

DRAFT San Francisco Urban Forest Best Management Practices

January 5, 2015

Purpose:

- Develop guidelines to promote sustainable management techniques for resources that protect, optimize, enhance and increase a healthy and sustainable Urban Forest (UF).
- Educate the UFC, elected officials, public, City/Co. employees, developers, contractors... about the environmental, economic, social, and historic benefits provided by the UF.
- Promote sound and scientifically based management/stewardship of the UF.
- Promote retention of healthy trees or stands of trees where appropriate and possible.
- Provide guidelines for forest management, rehabilitation and reforestation.
- Provide guidelines to help minimize impacts to trees associated with development, utility and infrastructure work.

Over-arching themes:

- Stable funding to grow, protect and manage the urban forest must be identified and acquired if any of the proposals in this or other plans (i.e. the Urban Forest Master Plan) are to be more than just words on the page. Some ideas include:
 - Capital improvement plan funds derived from RE excise/utility taxes (Olympia WA)
 - Municipal portions of the state fuel tax (Salem OR)
 - Fines (development, motor vehicle)
 - Utility partnerships (SMUD/Sac. Tree Foundation)
 - Development fees
 - Prop. tax
- Living document/Adaptive management: This document must be updated periodically to reflect current science, goals and management strategies. Without updating, this document is just a snapshot in time.
- Success in developing meaningful BMPs for better management of the UF can only be achieved through a multi-disciplinary, trans-departmental approach that receives the approval of the public, professionals and elected officials.
- Trees are part of the greater ecological and environmental community and provide benefits to more than just people. Management of the UF must be viewed in the context of the greater community and the ecological benefits provided to all. Management should aim to maximize benefits now and into the future, recognizing that large, healthy trees provide more benefits than small, unhealthy ones.
- Visioning – Move trees and green infrastructure to the forefront of the planning process – rather than as an afterthought.
- Linkages - the UF provides benefits that cross environmental categories, such as air pollution reduction. Categories/benefits should be explored in light of funding for the UF – it may be possible to piggyback funding for the UF on other environmental concerns. For example, if it is demonstrated that the UF contributes to the goals of Clean Air Act, new sources of funding may be available to plant more trees (climate change, endangered species, clean water...).
- Safety: Risk management of all trees with the potential to hit a target (tree part or whole tree) must be the priority over all other management goals.

- Reduce, reuse, recycle: Every reasonable effort should be made to reduce canopy/tree loss. Tree removal for safety, to improve the health of the remaining trees/stand of trees or for land use conversion would be exceptions. Every reasonable effort should be made to reuse and recycle wood on the site where it is generated (as chips, to reduce erosion...) to reduce off-haul and carbon footprint.
- Final BMP recommendations should be incorporated into the appropriate documents, such as the General Plan, and should be adhered to by all City Departments and City contractors.
- San Francisco was a treeless, blowing sand dune prior to European colonization. All of the trees and most of the vegetation is an artificial construct of our inhabitation. Very little is truly 'Native'.
- You must know where you came from in order to know where you are going – history (successes and failures) are critical to protecting what is deemed important and to be able to set goals, measure benchmarks and generally plot a successful route into the future.

SF UF – Part I

Park/open space trees

- Safety first, including human safety related to falling trees or tree parts, fire and erosion.
- Rare and endangered plants, historic/archeological artifacts must be identified and a plan developed by a professional for their preservation/protection. This plan will inform the management of the remainder of the vegetation.
- Goals should be based on community input from those people who live adjacent to and use the natural areas.
- Tree inventories or sampling should be performed by a qualified professional to identify those forests in the greatest need of management. In addition, species failure profiles can be combined with inventory and occupancy/use data to help refine where and what types of management activities will be most effective.
- The majority of the trees were planted over a short time frame more than 100 years ago. As such, many, but especially the Monterey pines and Monterey cypress trees, are reaching the end of their normal life span in an urban environment. There is little to no natural regeneration occurring and without direct and immediate management efforts, these forested stands will be lost. We have benefited from the foresight of the people who came before us and we should be planning for the generations that will follow.
- A mosaic of tree species, plant communities and tree ages across the landscape will provide the best opportunities for long-term success and sustainability, including wildlife habitat, plant health, disease/insect resilience and reduced maintenance costs in the long-run. Species diversity will help to reduce the potential of wholesale loss of a species to species-specific insects/diseases and age diversity will help reduce the potential for wholesale loss of a species/planting to age-related decline and the necessity for concentrated efforts to regenerate the forest.
- Depending on the goals and priorities set by the community, tree, shrub and understory removal to improve safety (human, fire...), improve the health of surrounding trees, improve access and use, or for plant community conversion would be appropriate.
- Prioritization of management activities for natural areas should be based on:
 - Human safety
 - Fire safety
 - Erosion potential
 - Endangered/Sensitive species
 - Forest health
 - Natural regeneration
 - Operational/management issues
- Every effort should be made to promote and retain habitat for wildlife. Activities such as snag retention (where human safety is not a concern) should be employed.
- Monitoring and performance standards.

