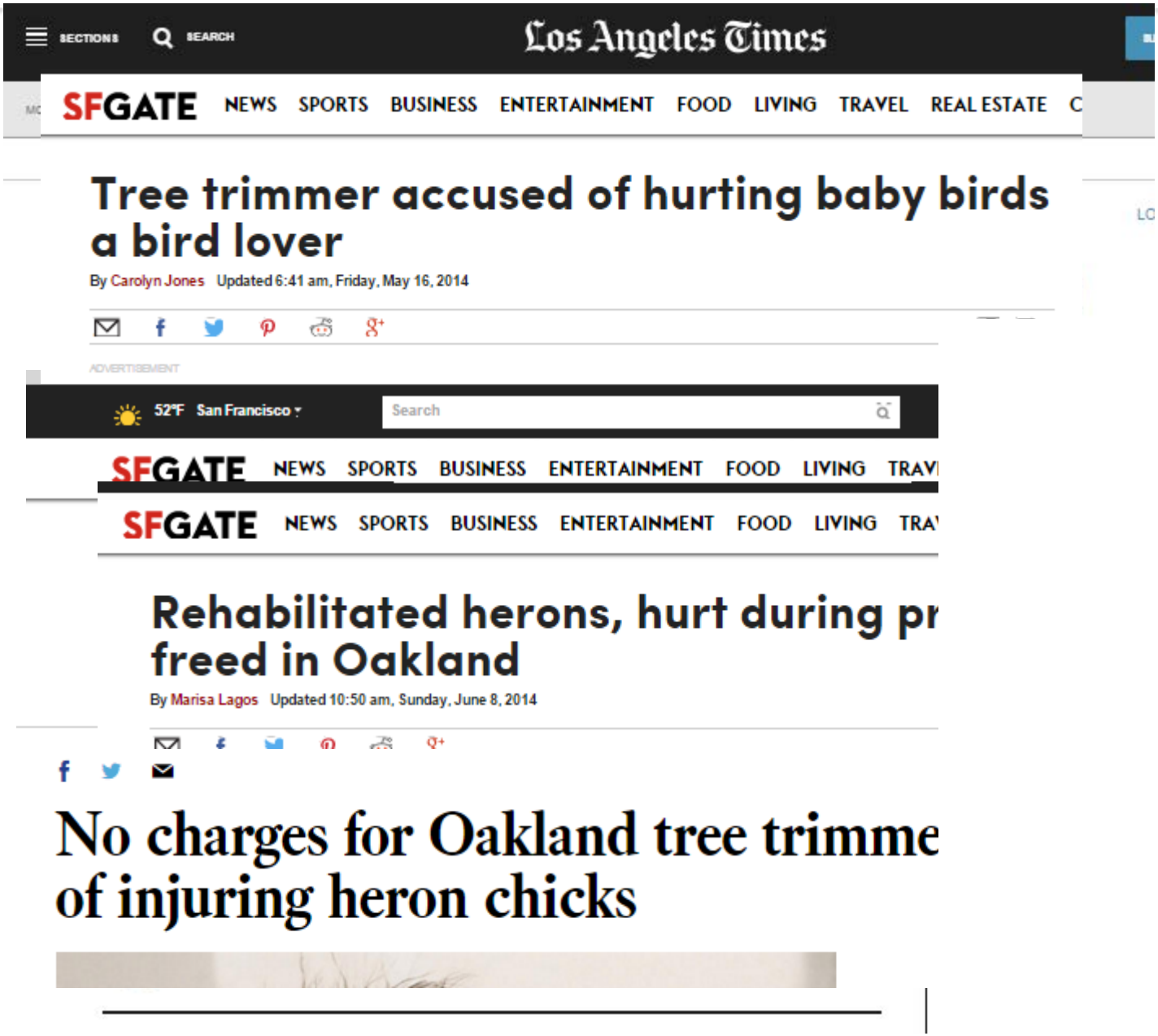
June 1, 2015 | Updated June 5, 2015 1:12 p.m.

NEWS

Two men charged with animal cruelty for chopping down tree in Newport Beach, killing baby birds

July 16, 2015 | Updated 6:12 p.m.

Why is wildlife important? - people



SECTIONS SEARCH

Los Angeles Times

SFGATE NEWS SPORTS BUSINESS ENTERTAINMENT FOOD LIVING TRAVEL REAL ESTATE

Tree trimmer accused of hurting baby birds a bird lover

By Carolyn Jones Updated 6:41 am, Friday, May 16, 2014

ADVERTISEMENT

52°F San Francisco Search

SFGATE NEWS SPORTS BUSINESS ENTERTAINMENT FOOD LIVING

SFGATE NEWS SPORTS BUSINESS ENTERTAINMENT FOOD LIVING

Rehabilitated herons, hurt during pr freed in Oakland

By Marisa Lagos Updated 10:50 am, Sunday, June 8, 2014

No charges for Oakland tree trimme of injuring heron chicks

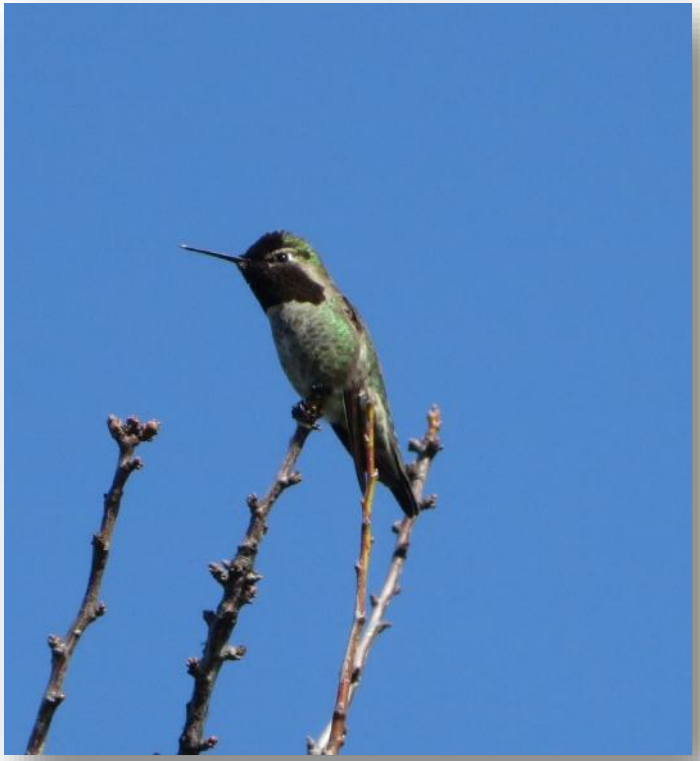
Why is wildlife important?

1. It’s the law.
2. People are passionate about wildlife.

Northern mockingbird

Why is wildlife important?

1. It’s the law.
2. People are passionate about wildlife.
3. Wildlife are bioindicators about the health of our forests.



Anna’s hummingbird

Why is wildlife important? - Ecosystem

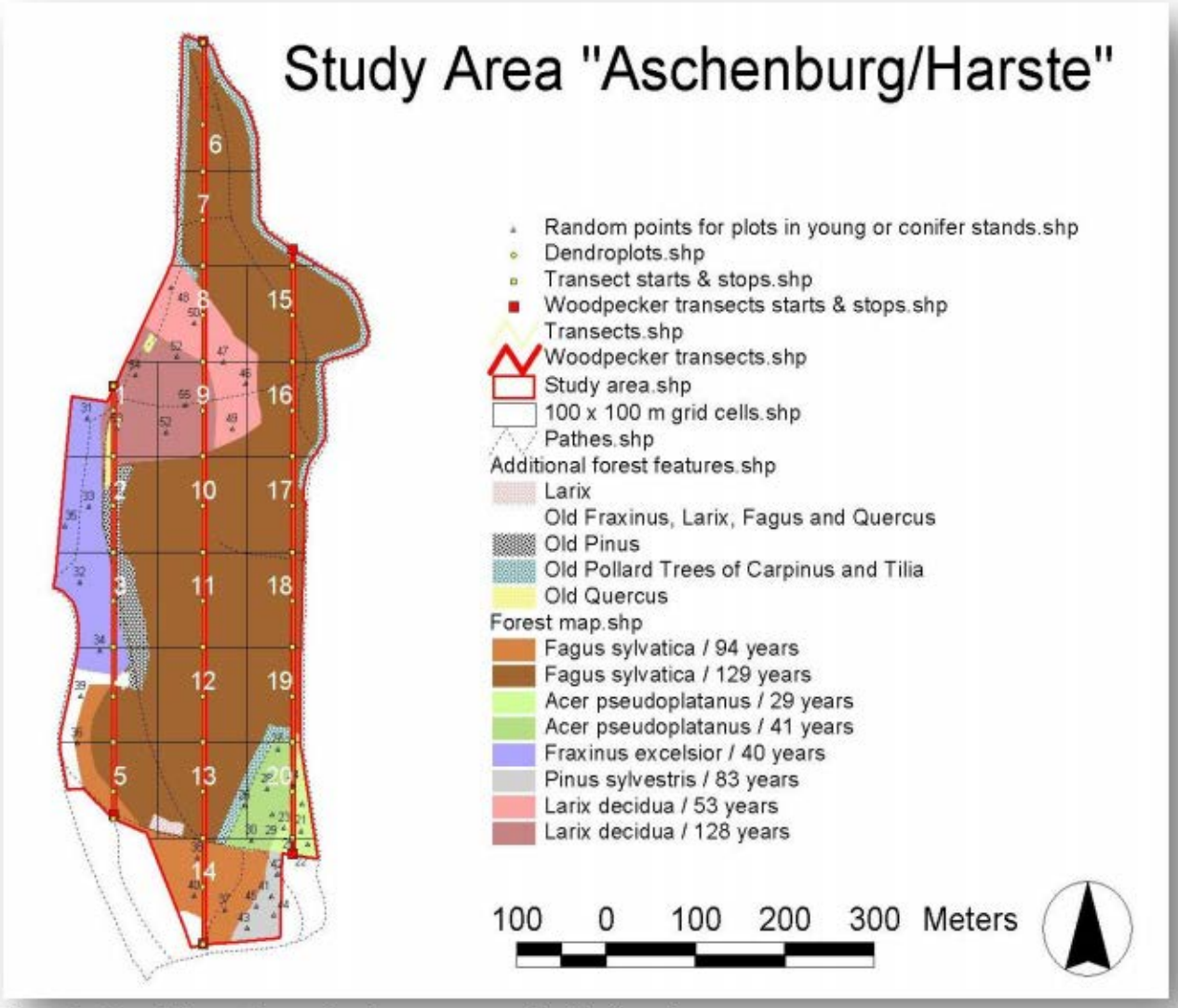


Figure 1. Map of the study area showing transects and grid cell numbers.

Why is wildlife important? - Ecosystem

NRCS Natural Resources Conservation Service

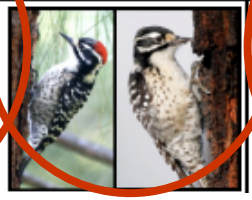
Keeping Oak Woodlands Healthy

If the birds are there, the oak woodland is healthy.

Point Blue Conservation Science

How do you know if your oak woodland is healthy? Look for these 12 oak woodland focal species—together they feed and nest in the different layers of a healthy oak woodland forest. **Healthy oak woodlands are important habitats for birds and other wildlife, and also places where we farm and ranch.** Healthy oak woodlands provide food, cover, and safe access to water for over 300 different kinds of birds, mammals, reptiles, and amphibians—more than any other habitat in California. **If the birds are there, your oak woodland is healthy!** Tips for keeping your oak woodland forest healthy are on page 2.

