



PREVENTIVE PRUNING PROGRAM

Standard Operating Procedure (SOP)

DEPARTMENT OF FORESTS & WILDLIFE, UT, CHANDIGARH





FOREWORD

This Standard Operating Procedure outlines a recommended best practice to ensure the well-being of valuable trees of Chandigarh, highlighting the benefits they bring, from climate mitigation to enhancing aesthetics. Despite these advantages, trees may pose challenges, requiring careful pruning to address issues like pathway obstruction and hygiene concerns. Failing to maintain trees in extreme weather or poor health may jeopardize lives and property.

To maximize benefits and minimize risks associated with trees, effective urban forest management and tree care are crucial. This involves continuous maintenance, including irrigation, mulching, fertilization, and mitigation measures like pruning and support systems. Among these measures, tree pruning is essential for maintaining tree health, structural integrity, aesthetics, and safety. Pruning parameters, such as type, timing, and extent, should be carefully chosen based on specific goals, tree species, and conditions.

Tree pruning should adhere to established procedures, standards, and safety guidelines. Tree management personnel should refer to this document when planning and conducting pruning activities. While this document offers guidance on best pruning practices, its recommendations also provide flexibility in its implementation.





PREFACE

Chandigarh's city plan uniquely incorporates avenue trees, creating a stunning visual landscape. Trees line the roads, enhancing the city's beauty, and selective trees adorn various areas like buildings, parks, and roundabouts. The city's planners were considerate of its natural beauty, selecting native Indian tree species and plants based on a color scheme. The humongous task of transformation of a rural settlement into a planed urban setup entailed massive changes which could have resulted in ecological imbalance.

Le Corbusier aptly described the city's foundation as well-sown, and it's now up to the citizens to ensure these trees flourish and continue to grace Chandigarh with their presence.





PREVENTIVE PRUNING PROGRAMME FOR TREES OF CHANDIGARH UNDER - THE CHANDIGARH TREES PRESERVATION ORDER, 1952

The Chandigarh Trees Preservation Order, 1952 was enacted to safeguard the trees of the City Beautiful and to provide preservation to its natural beauty.

The Department of Forests & Wildlife, Chandigarh Administration, introduces a Preventive Pruning Program to enhance tree health and reduce incidents of tree falling during high wind/storm. This initiative provides a Standard Operating Procedure (SOP) to be followed while carrying out tree pruning.

General guidelines for pruning of trees prescribed for adherence by all concerned to prevent reckless practices that could diminish Chandigarh's green cover—a vital strategy in our pursuit of pollution control and maintaining it as “Clean & Green City”.

INTRODUCTION

Embracing the serene charm of Chandigarh, our trees provide myriad benefits, yet potential risks lurk in their branches. The Preventive Pruning Programme becomes our ally, addressing concerns like co-dominant stems and low branches prone to splitting. Through thoughtful pruning, we mitigate tree stress, extending their lifespan and safeguarding lives and property. This practice ensures resilient trees, capable of weathering storms and natural forces, boasting strong structures, dominant leaders, secure branch unions, and balanced canopies. Let's nurture the beauty of Chandigarh's greenery, forging a harmonious coexistence where safety and longevity thrive hand in hand.

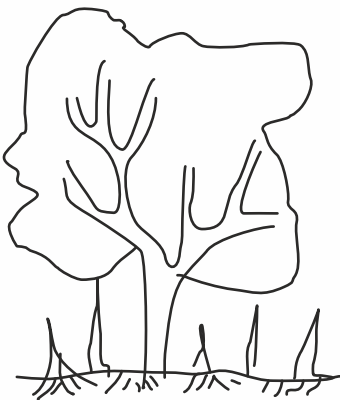


Before Pruning

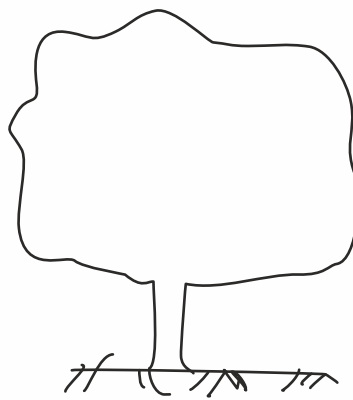


After Pruning

Shapes of the Trees classified for plantation in Chandigarh by the French architect Le Corbusier.



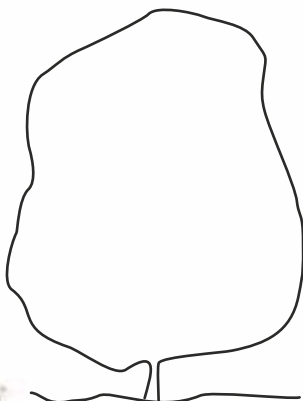
Irregularly rounded



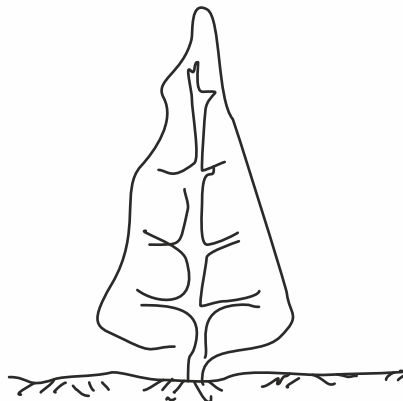
Regularly rounded



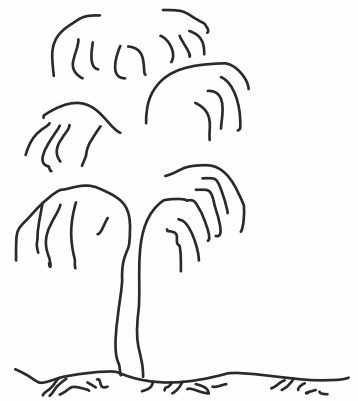
Irregularly columnar



Regularly columnar



Crown irregularly columnar



Weeping (pendulina)

PRUNING



Pruning is a horticultural/silvicultural technique that entails selectively removing dead or living parts of a tree, including branches, buds, or roots. This practice aims to enhance the tree's shape, promote healthy growth, and optimize overall plant vitality and structure.

OBJECTIVES:

Tree pruning is a widely used practice in tree risk management, offering a range of benefits, from risk reduction to improved aesthetics in urban environments. It is essential to establish clear objectives before embarking on tree pruning to ensure it is carried out effectively without unnecessary or excessive pruning. This informative guidelines the primary objectives of tree pruning and offers advice on how to achieve them.



1. Reducing Risk and Nuisance to the Public:

(i) Mitigating Tree Failure Risks:

To maintain a safe urban environment, it's crucial to promptly address potential tree failure risks. Regular and appropriate tree pruning is an effective measure to reduce these risks. Identifying and eliminating risks is ensuring the safety of pedestrians and motorists in the City Beautiful.

(ii) Clearing Roadside Obstructions:

Roadside trees can obstruct the view of pedestrians and motorists, hinder vehicular access, block road signs, lampposts, and power lines, and limit headroom for pedestrians and vehicles. Regular pruning is necessary to provide adequate clearance to road users and ensure smooth traffic flow.

(iii) Minimizing Nuisance to Building Occupiers:

Trees planted near buildings can cause disturbance and nuisance to occupants due to overgrown crowns encroaching on structures. Pruning to remove overgrown branches, reduce crown size, or uplift tree canopies can mitigate tree failure risks and alleviate nuisance issues.

2. Maintaining or Improving Tree Health, Form, and Structure:

(i) Enhancing Tree Vitality:

As trees mature, dead and diseased parts accumulate. Pruning helps remove weak and undesirable branches, allowing the allocation of resources to healthier parts, promoting tree development and recovery.

(ii) Disease and Pest Prevention:

Appropriate pruning can prevent the invasion of pests and diseases by eliminating infected or dead tree parts and thinning dense crowns, minimizing the spread of pathogens.

(iii) Increased Sunlight and Air Circulation:

Pruning removes overcrowded leaves, twigs, and branches, allowing more sunlight to penetrate the canopy and increasing photosynthesis. Improved air circulation prevents excessive moisture buildup, which is favorable for fungal infections.