- Protection of existing physical/biological resources during implementation of any management activities.
- Timber Harvest Plans?
- Bird nesting surveys/Bird Migratory Act.
- IPM approaches should be used to manage insect/disease outbreaks and unwanted regrowth. Judicious herbicide use is expected to be a critical component of any successful vegetation management program.

Summary of comments from the speakers/presentations to the UFC (meetings: June 24, Sept. 26th, and December 12th). July 25th meeting was without quorum and the Oct. 28th meeting was cancelled.

June 24th:

Real focus on habitat value

Concern that UCSF is/will using disease and fire risk as cover for tree removal.

Thinning and understory removal disturbs forest balance and can increase fire risk

Green and lush but only to the untrained eye

E. ridge is dying off - Thin soils, insects (tortoise and engraver beetles) and disease (sulfur, armillaria...)

Reforestation creates age and structural diversity which increases habitat value

Snag management for cavity nesters

Stephens (UCB) study on species/habitat diversity in euc forests concluded very high (higher than oak/bay)

Understory diversification requires control of invasives – labor intensive to be effective

Use of natural openings to promote reforestation

Use of smaller stature trees to create the structural diversity

How to protect trees/maintain tree health during restoration activities

Dependency of wildlife on trees for food and habitat – esp. in urbanized environment

ISA BMP's do not mention pruning for habitat/nesting and make no mention of the Migratory bird act?

Pruning to promote habitat – do not over-thin, do not remove lower branches

Hazards used to justify tree removal need to be demonstrated risk.

Sept. 26th:

Question regarding if SNRMP calls eucalyptus invasive or not and based on what grounds?

Fire risk is real where fuel load (dead, down wood y debris) and dead/dry undergrowth is present.

Weather station data for wind, relative humidity, precip. and fog – RH \leq 40% is required for fire.

Look at forest structure (not just species) for fire management – specifically management of understory and dead trees/fuel ladders.

SNRMP focus is native plant restoration – which is just focused gardening.

No forest assessment was done as part of SNRMP (except at Mt. Lake).

Nothing is being done currently to maintain natural areas – no reforestation occurring.

SNRMP EIR identifies 1:1 replanting

A 'tree' is defined in SNRMP as 15' tall (or 6" diameter?).

Eucs are not dying of old age

Thinning only has an effect in first 10-15 years. Now thinning would expose ground, dry out the forest floor and increase wind throw.

If managing for ecological benefits – then don't thin. Loss of stored carbon, canopy and habitat.

Eucs are not invasive – CalIPC considers them only moderate

Presidio model – does not use suitability for preservation as criteria, only on development projects.

Want existing trees, natural area, biodiversity and species benefits recognized, valued and highlighted in plans.

Cal IPC designations are for wildlands not urban areas. Science based assessments.

Sometimes herbicide use is the least impactful approach to management of invasives.

Must look at how species are behaving over time in each location – may not be invasive everywhere.
Must understand the problem before decisions are made
What is the objective of SNRMP?
Removal of mature trees removes stored carbon, destabilizes slopes, removes habitat, removes shade and increases growth of understory and increases winds
Why are we managing the trees? What are goals/context and realities? What are the risks vs. benefits?
Are the goals too broad?
Must be thorough and unsentimental
Must be aware of the management realities – urban setting, human use/values, maint. must address safety, equity in use vs. benefits provided to the most people.
Adaptive management – where are we now, where do we want to be and how do we honor conflicting goals?
Decisions on BMP's should be made only after thorough review of the following 8 considerations/values:
Aesthetic – esp. visual impacts of trees in the landscape
Recreational – even more important in heavily urban environments
Environmental education –
Historic significance –
Ecological services – air quality, storm water, carbon sequestration...
Climate amelioration – wind, temp, moisture, humidity
Wildlife value – Stebbins study highlighting wildlife value of eucalyptus
Intrinsic value of novel, self-sustaining ecosystems
Safety is primary goal of UCSF forest management
Fire and invasive management (poison oak/blackberry) are primary focus
SNRMP goal is native plant restoration – this is not an UF goal or plan. Forests should be managed as such and not as gardens
SNRMP should focus on non-forested areas
UCSF has done a good job relative to limiting herbicide use. However, tree removals were rushed and performed during bird nesting season