Photos Courtesy of Tom Grey

Acorn Woodpecker	Oak Titmouse	Nuttall's Woodpecker	Northern Flicker	White-breasted Nuthatch	Ash-throated Flycatcher	Lawrence's Goldfinch
						

Photos Courtesy of Tom Grey

Western Bluebird	California Quail	Western Scrub-Jay	Yellow-billed Magpie	Lark Sparrow
				

http://www.pointblue.org/

Why is wildlife important? - Ecosystem

- Wildlife are bioindicators of forest health
- Every young bird leaving a nest in the trees that we care for show that we are caring for our urban forests.
- Why limit our discussion on the benefits of the urban forest?

Western tanager

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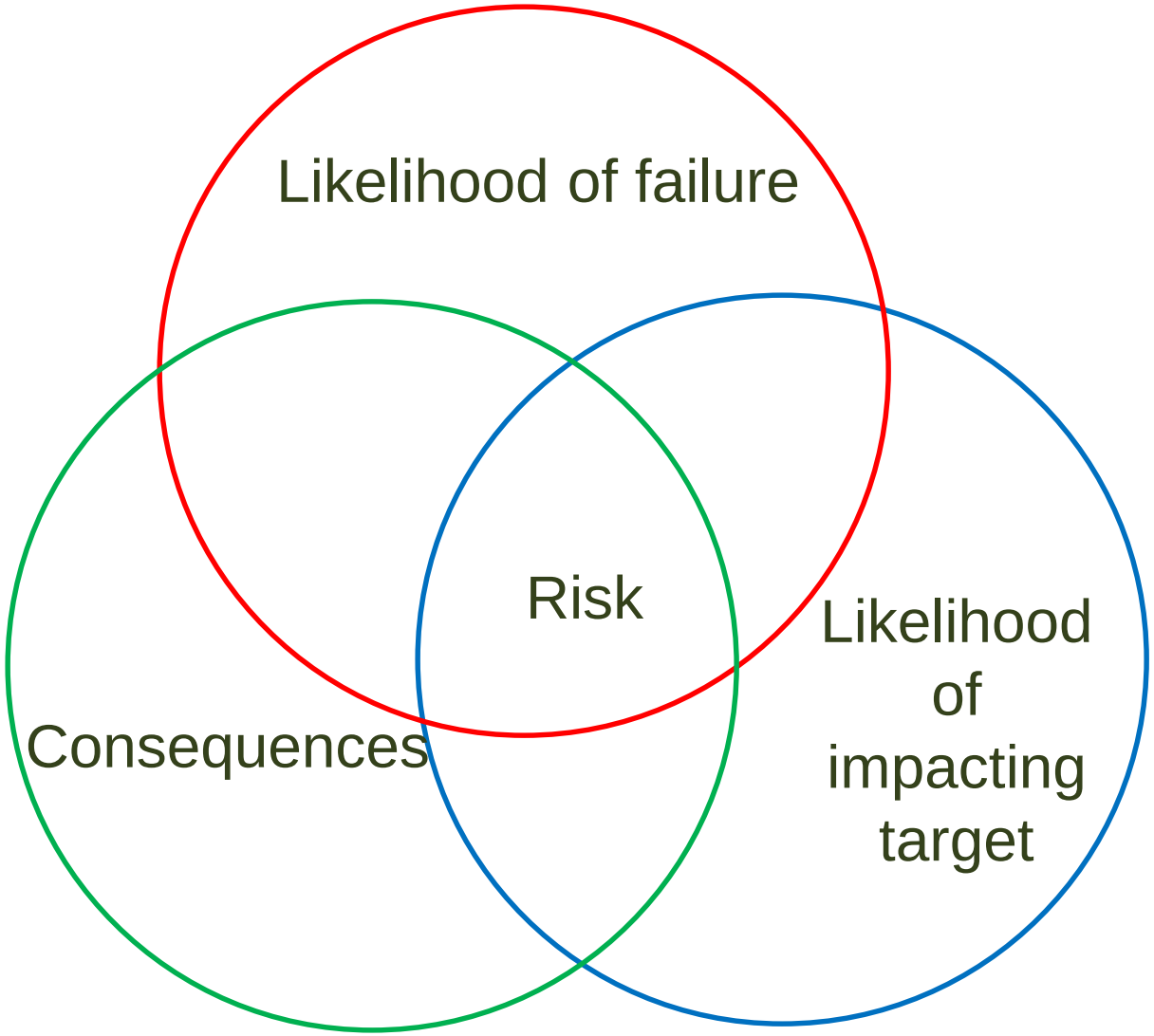
Risk Primer


Likelihood of failure
Risk
Consequences
Likelihood of impacting target

Risk Primer

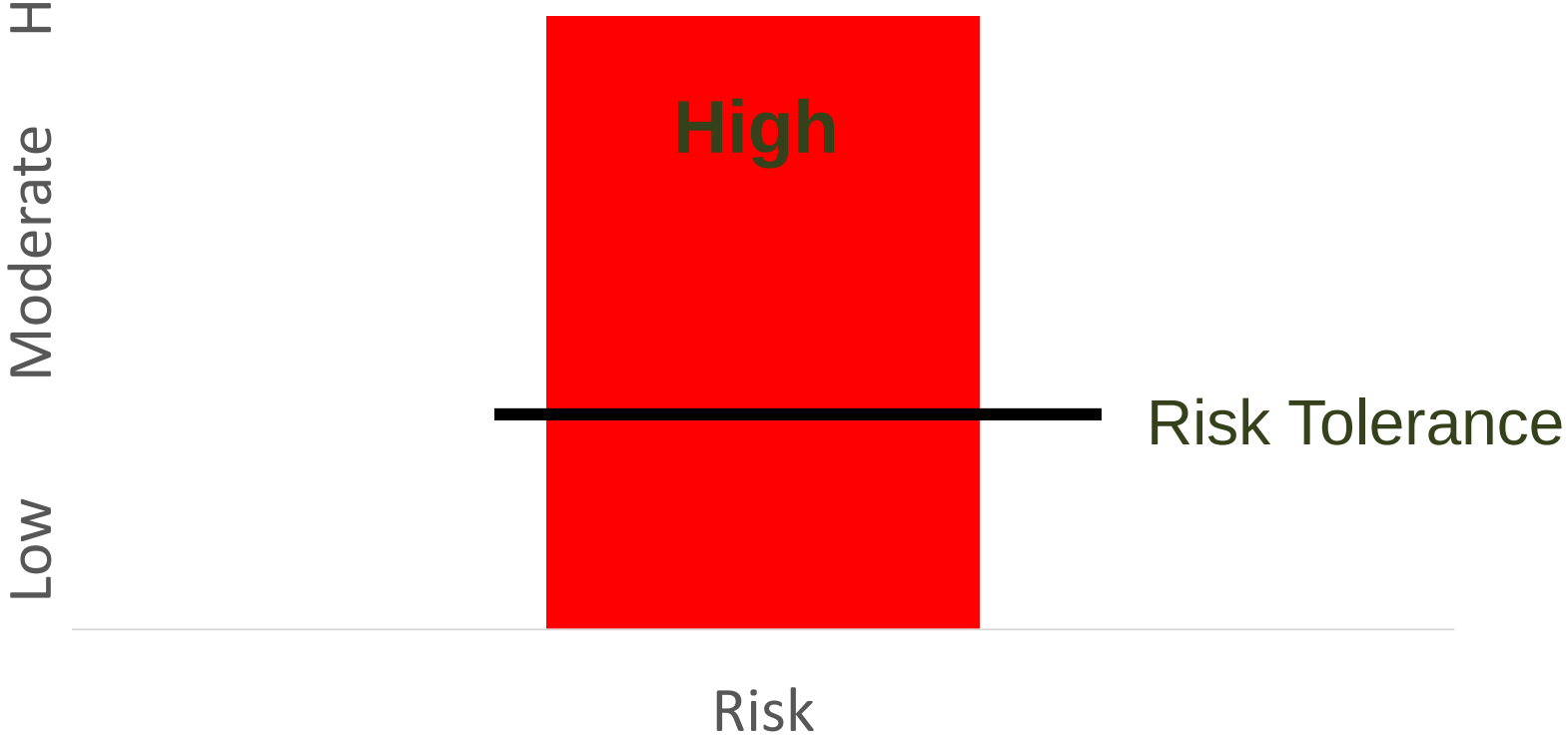
Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	~~Unlikely~~	~~Unlikely~~	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Risk Primer

Likelihood of Failure and Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	~~Low~~	~~Moderate~~	~~High~~	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low

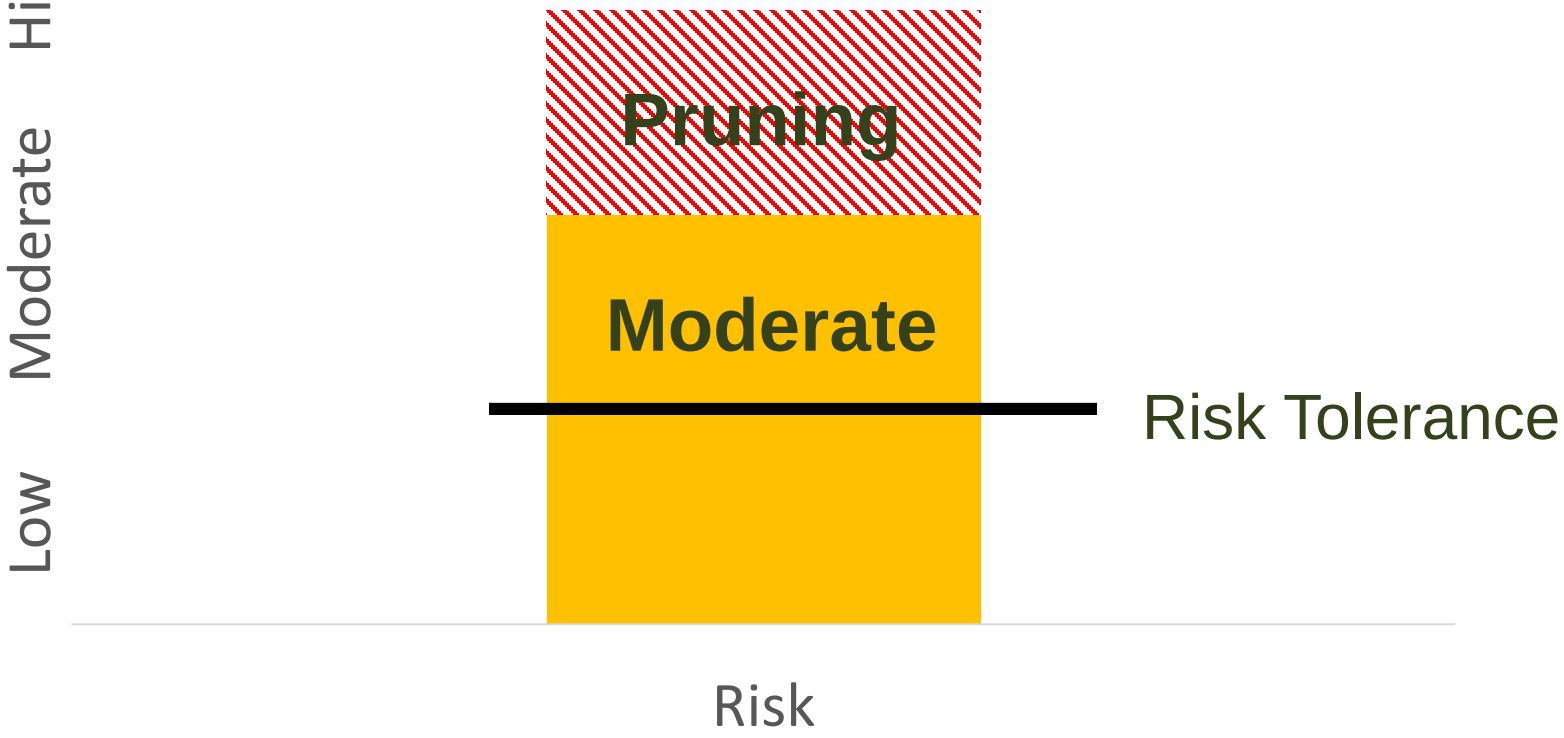
Risk Primer

Likelihood of failure = Probable
Likelihood of impacting target = High
Consequences = Severe