(iv) Developing Strong and Balanced Structures:

Early tree pruning can train trees to develop strong and balanced frameworks. Pruning in the tree's youth reduces the need for costly pruning in the future and ensures better tree health and structure.

(v) Stabilizing Trees in Challenging Locations:

For trees with unstable root systems or those growing in restrictive environments, regular pruning can help maintain good and stable tree structures.

(vi) Adapting to Changing Urban Environments:

Urban development and construction may alter the original growing conditions for trees. Pruning can help trees adapt to their new environment by controlling growth rate and form.

3. Enhancing Resistance to Inclement Weather:

(i) Reducing Wind Resistance:

Crown reduction and thinning can lower wind resistance, reducing the risk of tree failure during extreme weather conditions.

(ii) Improving Survival Rates:

Well-pruned urban trees have higher survival rates during inclement weather, protecting both the public and properties from damage.

(iii) Formative Pruning for Healthier Urban Forests:

Structural pruning during a tree's youth establishes a healthier urban forest with lower wind resistance and fewer tree failures during windy seasons. This pruning method guides tree growth toward a single dominant leader, strong branch attachment, and balanced crown.

4. Improving Aesthetics and the Urban Environment:

(i) Maintaining Desirable Tree Forms:

Formative pruning, especially in the nursery stage, helps maintain trees in their most desirable form and appearance, aligning them with specific landscape objectives.

(ii) Enhancing the Living Environment:

Properly pruned trees provide shading, improving the microclimate underneath and reducing temperature. Ample vegetation coverage also mitigates the urban heat island effect.

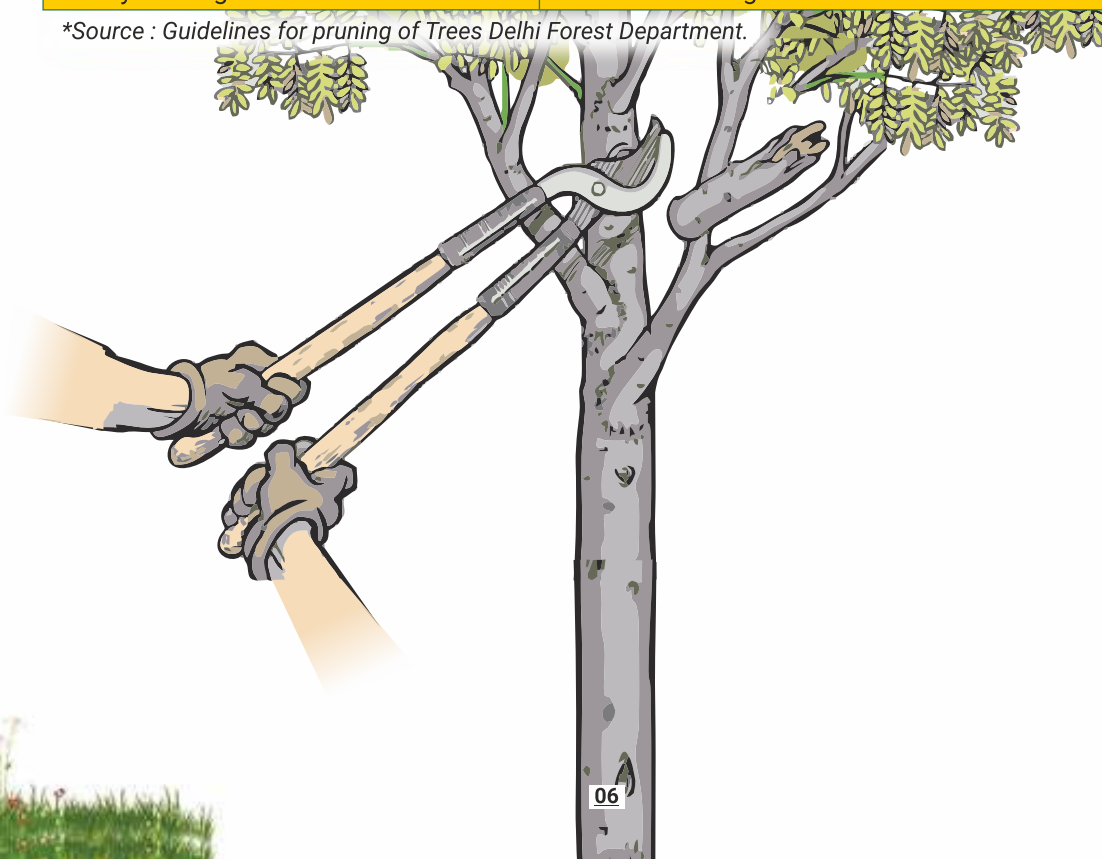
(iii) Beautifying Urban Landscapes:

Trees serve as green enhancements and screens for unsightly views in urban areas. Appropriate pruning techniques, such as crown thinning, reduction, and raising, create more attractive urban landscapes.

To ensure clarity and transparency regarding the definitions of light and heavy pruning, the following criteria are established:

TERM	BRANCH GIRTH
Regular Pruning/General Tending	up to 15.7 cm
Light Pruning	Exceeding 15.7 cm but not surpassing 40 cm
Heavy Pruning	Exceeding 40 cm

**Source : Guidelines for pruning of Trees Delhi Forest Department.*



Work Plan for Pruning



Tree pruning requires careful planning and execution to ensure safety, environmental protection, and overall well-being of the community. To effectively manage pruning work, it is essential to create a comprehensive pruning plan. This advisory guide provides a structured approach to tree pruning, emphasizing the importance of safety, risk assessment, equipment, scheduling, and environmental preservation.

1. Assessing Potential Risks

Before initiating any pruning work, it is imperative to assess the potential risks associated with the task. Ensure the safety of all involved by identifying and mitigating hazards. These risks may include:

- 👉 **Use of Pruning Tools:** Evaluate the safe use of tools like hand saws and chainsaws.
- 👉 **Work at Height:** Assess tree climbing and the use of elevated platforms.
- 👉 **Tree Condition:** Inspect the stability of trees, including leaning, cracks, decay, and fungal growth.
- 👉 **Impact on Trees:** Consider the impact of one tree part on lower tree parts and site conditions.
- 👉 **Weather Conditions:** Account for weather conditions such as wind, heavy rain, and extreme temperatures.
- 👉 **Health Concerns:** Be aware of health issues related to work, such as allergies and heat-related illnesses.
- 👉 **Site Conditions:** Analyse how site conditions like soil erosion and recent changes can affect tree stability.
- 👉 **Electrical Hazards:** Check for underground utilities and overhead cables that may pose electrical hazards.
- 👉 **Adjacent Structures:** Assess nearby structures like buildings, highways, lampposts, and signboards.
- 👉 **Traffic Conditions:** Consider the impact of nearby traffic, including vehicles, heavy trucks, and railways.
- 👉 **Wildlife and Habitats:** Identify the presence of wildlife like nests, snakes, ants, and beehives in & on the trees.

2. Scheduling

Efficient scheduling is vital for successful pruning. Consider the following factors:

- 👉 **Management Factors:** Define the pruning objectives, mobilize necessary equipment, and assess site accessibility and limitations.
- 👉 **Tree Factors:** Account for tree growing, flowering, and dormant seasons, the likelihood of tree failure, pruning intervals, estimated pruning time, and phased plans when multiple operations are necessary.

3. Safety System of Work

The department responsible for pruning must establish and maintain a safety system of work to protect the safety and health of ground workers. Implement the following measures:

- 👉 **Public Safety:** Ensure awareness of risks to the public and restrict unauthorized access by cordoning-off.
- 👉 **Protect Adjacent Properties:** Attention to adjacent buildings, utilities, and properties to prevent damage.
- 👉 **Site Cleanup:** After each operation, promptly clean and dispose of tree debris to restore the site.

4. Transmission of Pests and Pathogens

Pruning equipment and tools can facilitate the spread of pests and diseases. To prevent this:

- 👉 **Clean and Sterilize:** Regularly clean and sterilize equipment before and after operations.
- 👉 **Infected Trees:** Be cautious when pruning infected trees to prevent transmission of pathogens to other trees and nearby sites.