Dec. 12th

When dealing with Natural Areas, planting and maintenance should focus on natural plant associations and understory plants. This can be used successfully to manage invasives, social trails and camping. Increased access can lead to heightened awareness and stewardship.
Volunteer efforts and collaboration with other groups/City programs can help make progress.
Tree removal and herbicide use are dead wrong – need to rethink tree removal policies.
Biodiversity movement is about protecting endangered species, not removing one forest type and replacing with another.
Restoration to one forest type/a point in time is arbitrary.
Invasion biology is false science and is essentially eugenics for plants.
Climate change is real and increasing, so wrong time to be considering tree removal.
SNRAMP must be viewed in the context of natural environment and focuses on protecting what we have left and restoring habitat that could support biodiversity.
Grass and shrublands as habitat for Fed. Listed endangered species.
Trees are important, especially in dense, urban settings, but they are not the whole story.
SNRAMP is part of a larger parks management plan.
SNRAMP is now 15 years old but did go through a thorough professional and public review and comment period.
SNRAMP was designed to promote and protect native and endangered plant and animal species.
Blue gum is the dominant species in SF natural areas forests.
SNRAMP calculated trees/acre at 360. This is an avg., and does not reflect the true density at every site.
This is also now 10+ years old and many of these trees may have declined and/or may be dead.
Health/cond. Of blue gums is fair to poor (~80%).

Ivy/blackberry and other invasive ground covers are prolific, covering trees in some areas and seriously limiting biodiversity.

Natural Areas are ~15% of total park system.

SNRAMP preserves ~95% of the urban forest, managing forests to a certain basal area and focusing on removing unsafe/unhealthy trees.

Approximately 3,400 trees within MA3's (management area 3).

SNRAMP EIR proposes to remove ~1,800 trees, with ~1,500 of these in Sharp Park for thinning around creek corridor and Mission Blue butterfly habitat.

SNRAMP proposes a 1:1 replacement ratio, but the reality is more than 1:1 when understory/shrubs, etc. are taken into account.

SF urban forest lacks diversity and ecological processes required for true forest relationships.

BMP's should focus on these processes – what are we managing for?

Preserve the last of the least and the best of the rest.

Look locally for examples of appropriate and functional forest types.

Species that stack functions (year round food source and habitat) and have layers of structural diversity should be focus.

Identify conditions that provide highest/best habitat/productivity/etc. (i.e. riparian).

Adaptive management is critical for SNRAMP but must also identify and protect natural areas that remain before they disappear.

San Bruno Mt. as example of early SF habitats.

Dynamic systems and changing environment (climate/fog/fire...) means we must be looking to the future to be good stewards of the limited open space areas of SF.

Look at E. end of GG Park for Hall's oldest and most interesting/majestic plantings. This area should be focus of preservation efforts within GG Park.

Deteriorating condition of blue gums on Mt. Davidson as result of competition with understory plants.

Fire danger in these areas is real, esp. where dead/dying trees exist.

What are the benefits of historic tree stands? How to maximize these benefits?

BMP's will be just another document on a shelf without public outreach & education effort.

Must understand differences between natural forest systems and plantations and management requirements.

Plantations have value but must do something about invasive understory.

SNRAMP does not propose to clearcutting. And we must recognize this is not an either or proposition.

Both can and should coexist. How do/will communities receive this information?

Many people have come out to sat 'Save the trees'.

If eucalyptus are carbon sinks, why not save those in fair or poor condition with pruning/maintenance.

Native species replacing the eucs are not performing. They require more water to establish and do not tolerate SF's wind.

Science on bird populations/habitat/diversity are at odds with what has been stated by others today.