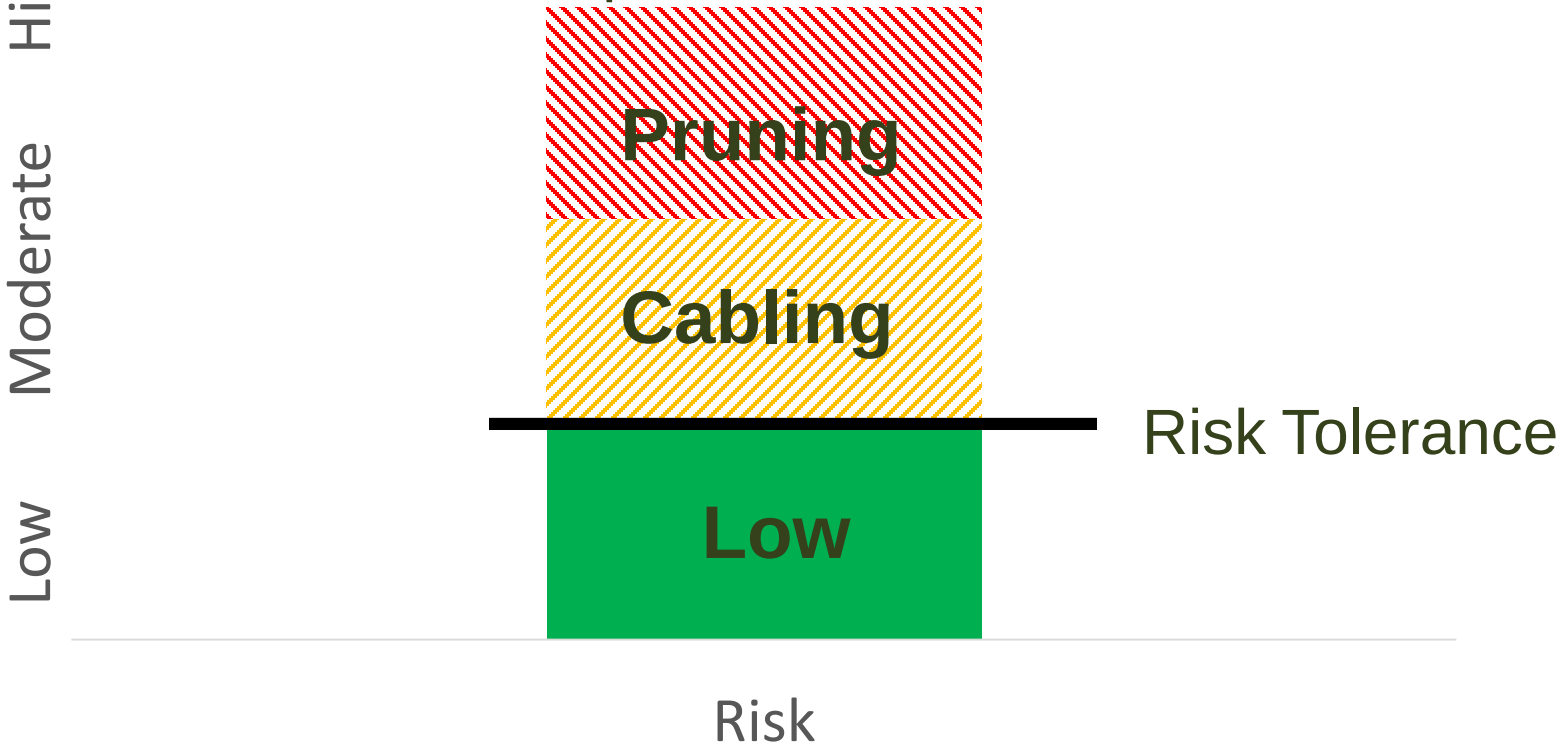
Risk Primer

Likelihood of failure = Probable
Likelihood of impacting target = ~~High~~ Medium
Consequences = Severe

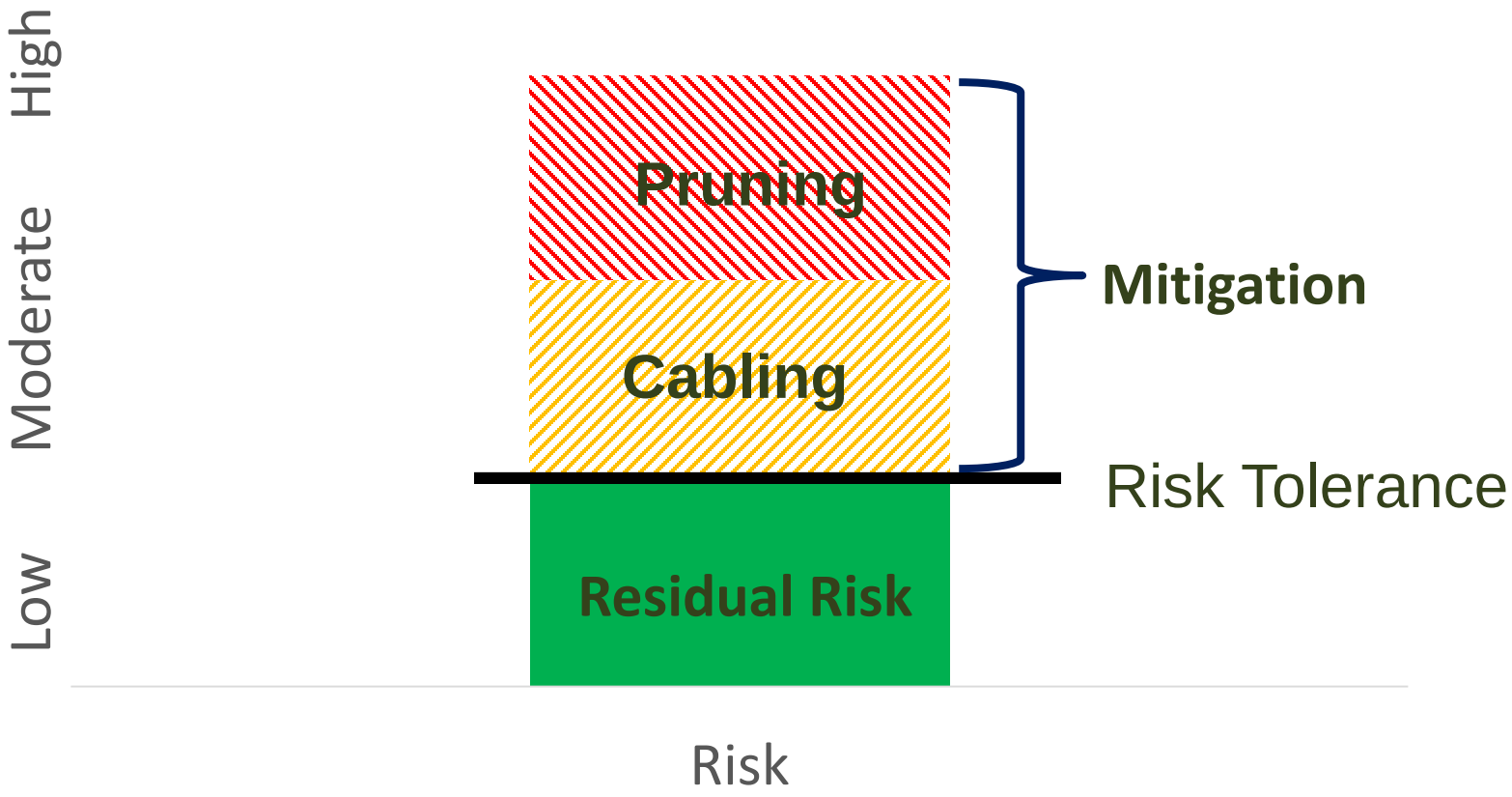


Risk Primer

Likelihood of failure = ~~Probable~~ Possible
Likelihood of impacting target = ~~High~~ Medium
Consequences = Severe



Risk Primer


High
Moderate
Low
Pruning
Cabling
Residual Risk
Mitigation
Risk Tolerance
Risk

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Cavities in Canary Island date palm

Cavities indicate decay

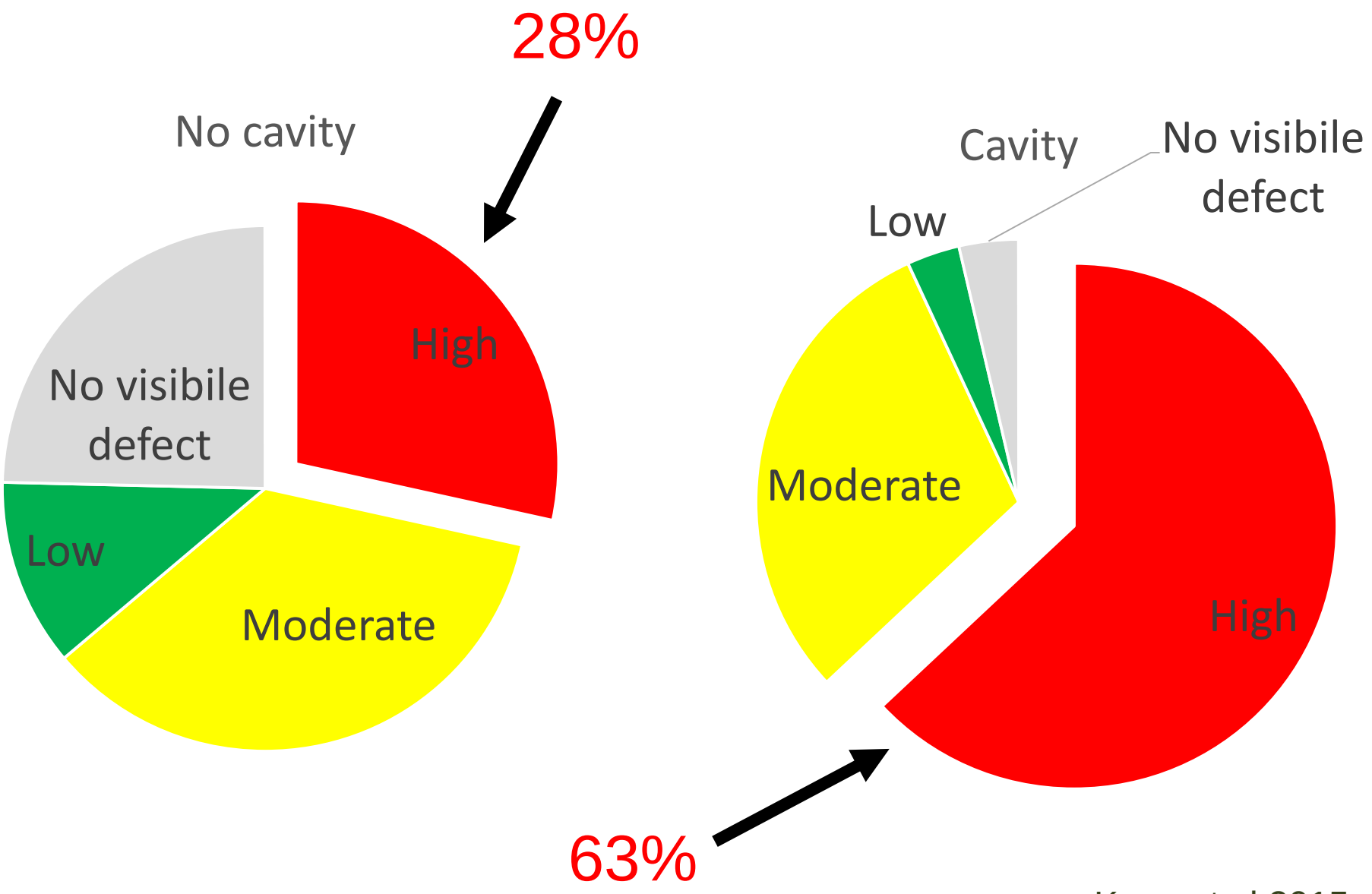
The most common positive indicators of decay or internal voids are:

- cavity openings, nesting holes, and other voids or openings to the outside of the tree
- fungal fruiting structures, such as mushrooms, conks, or brackets that are attached to the tree
- carpenter ants
- termite emergence from internal nests/t

Page 64

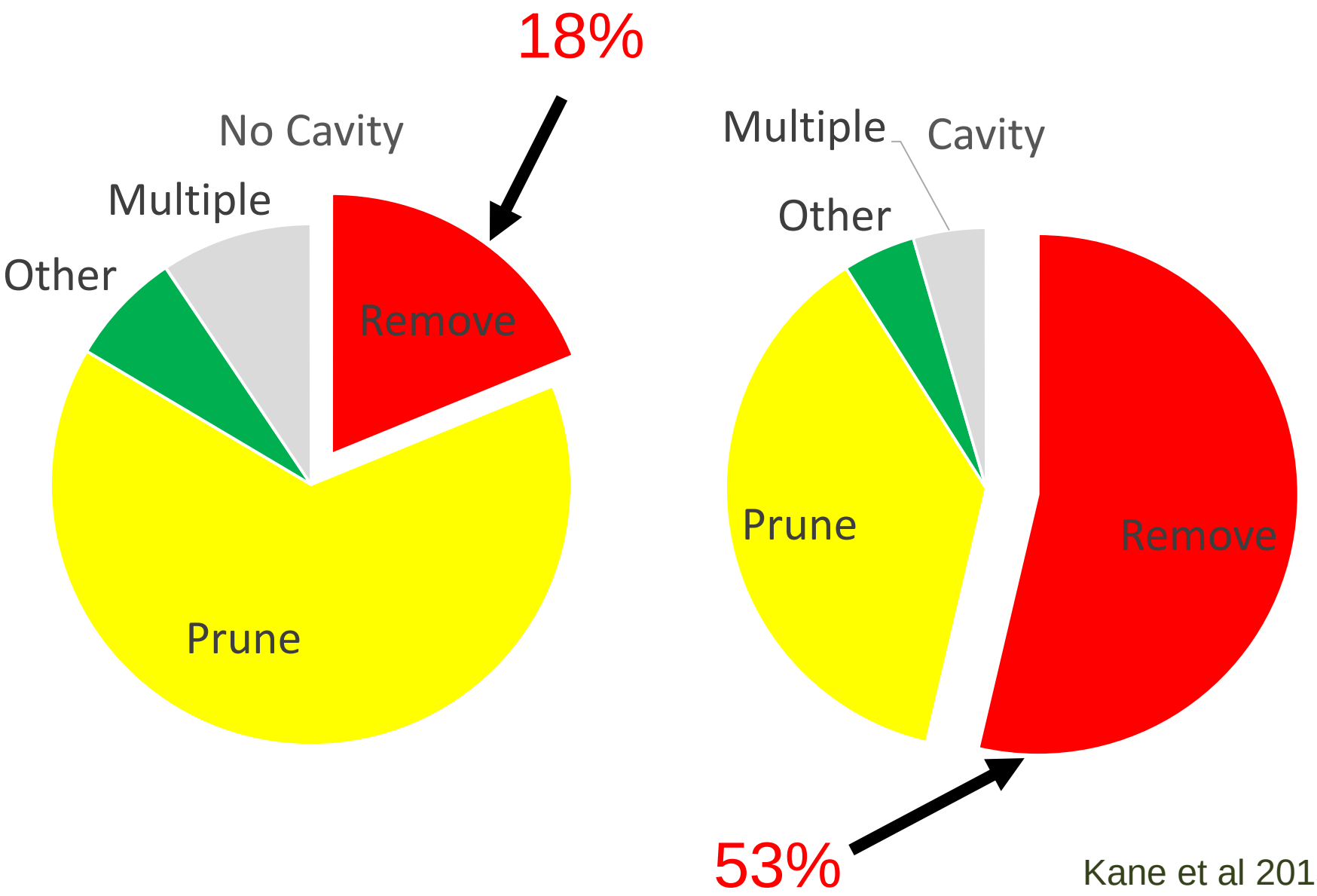
Smiley et al 2011

Likelihood of failure - cavities



Kane et al 2015

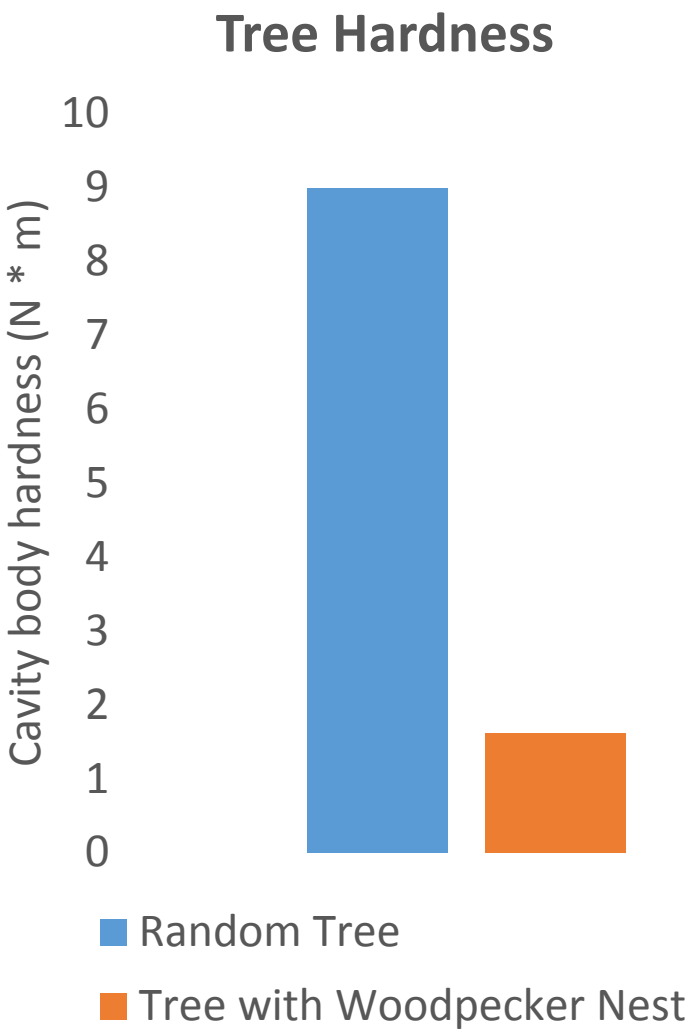
Mitigation options - cavities



Kane et al 2015

Do branches with cavities fail more often?

No scientific studies.



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Review A300 Pruning Standard

4.2 Objectives should include, but are not limited to, one or more of the following:

Manage risk (see ANSI A300 Part 9, *Tree Risk Assessment*).

Manage health (see ANSI A300 Part 10, *Integrated Pest Management* and ANSI A300 Part 2, *Soil Management*).

Develop structure, such as to:

- Improve overall branch and trunk architecture;
- Promote or subordinate certain leaders, stems or branches;
- Promote desirable branch spacing;
- Promote or discourage growth in a particular direction (directional pruning);
- Minimize conflict with traffic or infrastructure;
- Restore plants following damage; and/or,
- Rejuvenate shrubs (see Annex D).

Provide clearance, such as to:

- Ensure safe and reliable utility services;
- Prevent interference with infrastructure, buildings or other plants;
- Raise crown(s) for movement of traffic or light penetration;
- Ensure lines-of-sight or desired views;
- Provide access to sites, buildings or other structures; and/or,
- Comply with regulations.

Improve aesthetics.

Manage size or shape.

Manage production of fruit, flowers, or other products.

Manage wildlife habitat.

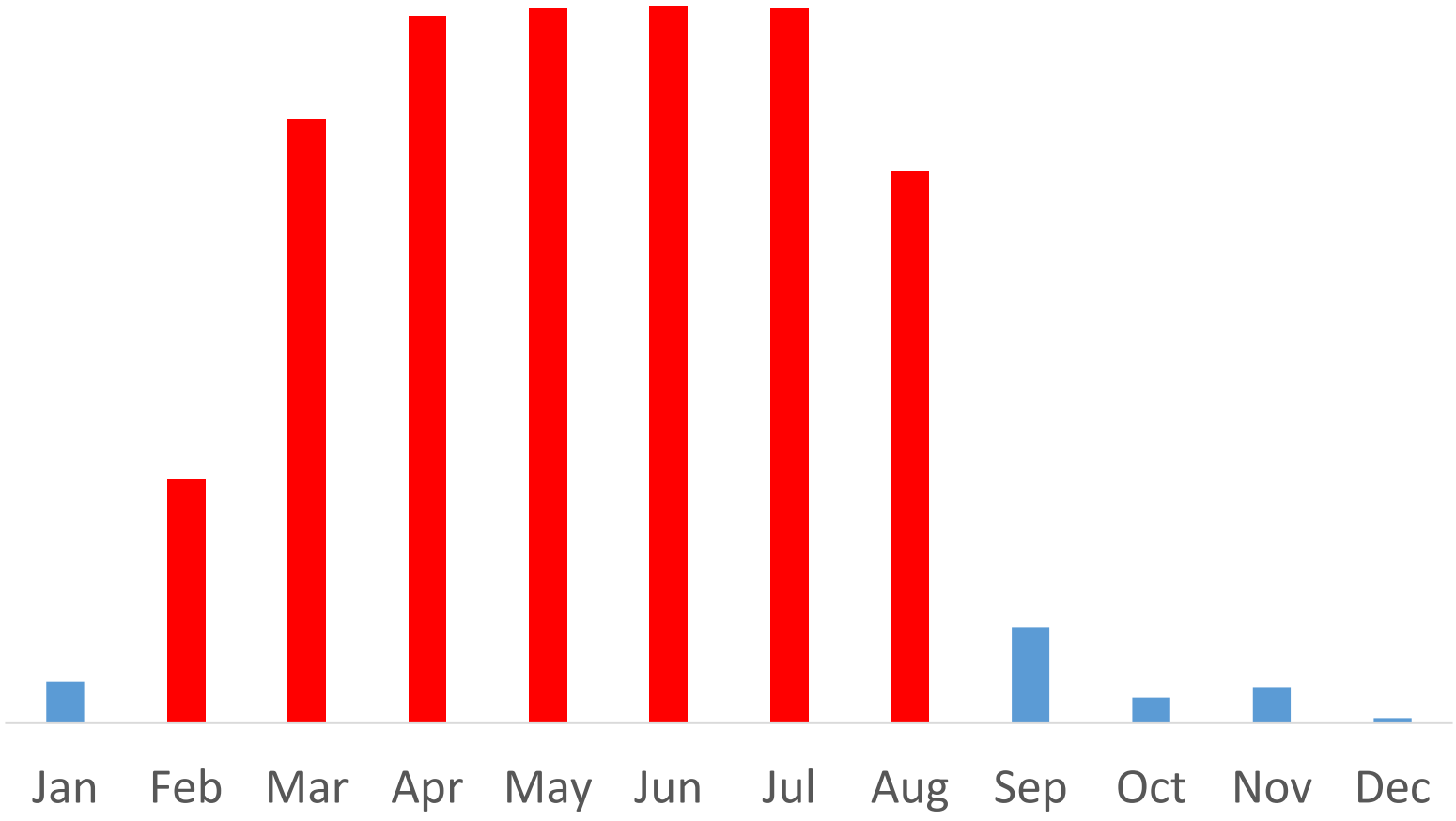
“Wildlife friendly” pruning

1. Protect nesting wildlife
2. Healthy trees: Follow the pruning BMPs
3. For dead and dying trees and branches:
    a) Manage for Risk and Wildlife Habitat not tree health

Protect nesting wildlife – stop working

- Initial site walk/nesting survey
- Don’t move, remove or work near active nest
- If you need to work near nests, call biologist
- In emergency with injured or abandoned wildlife, don’t immediately touch, call rehabilitator for advice.