Prior to pruning, inspect the trees and working sites for wildlife and habitat. Prevent adverse impacts by following these measures:

Protected Wildlife: Identify active nesting, breeding, and roosting sites of protected wildlife and avoid interference.

- 👉 **Eggs and Nests:** Do not remove, destroy, or disturb nests or eggs of protected wildlife.
- 👉 **Endangered Species:** Protect rare or endangered tree species and plants as far as practicable.
- 👉 **Environmental Impact:** Strictly prohibit contamination and disruption of soil, water sources, and wildlife habitats.
- 👉 **Breeding Seasons:** When scheduling pruning near breeding locations of native birds like Maine, Hornbill, Parakeets, Kites, Sparrows etc., consider their breeding season.

Incorporate these guidelines into pruning plan to ensure a safe, efficient, and environmentally responsible tree pruning process. By doing so, will not only safeguard workers but also preserve the natural beauty and health of community's trees.

PREVENTIVE PRUNING PROGRAMME FOR YOUNG TREES:



Preventive Pruning Programme is a vital strategy to safeguard young trees from potential defects. Among the common culprits are co-dominant stems and assertive low branches, prone to causing tree splits or substantial pruning cuts. Such issues not only induce tree stress, diminishing its lifespan, but also pose risks to people and property. The proactive approach of preventive pruning fosters a robust tree structure, enhancing resilience against storms and natural forces.

Well-structured young trees exhibit a single dominant leader, sturdy branch unions without bark inclusions, and a harmonious canopy. The art of preventive or structural pruning becomes instrumental in cultivating these desirable attributes, ensuring the long-term health and strength of the trees.

STRUCTURAL PRUNING

Engaging in structural pruning during a tree's initial 5 to 25 years is pivotal. This time-frame is crucial for developing a robust canopy structure, enhancing the tree's resistance to storm damage. Through strategic reduction and removal cuts in structural pruning, the rampant growth of large branches competing with the leader is slowed. This intentional approach fosters accelerated growth in the selected leader stem. By carefully managing the tree's early growth, structural pruning lays the foundation for a resilient and well-balanced canopy, fortifying the tree against potential storm-related challenges.

COMPONENTS OF STRUCTURAL PRUNING:

Developing a Dominant Leader

Selecting a dominant leader involves identifying the stem with the greatest potential, usually the largest. While straightforward for some trees, it may pose a challenge for others. In cases of similar stem diameters, opt for the one nearest to the canopy's centre as the leader. Assess competing stems and strategically decide where to trim, ensuring the chosen leader thrives. This thoughtful process tailors the tree's growth, establishing a strong and central leader for optimal structural development.

Identifying the Lowest Branches in the Permanent Canopy

Recognizing the lowest branches in the permanent canopy streamlines the handling of lower temporary branches, offering a strategic approach to tree management.

Prevent Branches below the Permanent Canopy from Growing too Large

For optimal tree management, maintain the lowest permanent branch on shade trees at 15 to 20 ft above the ground; eventually, all lower branches are removed under ideal practices. Early subordination, achieved through reduction cuts, curbs excessive growth of these low branches, averting the need for large pruning wounds on the trunk. This intentional approach encourages new growth higher in the canopy, minimizing the necessity for significant cuts on the trunk. By strategically taming aggressive low branches, this method fosters a healthier and more balanced tree structure, promoting sustainable growth.



DETERMINING PRUNING CYCLE AND PRUNING DOSE



PRUNING CYCLE:

For a flourishing urban forestry program, delve into the art of preventive pruning with thoughtful consideration of the pruning cycle and dosage. Tailor the pruning schedule to the unique characteristics of each tree, factoring in variables such as quality, growth rate, climate, and species. High-quality trees nurtured in well-pruned nurseries merit less frequent attention, contrasting with their lower-quality counterparts that crave more meticulous care. In rapidly growing locales like Chandigarh, trim intervals warrant a strategic reduction. Species prone to decay demand a proactive approach with more frequent pruning to avert the necessity for extensive cuts.

Aim for a balanced pruning cycle of approximately three years to sustain optimal tree health. Prolonging the cycle exacerbates defects, paving the way for larger cuts and potential decay pockets. A 3-5 year cycle necessitates a higher pruning dose for optimal results, while a 1-2 year cycle calls for a more conservative approach.

Pruning Dose:

Carefully consider the pruning dose, the crucial quantity of live tissue removed, as it profoundly impacts a tree's well-being. For mature trees, it's advisable to limit the dose to under 10%, unless addressing major defects. Opting for a smaller dose yields controlled growth in unpruned areas, generating smaller wounds. Thoughtfully evaluate the pruning dose, accounting for the tree's age and specific requirements, to safeguard its health and aesthetics.

Use of Elevated and Reduced Pruning Doses

Minimal pruning amount (5-20% of foliage removed)	Intensive pruning level (>20% of foliage removed)
Established or recently planted	Young, established trees
Colder climates with brief growing periods	Temperate climate with long growing periods
Species prone to Decay (e.g. Kanakchampa)	Decay-resistant species (e.g. Jamun, Neem, Peepal, Imli etc.)

EXECUTION OF REVENTING PRUNING PROGRAMME



Correct Pruning Incisions:

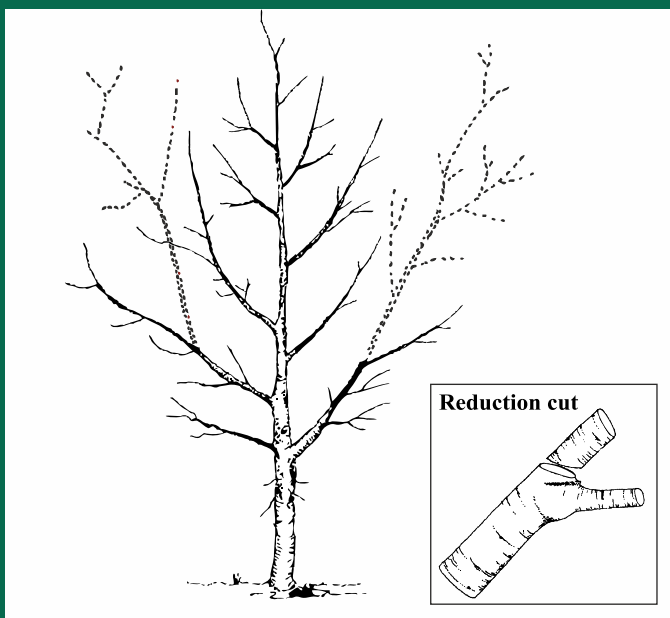
A fundamental element of an effective preventive pruning regimen involves executing proper pruning cuts. In this realm, two types of cuts play pivotal roles: reduction cuts and removal cuts.

Commencing a proper pruning cut entails initiating an undercut approximately 12 inches from the trunk. Following this, a top cut is executed, positioned further away from the limb or directly above the undercut. This strategic approach ensures the safe removal of the majority of the limb without jeopardizing the tree's integrity. Neglecting these initial steps might lead to damage, as the branch's weight can often cause it to tear down through the collar, risking harm to the trunk.

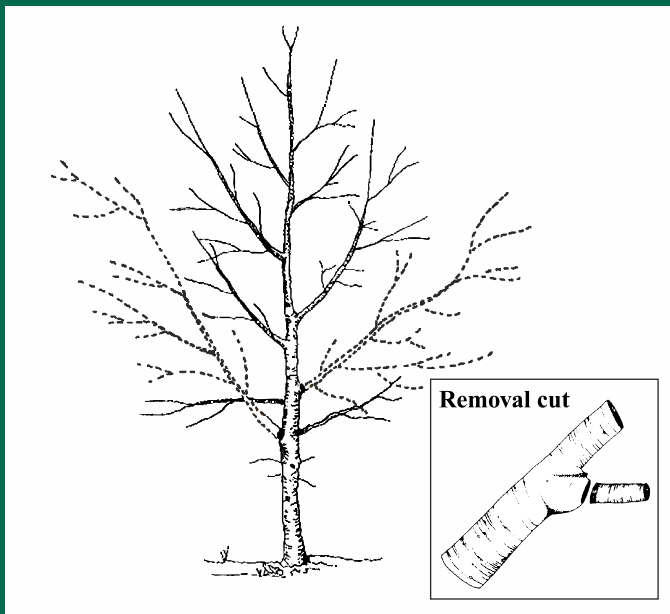


The final step involves removing the remaining stub with a meticulous final cut, taking care to avoid cutting flush against the trunk. Preserving the branch collar, a swollen area at the base of the branch where it connects with the trunk, is crucial. Proper pruning cuts steer clear of the collar, leaving a round-shaped wound, in contrast to the oval-shaped wounds caused by flush cuts.

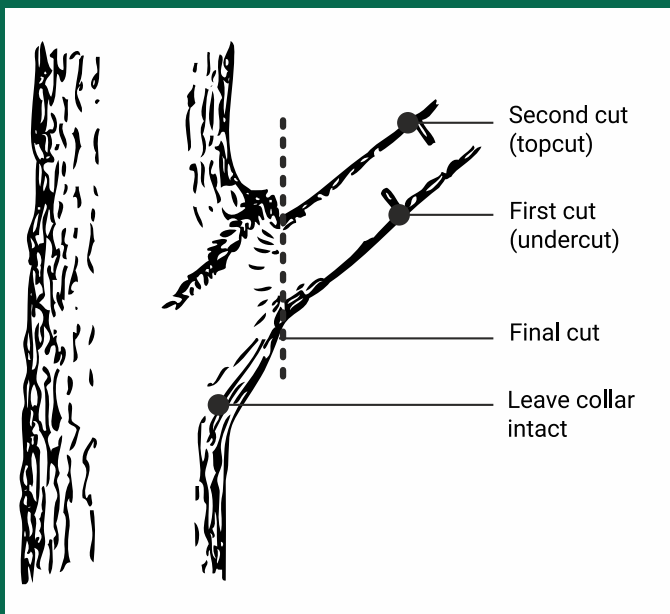
In contrast, suboptimal cuts, known as flush cuts, are deemed unacceptable in a preventive pruning regimen. The risk of severe decay escalates with larger-diameter flush cuts, making them an undesirable practice in effective preventive pruning.



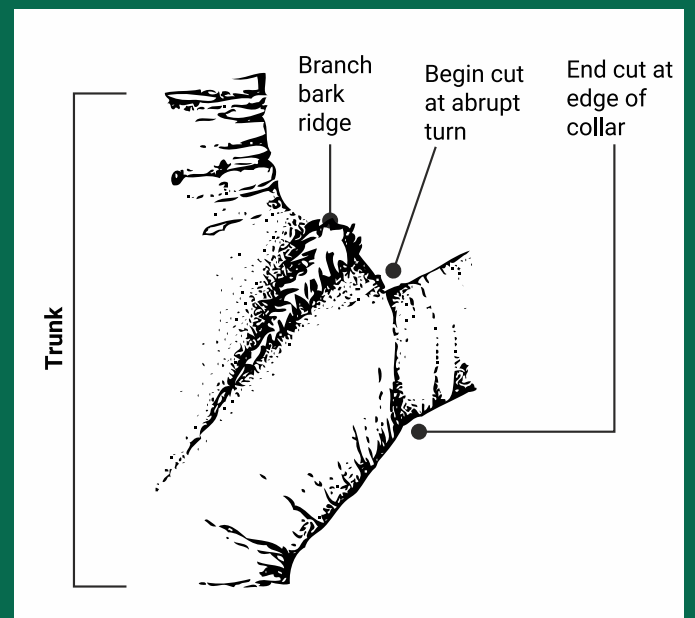
A reduction cut shortens the length of a stem by pruning back to a smaller limb large enough to assume dominance.



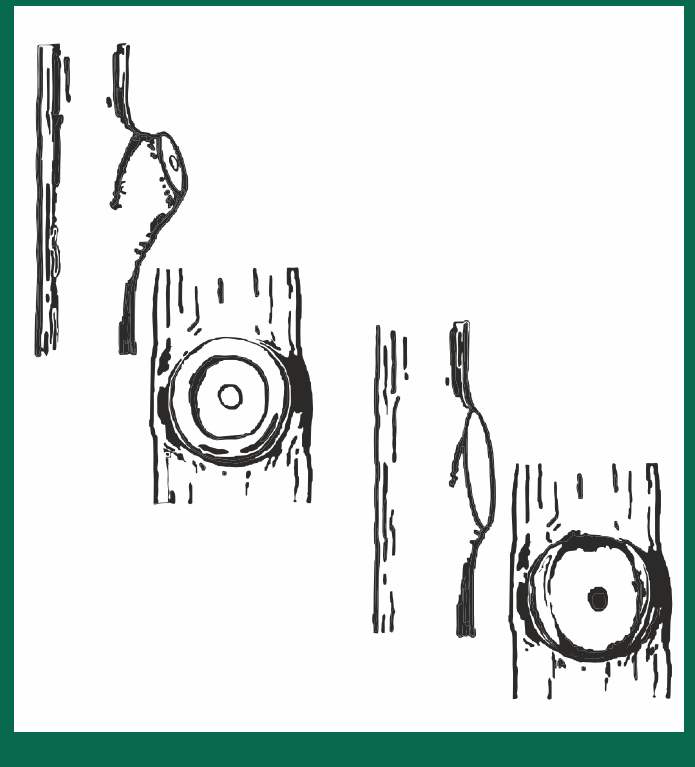
A removal cut prunes a branch back to the trunk or parent branch.



Proper pruning cut entails initiating an undercut app. 12 inches from the trunk to minimize damage.



A close-up illustration showing where to make a removal cut.



PRUNING PLANS

For enduring tree health and visual allure, crafting a meticulous pruning regimen, particularly in the early years, is paramount. Through six to seven strategic pruning sessions within the initial 25 to 30 years post-planting, you lay the groundwork for a resilient, lasting presence in your landscape. Below unfolds a streamlined pruning program tailored to shepherd your tree through its formative three decades.

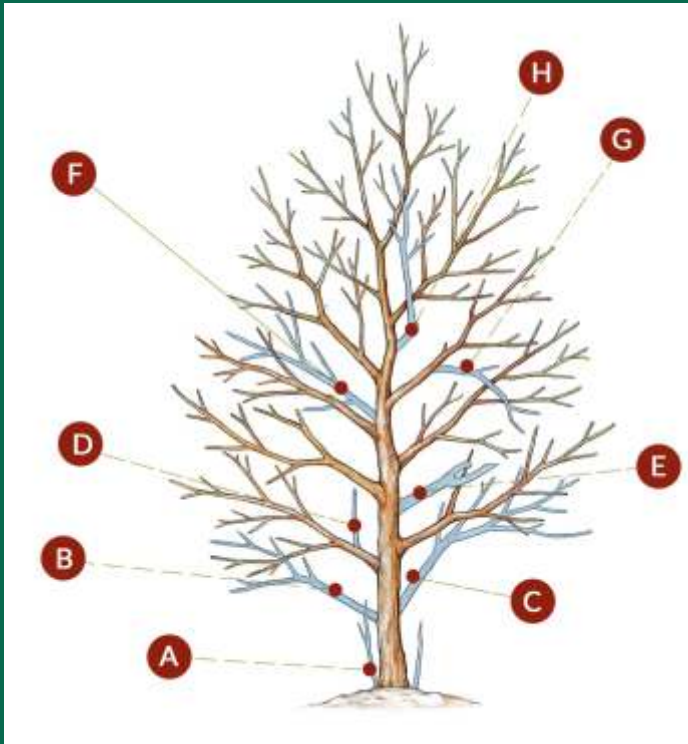
Upto Twenty Years after Planting:

Sustain the tree's form, ensuring prudent pruning by avoiding the removal of over 25-30% of live foliage during this period. Identify and trim branches beneath the lowest permanent limb in the canopy. Continue reducing branches surpassing half the trunk's diameter. Identify major scaffold limbs and prune branches within an 18-inch range. Remove branches with included bark and any competing leaders. Conduct a minimum of three pruning sessions in this stage, fostering a structured and robust tree development.

Twenty to Thirty Years after Planting:

As the tree advances in maturity, prioritize its enduring stability. By the 20-30-year milestone, eliminate branches below the first permanent limb. Select 5-10 permanent scaffold limbs and trim branches within 18-60 inches to prevent overcrowding. Safeguard against defects by pruning branches with included bark and those in competition with the main leader.