Protect nesting wildlife – breeding season



Sequoia Audubon Society 2001

Healthy trees - follow pruning BMPs

Pruning BMPs - Main object is the health of the tree

- Don’t remove move than 25% of live foliage
- Don’t top
- No wound dressings
- Pruning while dormant often preferred

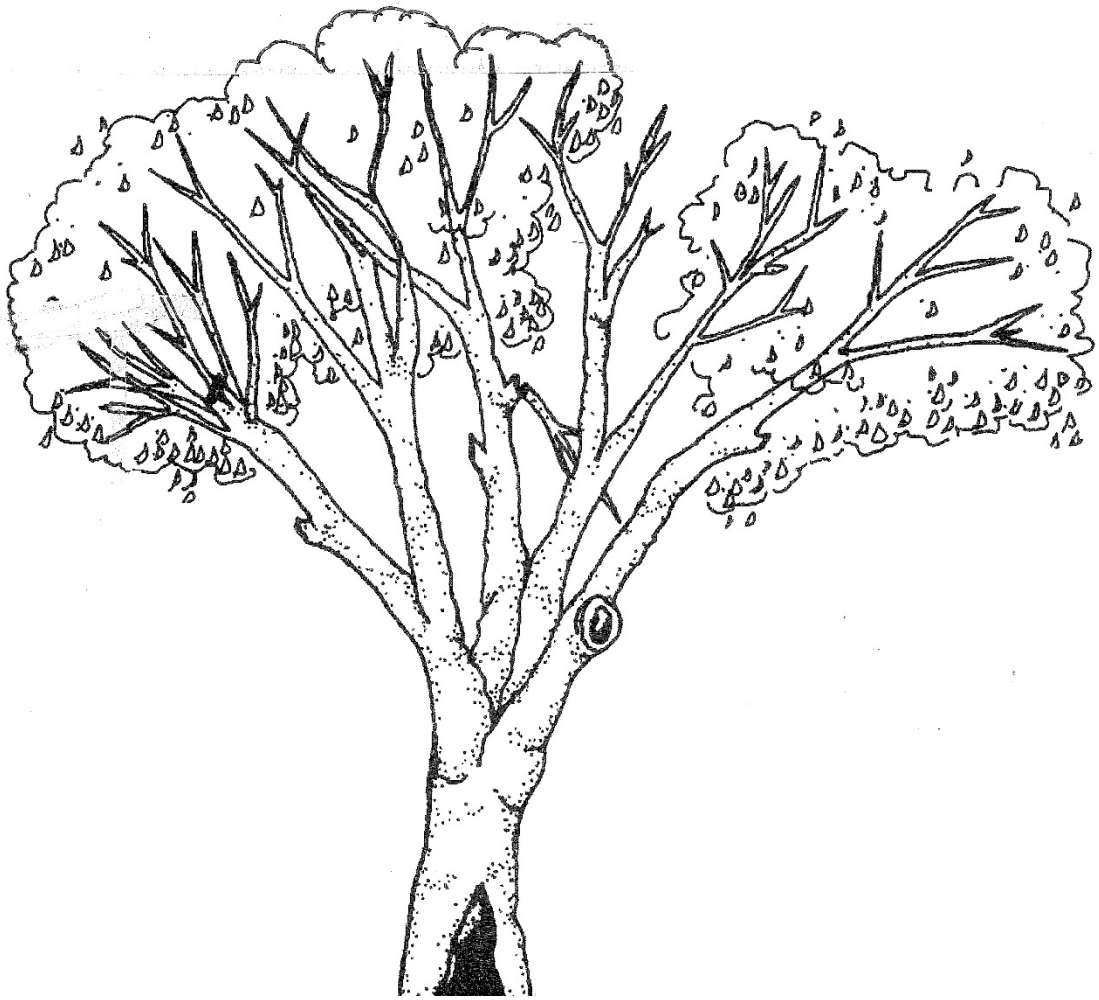
Gilman and Lilly 2008

Managing decayed, dead and dying

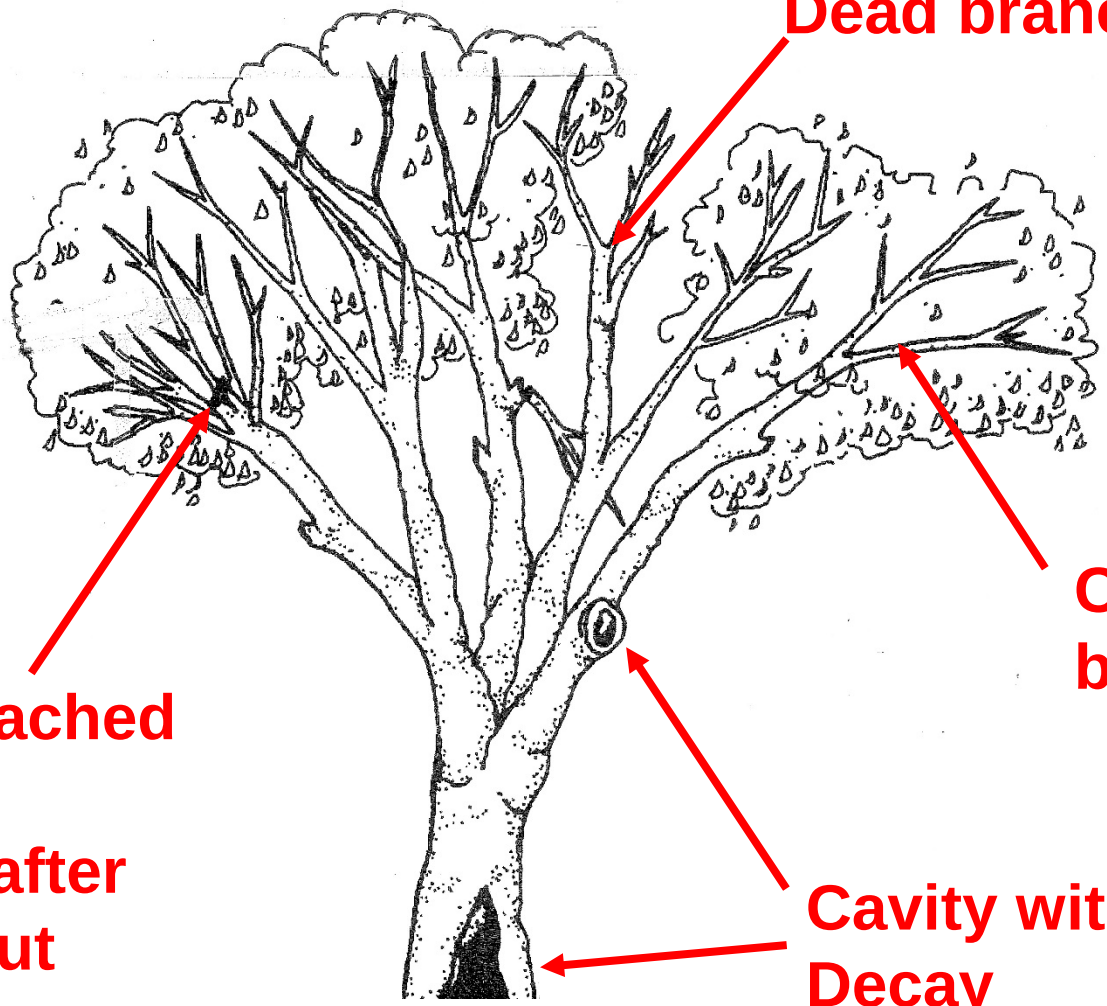
When managing decayed, dead and dying trees and branches:

- Manage for risk and wildlife habitat
  - Not tree health

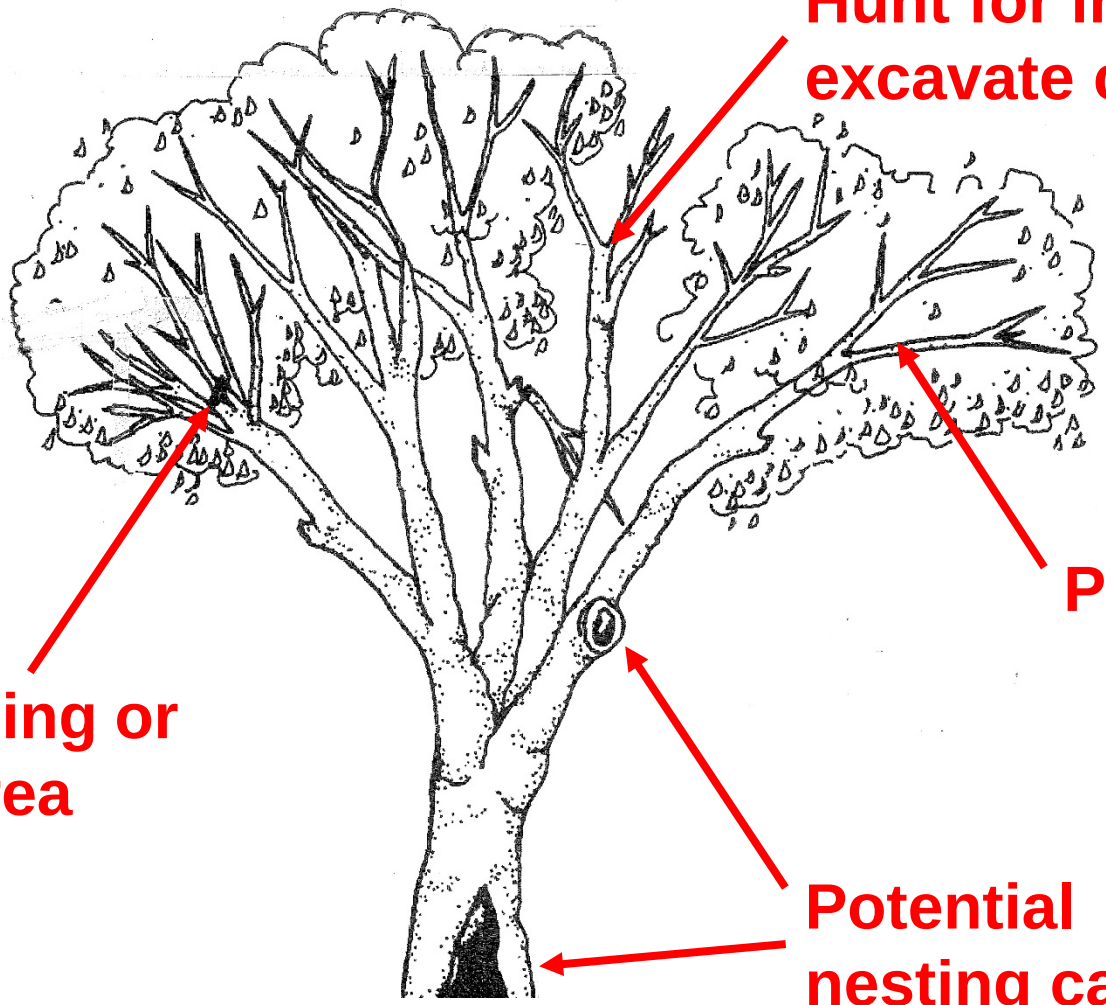
Tree Risk Assessment



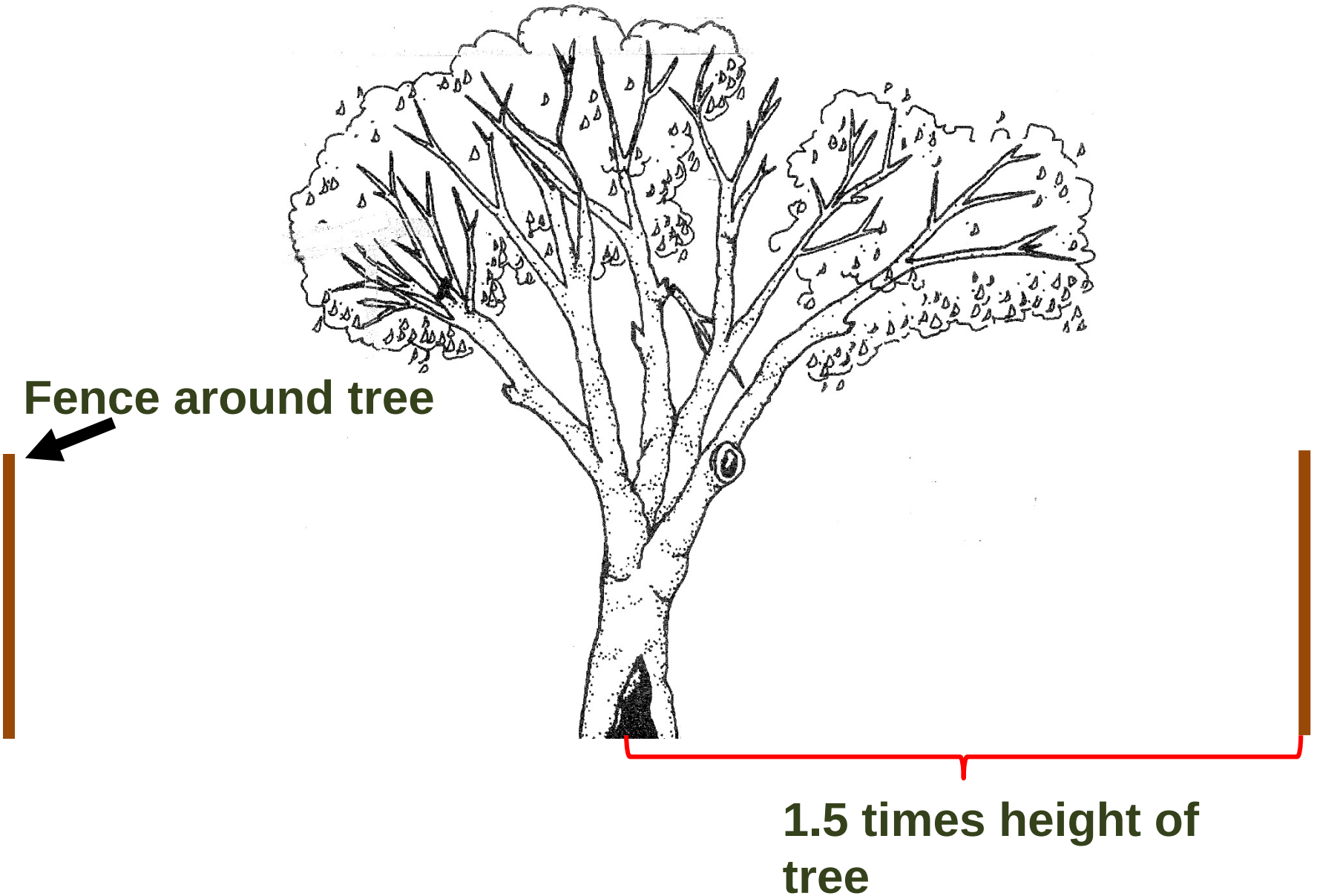
Tree Risk Assessment - defects



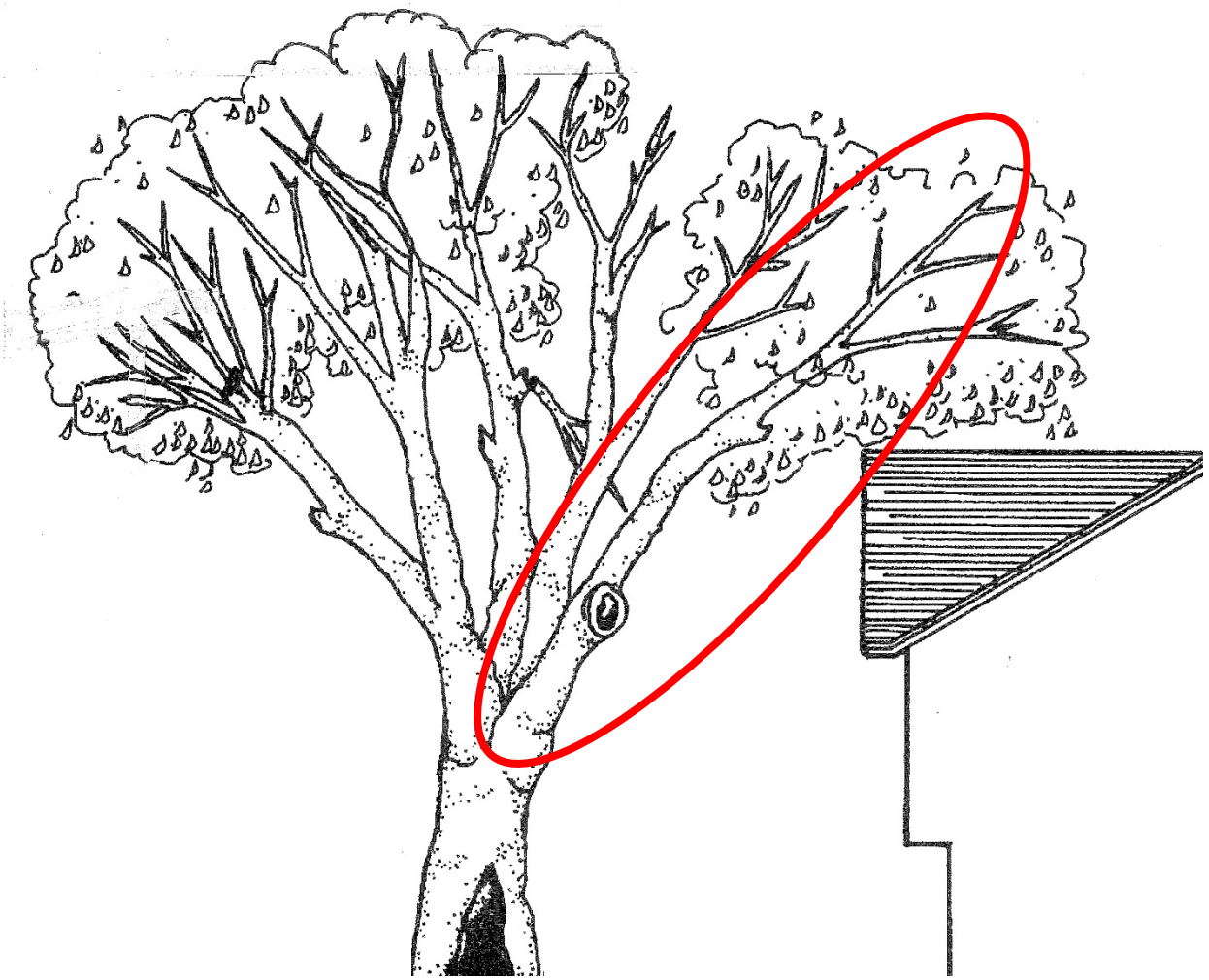
Tree Risk Assessment – Wildlife benefits