Bear in mind that the pruning regimen can fluctuate based on the tree's type, size, and health. Trees with dominant leaders and ample irrigation may require less frequent pruning, yet consistent upkeep remains vital for well-structured nursery trees. Following this strategy ensures the cultivation of a robust, enduring tree that enriches your landscape with enduring beauty and character.



What to prune from a tree

- A Suckers that grow from roots
- B Limbs that grow close to ground
- C Branches forming acute angle
- D Branch waterspouts
- E Dead, diseased or broken limbs
- F Parallel, close growing branches
- G Crossing or rubbing branches
- H Limbs competing with central leader

PREVENTIVE PRUNING PROGRAMME FOR MATURED TREES



The preventive pruning program is designed to establish a robust trunk and branch architecture, ensuring the long-term vitality of mature trees. The primary aim for mature trees is to cultivate and sustain a sound structure that minimizes risks like branch failure.

When executed adeptly, mature tree pruning yields a multitude of advantages, including decreased risk of branch breakage, improved clearance for vehicles and pedestrians, enhanced health and aesthetics, and unobstructed views. Delayed or improper pruning, however, leads to undesirable consequences such as the growth of low limbs, the development of weak co-dominant stems, the formation of defects like included bark, and the accumulation of dead branches. Co-dominant stems and included bark defects heighten the risk of breakage.

Among the prevalent defects in mature trees is the emergence of large, low limbs. These branches may overextend and break or sag under their own weight, necessitating later removal and leaving significant pruning wounds. Removing substantial branches, especially those exceeding about half the trunk diameter, poses a higher risk of initiating decay compared to smaller branch removal.

In the context of mature trees, minimizing hazards like branch failure is crucial. Although live branch removal is less favourable for mature trees, it becomes necessary in certain situations, such as eliminating a cracked live branch over a structure. Recognizing hidden cracks characterized by elongated swellings is essential, as horizontal cracks significantly impact the structural integrity of the branch. Reduction and thinning are effective strategies to alleviate forces at the base, minimizing the risk of breakage. Regular crown cleaning, involving the removal of dead, diseased, or broken branches, is highly recommended for maintaining mature tree health.

Before embarking on pruning a mature tree, a thorough evaluation of its needs is essential. This evaluation guides the determination of the pruning objective to be achieved. Selecting appropriate pruning methods aligned with the desired objective is crucial.

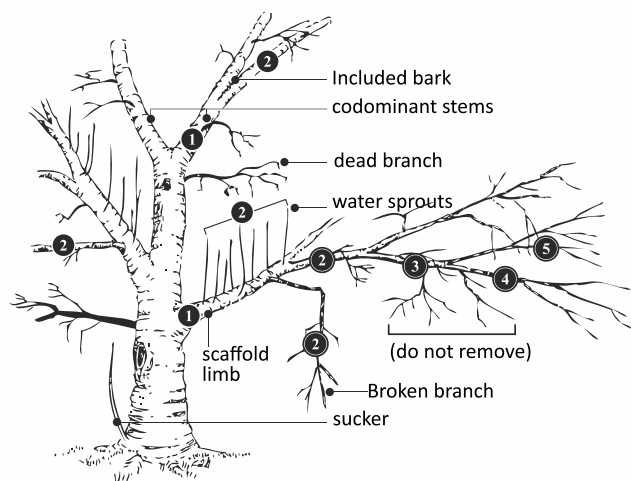
Pruning Cycle and Dose

Pruning on mature and over-mature trees necessitates a compelling reason, as excessive branch removal depletes vital reserves. Over-pruning may trigger the tree to generate adventitious sprouts in an attempt to replenish lost energy. Despite this, live branch pruning is a vital component in crafting sturdy tree structures, making it an indispensable practice within Chandigarh's tree pruning program, ensuring the preservation and enhancement of the urban greenery.

The most important defect in this tree is the included bark in the upper right side of the crown. Shorten or remove the stem with the number 2 over it.

Another issue involves the lengthy limb on the lower right. To address this, consider shortening it by removing the branch marked with the number 4. While there's no imperative to eliminate water sprouts entirely, you may selectively trim some to facilitate proper growth for others. This approach aims to enhance the overall balance and aesthetic.

Guidelines for Pruning Mature and Over-mature Trees



- | | |
|---|---|
| 1 Primary branches – do not remove | 4 Quaternary branches-could remove some |
| 2 Sec branches-almost never remove | 5 Quinary branches-could remove several |
| 3 Tertiary branches-careful consideration | |

EXECUTION OF PREVENTIVE PRUNING PROGRAMME



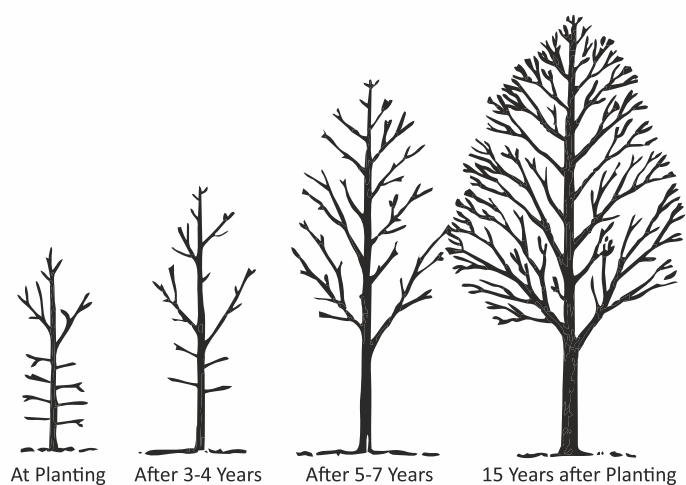
Proper Pruning Incisions

Arboriculture pruning employs three primary cut types: removal cuts, reduction cuts, and heading cuts. Removal cuts are favoured for preserving the branch protection zone. Specify maximum or minimum cut diameters before commencing the work, delineating the parts to be removed and the resulting size of pruning wounds. This precision ensures a tailored approach to pruning, promoting the health and resilience of the tree.

Pruning for Structure

Structural pruning entails the deliberate removal of live branches and stems to shape the orientation, spacing, growth rate, attachment strength, and eventual size of branches and stems. This technique is applied to young and medium-aged trees, serving to engineer a resilient trunk and branch configuration. When implemented on young trees, promoting good structure ensures their long-lasting viability in the landscape, surpassing the longevity of trees without structural pruning. Delaying structural pruning until the tree matures complicates the process significantly.

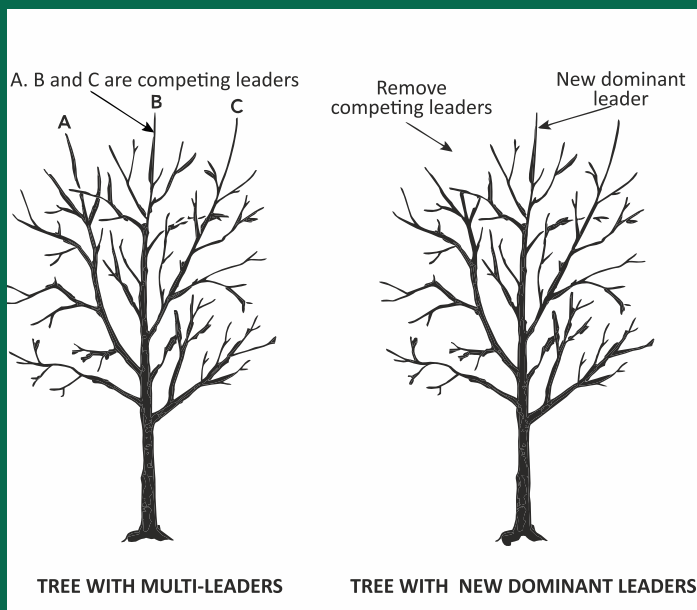
For large-maturing trees, structural pruning minimizes defects, aligns main branches along a dominant trunk, and keeps branches smaller than half the trunk diameter, averting structural failures. However, attempting meaningful structural changes on already mature trees may prove



Deliberate Removal of Live Branches and Stems

Structural pruning involves trimming stems and branches that view with the leader or main trunk. For trees prone to decay, pruning cuts typically range from 1 to 3 inches, while decay-resistant trees can tolerate cuts of 6 inches or more. In the case of a medium-aged tree, like the one

mentioned, removing up to about 25% of foliage during a single pruning session is generally acceptable. Moreover, more extensive removal is permissible for individual branches, fostering a balanced approach to maintain tree health and aesthetics.