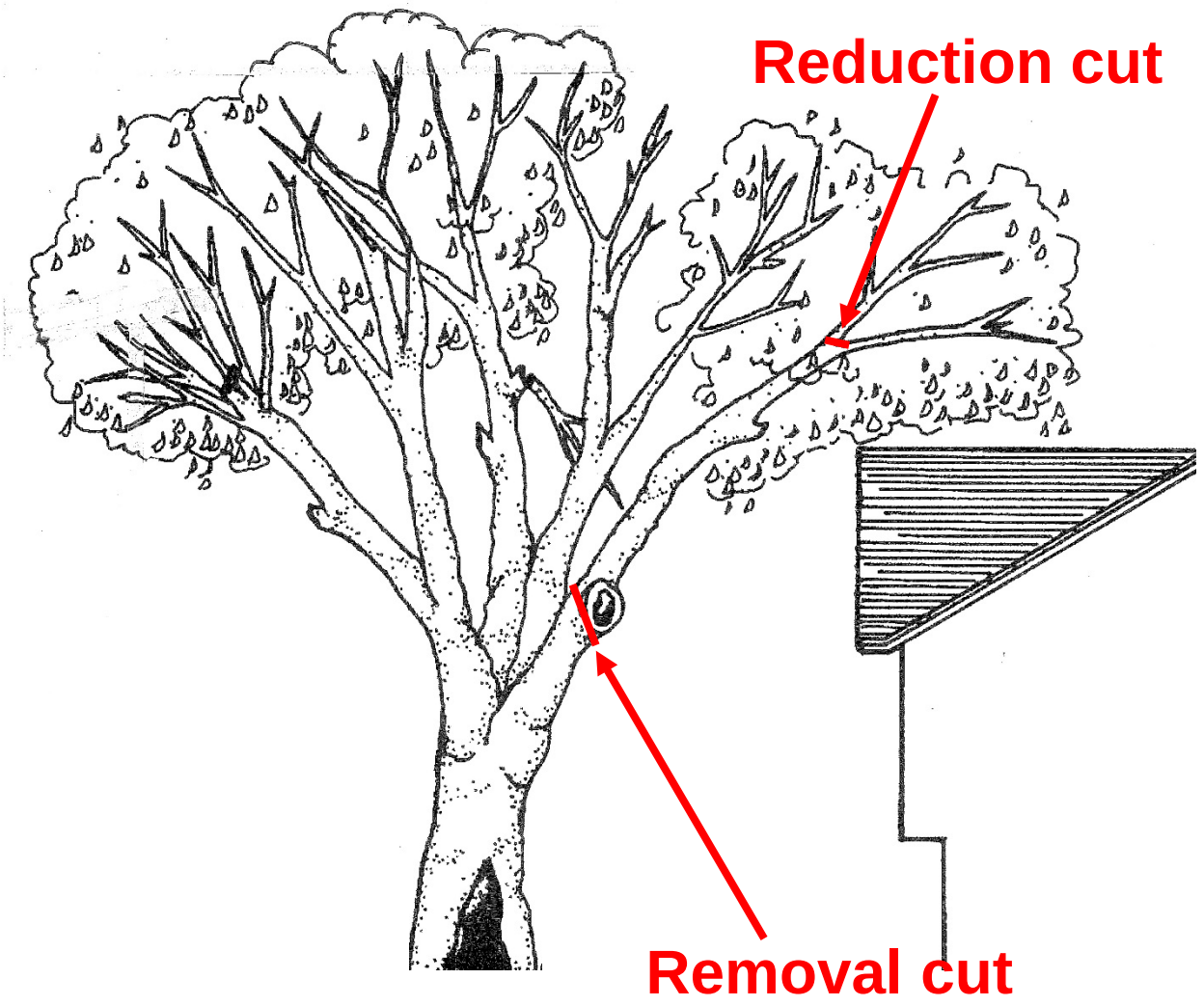
Limit or eliminate targets



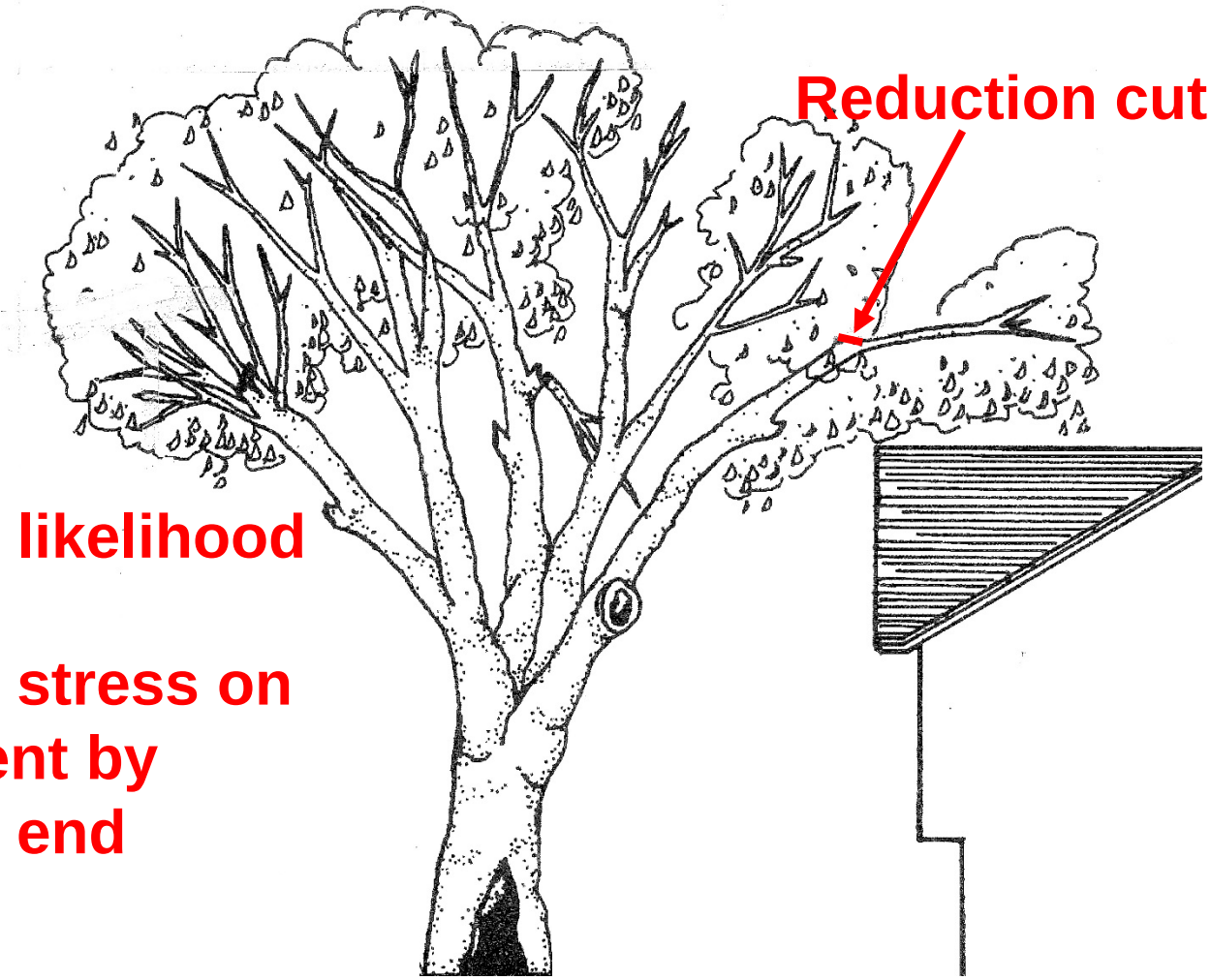
Risk – Branch over house



Pruning BMP options



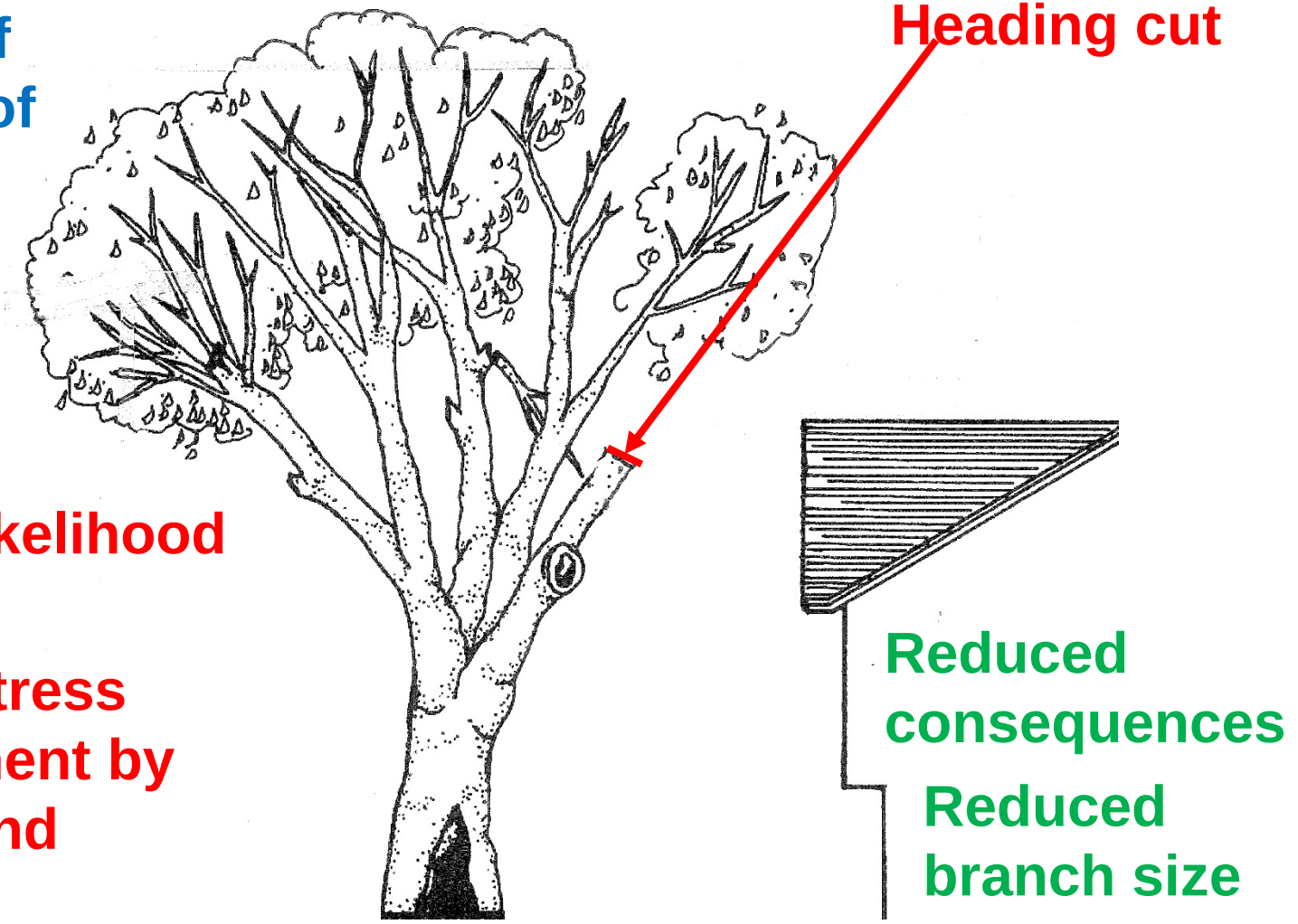
Reduction cut



- **Reduced likelihood of failure**
- **Reduced stress on attachment by reducing end weight**

Heading cut

Reduced of likelihood of impact
Reduced branch length



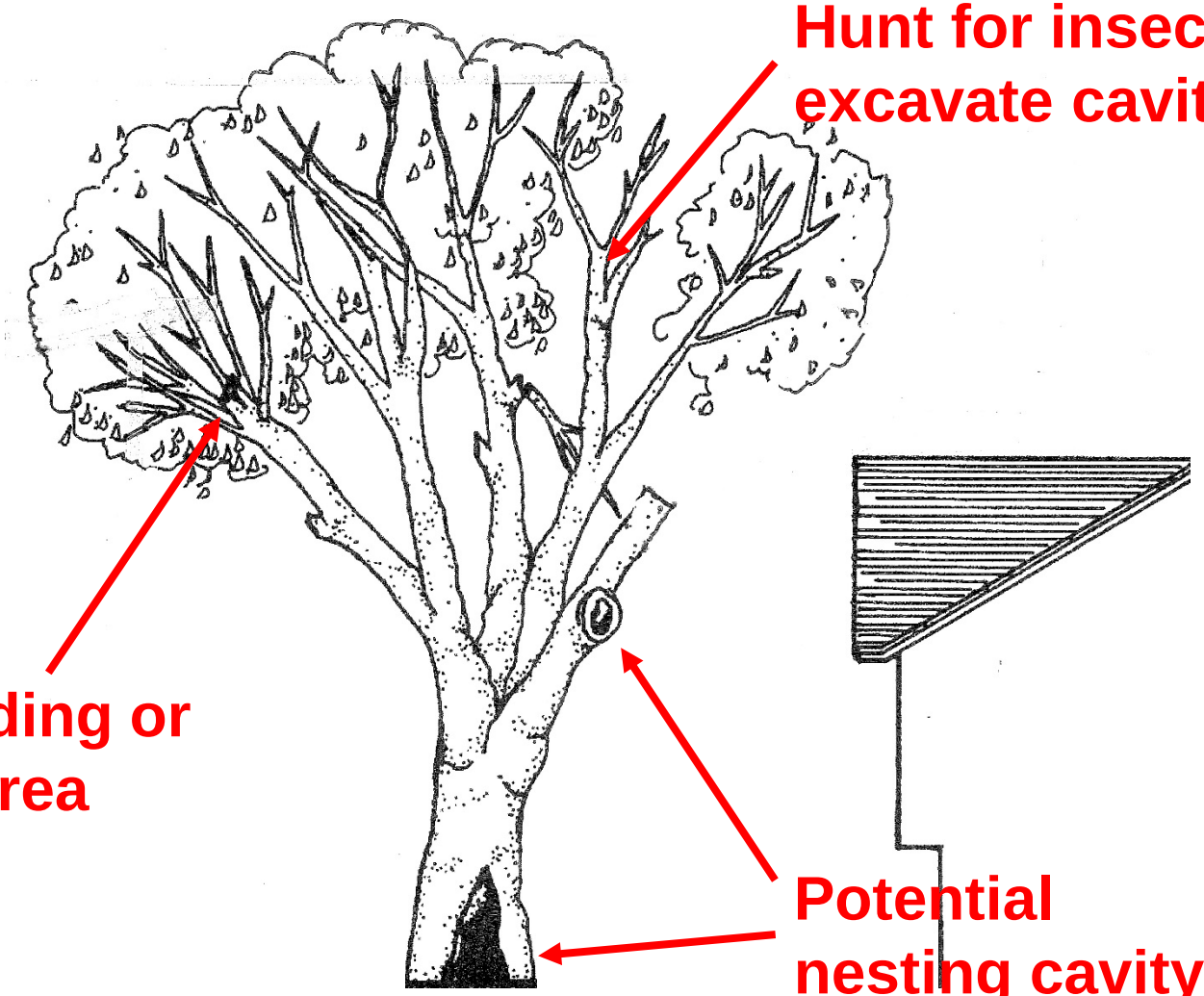
Reduced likelihood of failure

Reduced stress on attachment by reducing end weight

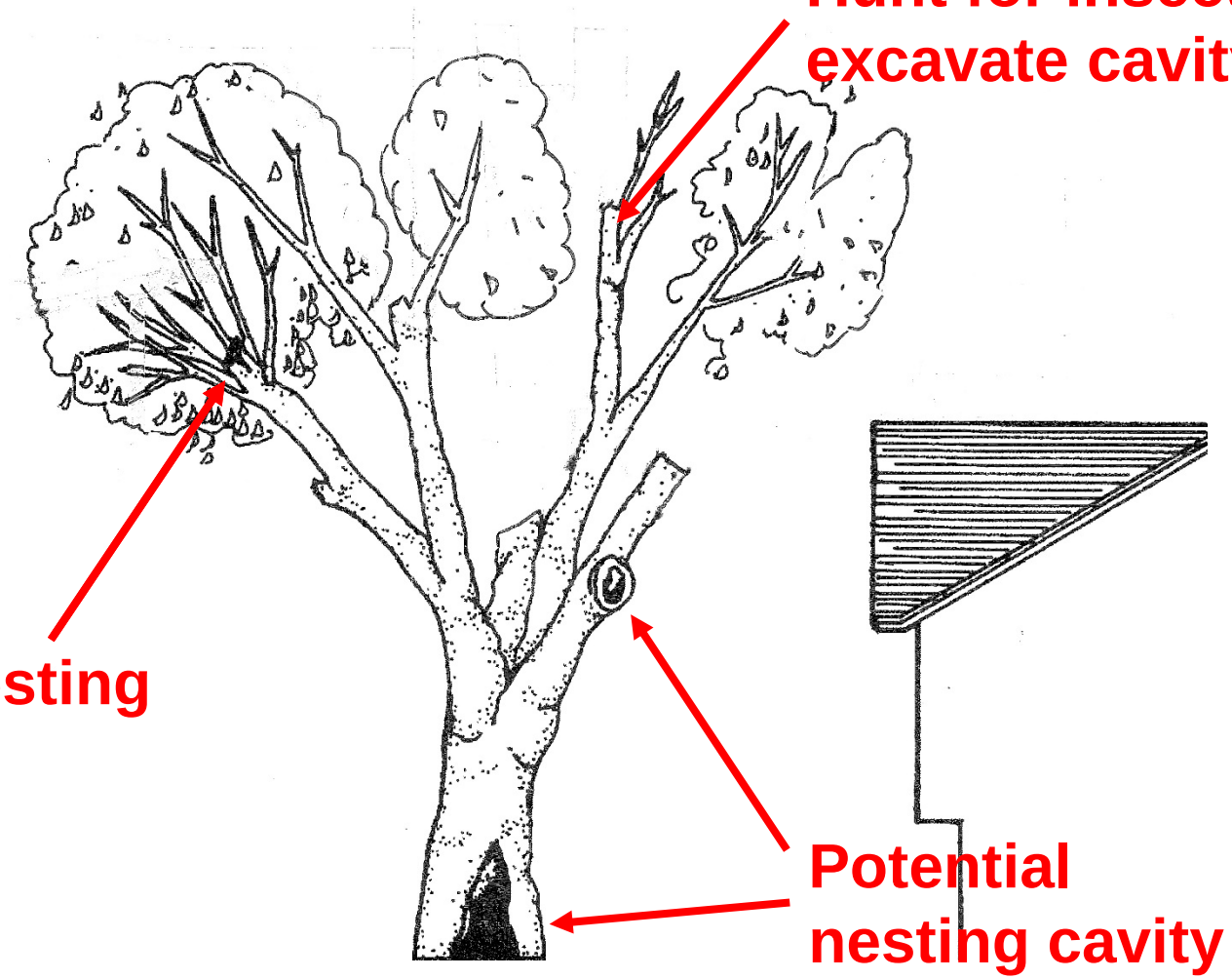
Reduced consequences

Reduced branch size

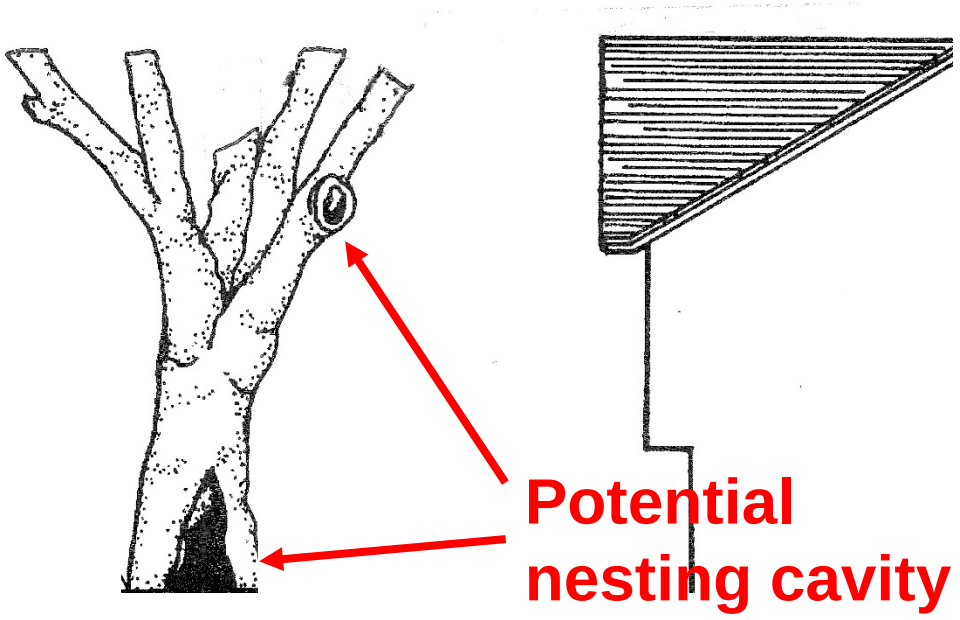
Residual wildlife benefits



Less Habitat



Less Habitat – but still some

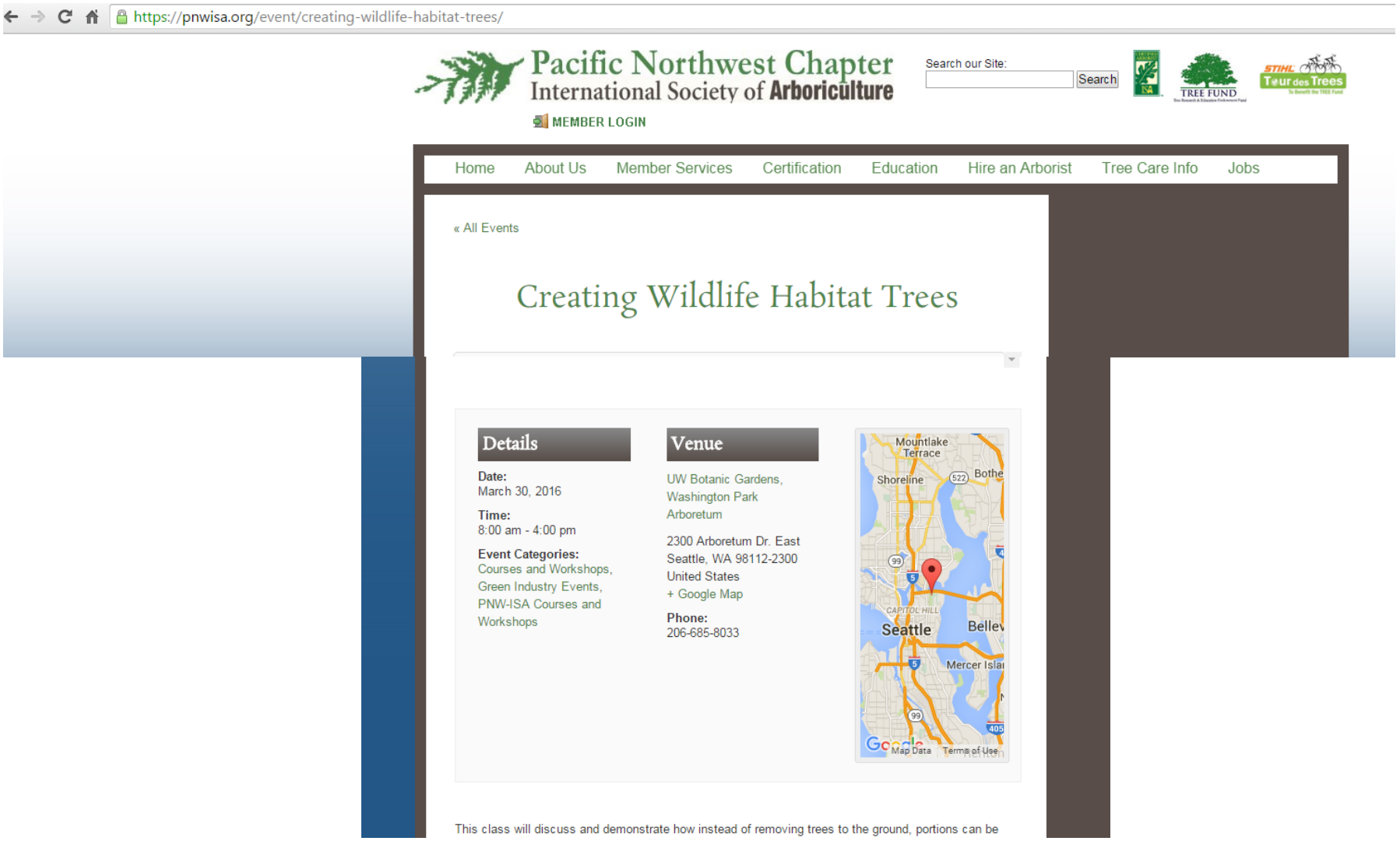


Preserve defects – support systems

Create defects – artificial cavities

http://cavityconservation.com

Creating defects - class



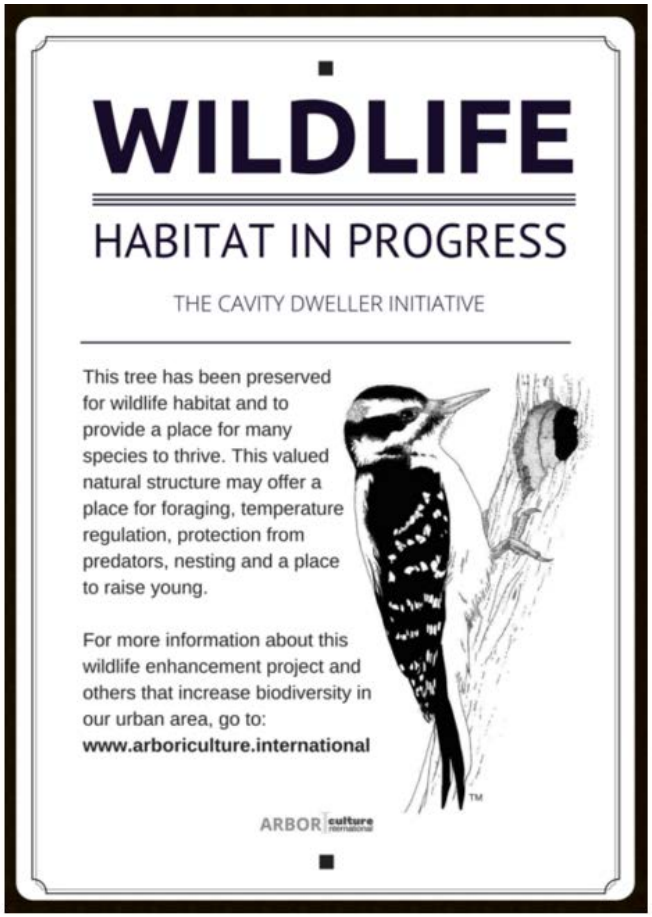
https://pnwisa.org

Other - signs


CAVITY
CONSERVATION
INITIATIVE


ARBORICULTURE
INTERNATIONAL


WILDLIFE TREE
This tree is saved because it provides food & shelter for wildlife.
CAVITY
CONSERVATION
INITIATIVE
CavityConservation.com
This sign was made possible by the Land Trust of the Upper Arkansas, Salida, Colorado. ltua.org


WILDLIFE
HABITAT IN PROGRESS
THE CAVITY DWELLER INITIATIVE
This tree has been preserved for wildlife habitat and to provide a place for many species to thrive. This valued natural structure may offer a place for foraging, temperature regulation, protection from predators, nesting and a place to raise young.
For more information about this wildlife enhancement project and others that increase biodiversity in our urban area, go to:
www.arboriculture.international

Groups

- HortScience – ryan@hortscience.com
- Golden Gate Audubon Society
- Tree Care for Birds and Other Wildlife
    - Group of people working on wildlife BMPs

Please contact me if you are interested in joining or have questions about the future of wildlife in arboriculture.

Mountain trogan

References

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