Altering Mature Trees Structurally can Pose Challenges

Structural pruning in the early stages of a tree's growth rectifies defects, exemplified by the top tree, pruned twice in the last three years. The prominence of a dominant leader is evident. If structural pruning is neglected during a tree's youth, defects can escalate, becoming irreparable. Trees with substantial co-dominant stems and included bark pose hazards, potentially splitting during storms. To mitigate this risk, such trees can undergo size reduction, diminishing the likelihood of failure during storm events. Implementing timely structural pruning ensures a resilient and safe tree structure, averting potential dangers as the tree matures.

Structural pruning boils down to managing or eliminating co-dominant stems. Four key procedures shape structural pruning. Firstly, canopy cleaning involves removing dead, broken, diseased, and dying branches. The second procedure centres on selecting and nurturing a dominant leader, often requiring multiple pruning over 15 to 25 years. For medium-aged and mature trees, preserving the established leader is crucial. This entails subordinating or removing competing stems and branches. Subordination, often preferred over removal, proves especially prudent when the problematic stem exceeds half the trunk diameter, potentially causing less trunk decay. Removal remains an option if necessary, ensuring a nuanced approach to structural pruning for lasting tree health.

Guidelines to establish and sustain dominant leader.

1. Crowning Glory: Choose the Stem Sovereign

- Embrace the leadership by carefully selecting the stem.
- Let the chosen leader be the beacon, guiding the growth of the entire botanical kingdom.

2. Surgical Precision: Trim Competing Stems with Finesse

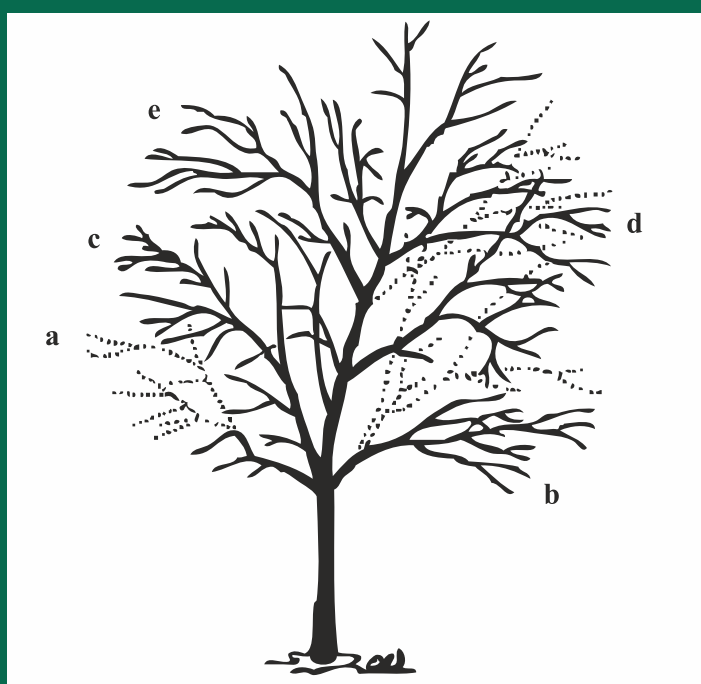
- Play the role of a horticultural surgeon, delicately deciding the fate of each competing stem.

3. Practice: Regularly Trim to Maintain Botanical Harmony

- Engage in a rhythmic pruning dance to keep the balance of nature intact.

The second step involves the discernment and establishment of the lowest permanent scaffold limb, a crucial consideration for sufficiently mature trees. This entails the shortening of robust branches beneath it and the reduction of any lower branches infiltrating the crown.

Moving to the third step, the identification and establishment of scaffold limbs come into focus, achieved by subordinating or removing competing stems and branches. This process, known as scaffold selection, is a patient endeavor spanning 10 to 20 years or more, influenced by climate, tree type, and location. Scaffold limbs, situated above the lowest permanent limb, serve as the foundation for constructing the permanent crown. They should exhibit minimal defects like included bark and cracks, rank among the tree's largest limbs, and maintain proper spacing, with a vertical clearance of at least 18 inches for large-maturing trees and approximately 12 inches for smaller varieties. This meticulous selection and establishment contribute to the tree's overall structural integrity and aesthetic.

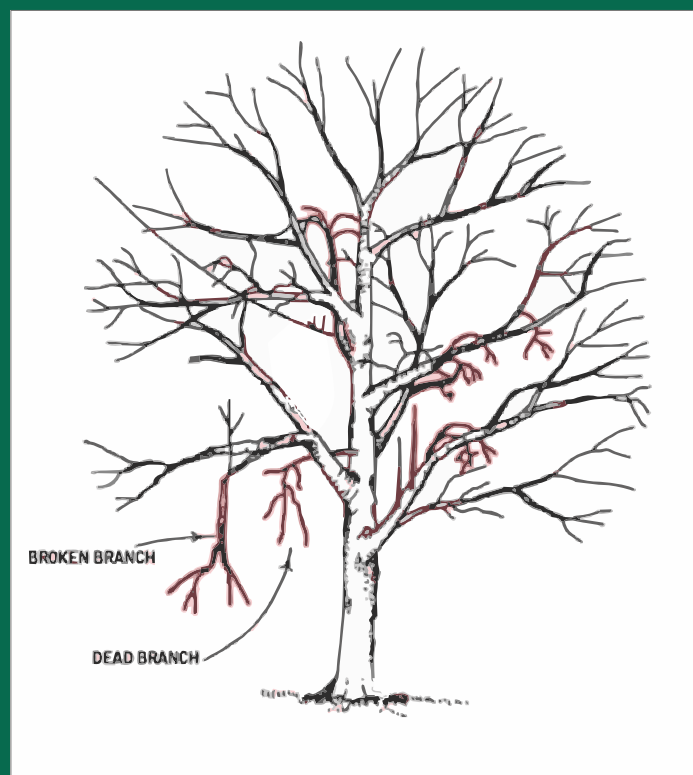


- 1) Prune branches a and b to favor branch c as the scaffold branch in this trunk section. The removal of part b is to prevent it from growing into the canopy;

- 2) Eliminate or trim back (as shown in the illustration) the primary branch across from e, enabling e to assume the scaffold role in this trunk section. With branches c, d, and e now strategically spaced along the trunk, the two smaller branches opposite branch d can be retained since their growth is unlikely to compete significantly with d. This precise pruning approach ensures a balanced and well-structured tree silhouette.

Pruning to Clean

Cleaning involves the careful removal of dead, diseased, detached, or broken branches. This meticulous pruning technique aims to minimize the risk of branches falling and curtail the spread of insects and diseases from deceased or ailing branches to the rest of the tree. While applicable to trees of any age, it is most frequently applied to medium-aged and mature trees. Notably, cleaning stands out as the preferred method for mature trees, as it eliminates potential hazards without unnecessarily removing live branches. By targeting branches with cracks that might fail as the inner wood dries, cleaning ensures the sustained health and structural integrity of mature trees.



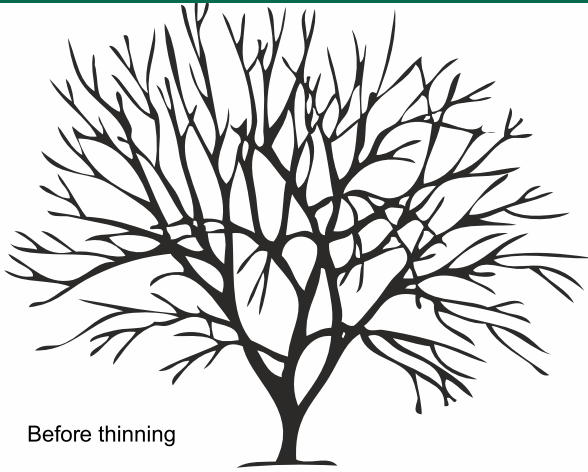
Cleaning

Although dead branches normally cause less damage in hurricanes than live branches with defects, removing dead branches represents good tree care. Any damage caused by these small broken branches would be minimal compared to the threat of damage from larger branches.

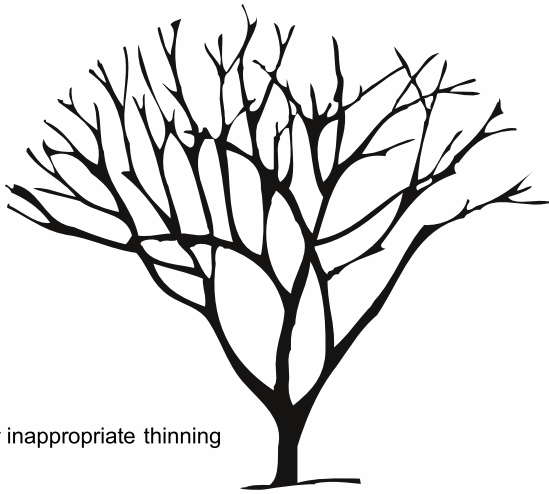
Pruning to Thin

Thinning delicately selects and removes petite living branches. It focuses on the outer reaches, sculpting the crown with precision to retain its regal form while ensuring a harmonious foliage distribution throughout.

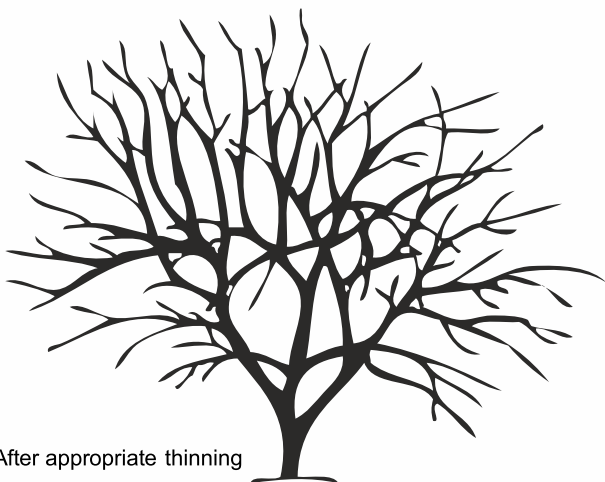
The practice of thinning is not merely aesthetic; it's a strategic maneuver against the winds, gracefully reducing the sail-like effect of clustered foliage and alleviating the burden on branch unions. Like a sculptor's touch, thinning prepares the tree for the intricacies of cabling, and with finesse, it sweeps away unwanted suckers and water sprouts from the tree's base and interior.



Before thinning



After inappropriate thinning



After appropriate thinning

Thinning

Improper thinning concentrates branches at the crown's edge, rendering trees susceptible to wind damage. Conversely, proper thinning strategically distributes live branches along limbs by selectively removing those predominantly at the crown's periphery. This method enhances tree stability and resilience, ensuring a balanced and wind-resistant canopy.

Excessive pruning in the lower two-thirds, aptly named "lion tailing," can disturb the harmonious rhythm of nature. In this arboreal ballet, precision is key, and a thoughtful choreography ensures that each pruning gesture contributes to a masterpiece of balance, resilience, and enduring beauty.

Pruning to Raise

A deliberate elevation that bestows vertical clearance for a symbiotic relationship with the constructed environment. Buildings, signs, vehicles, pedestrians, and scenic views all partake in this arboreal dance, where strategic branch removal becomes the choreography for a harmonious coexistence.

As this arboreal ballet unfolds, envision structural pruning as a loyal companion – a guardian of form and function. It's a symphony where every judicious cut not only sculpts the tree's physical form but contributes to the intricate equilibrium it sustains. The tree emerges not merely as a living entity but as a testament to the delicate interplay between human intervention and the preservation of nature's inherent grace.

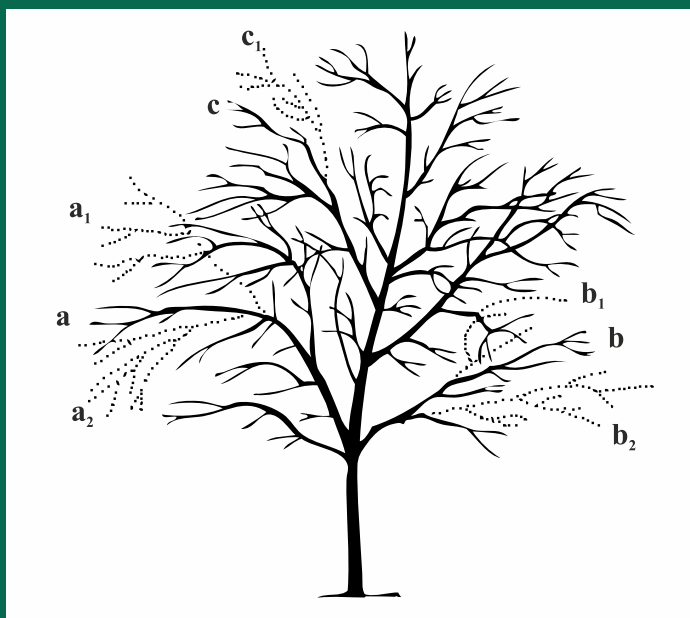


Before

After

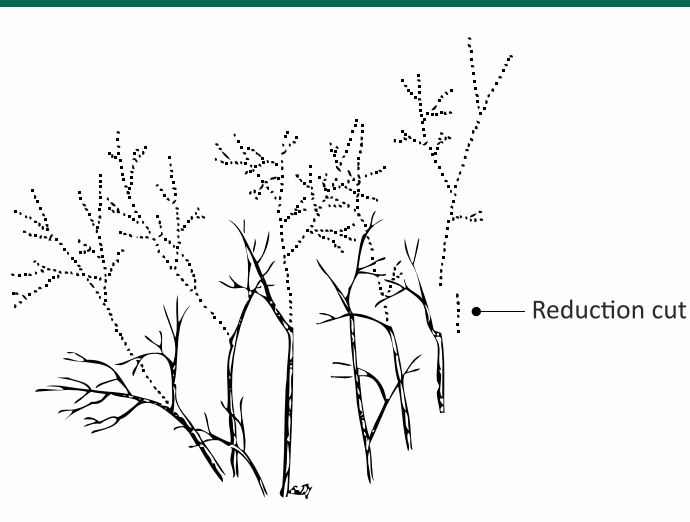
Thinning Prunes Unwanted Suckers and Water Sprouts

A lion-tailed tree (left) is stripped of foliage on the interior of the canopy. This produces excessive end weight at branch tips and makes the trees more susceptible to breakage in storms. Water sprouts (right) often result from stress in years following lion tailing.



Raising

Elevate the crown by removing lower branches a and b. Subordinate them by removing branches a-1, a-2, b-1, and b-2 for balance. Prioritize structural pruning and reduce branch c to prevent competition.

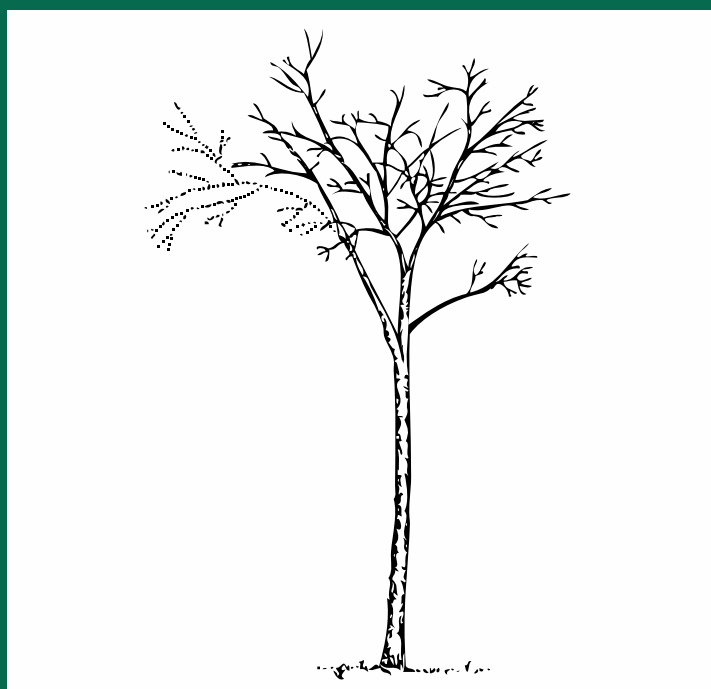


Pruning to Reduce (Shape, Drop-Crotch)

Reduction means selective removal of branches and stems to gracefully diminish the height or spread of a tree or shrub. Reduction curbs the risk of failure and redirects branch growth away from structures or signs.

In this the crown becomes a canvas, with individual limbs receiving the tailored touch of reduction to harmonize the canopy, create clearance, or stave off breakage on flawed limbs.

For the venerable, stressed, or mature trees, the treatment may be a potential stressor. In the mature tree's ageless ballad, cutting a limb back to a lateral requires a gentle hand – no more than half its foliage should depart. Yet, more decay may follow reduction than other pruning methods. Each reduction should ensure that the result is a crescendo of health and aesthetic balance.



Reduction

Adjust canopy or clear structures with reductions.

Pruning to Restore

"Restoration," is selective excising of branches, sprouts, and stubs shrubs that bear the scars of topping, severe heading, vandalism, lion-tailing, storm breakage, or other inflictions. The objective is to enhance the structure, form, and aesthetic allure of the tree or shrub.

It's a symphony of patience, requiring several prunings over years, each a brushstroke in the tapestry of restoration. In this arboreal ballet, the scars of past wounds become a testament to resilience, as each pruning is a whisper of renewal, guiding the tree toward a symmetrical rebirth.



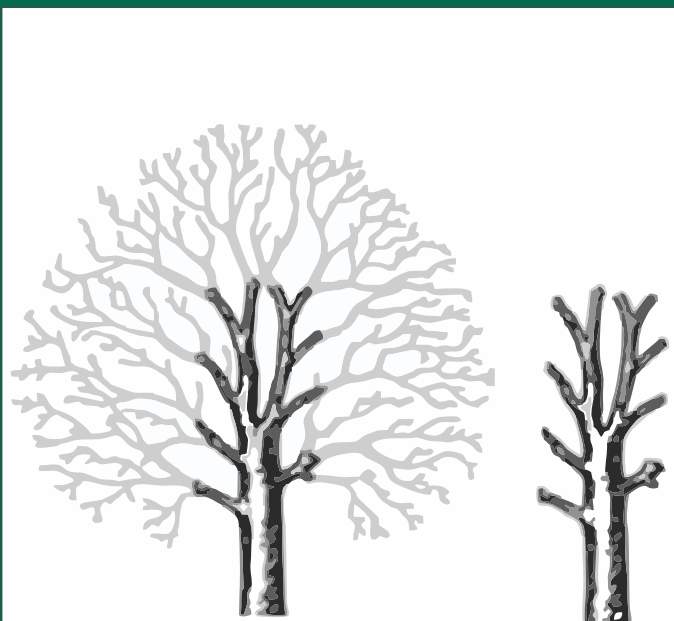
Restoration after a storm will take time, but it is possible.

Pollarding

Pollarding - cutting of top tree branches back to the trunk, leaving club-headed stems that grow a thick head of new branches. The purpose is to limit the area of top growth or to create an annual harvest. A training system that commences with a year of severe heading through tender stems, followed by an annual ritual of sprout removal, sculpting trees or shrubs into predetermined elegance or maintaining a distinguished "formal" appearance. It's a delicate practice, distinct from the indiscriminate act of topping.

Historically, pollarding served as generating shoots for fuel, shelter, and various products due to the profusion of adventitious sprouts. To embark on this journey, initiate pollarding on deciduous trees in their youth, making strategic heading cuts through stems and branches.

Crafting a pollard masterpiece involves strategic heading cuts, ensuring sprouts from all slices bask in sunlight. Once the initial incisions are made, subsequent heading cuts become unnecessary. After a few pruning cycles, pollard heads emerge, donned with sprouts that demand careful removal during the dormant season, avoiding any intrusion into or below the knobs. This symphony of pruning cycles weaves a tale of rebirth and control. Pollarding finds its spotlight in species like Eucalyptus, Silver Oak, *Morus alba* etc. offering not just aesthetic refinement but also safety by taming their towering heights.

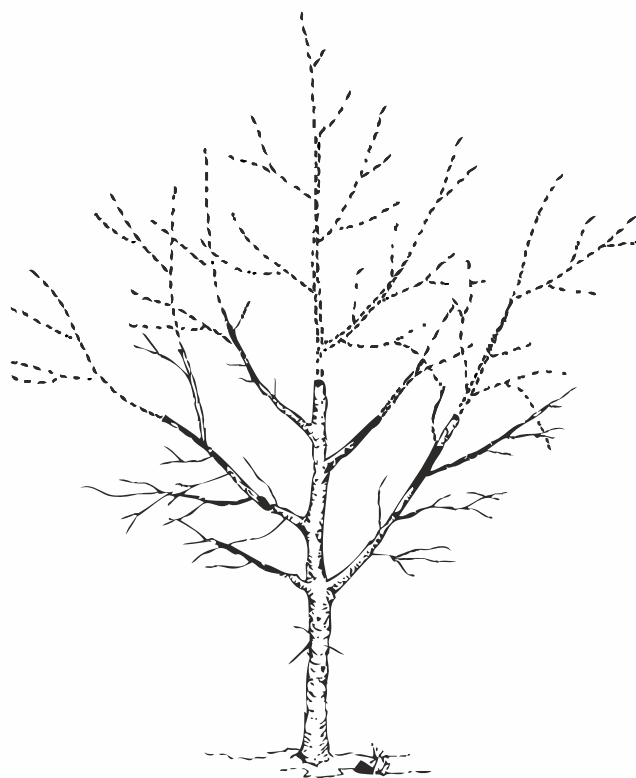


Before

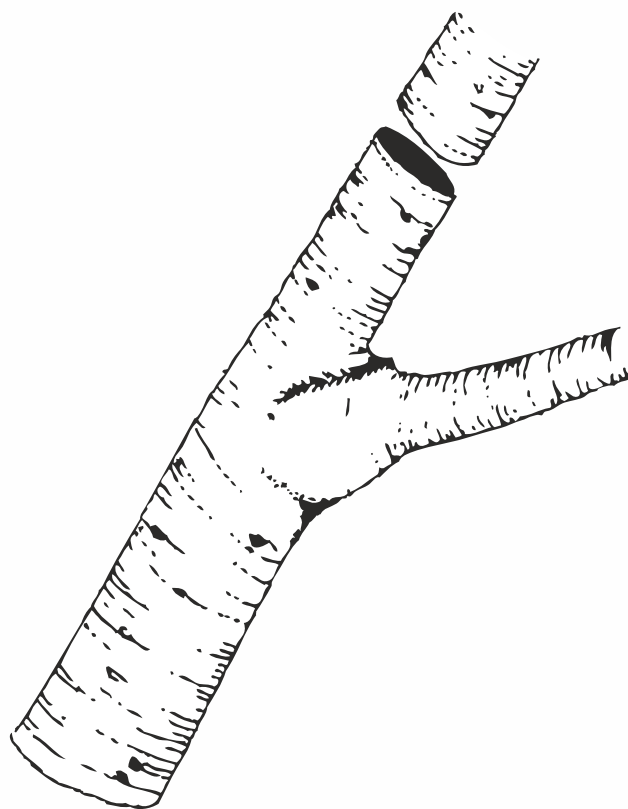
After

Pollarding

Sprouts pruned back to pollard heads (left). Pollarded trees flushing out with new sprouts (right). All sprouts are removed annually, typically in the dormant season.



Topping Vs Pollarding



Severe heading through mature tissue might usher in decline

When to Prune

Optimal pruning timing depends on desired outcomes. Removal of dying or diseased limbs can be done anytime without significant harm. Pruning during dormancy reduces pest risks, allowing wounds to heal.

Post-growth flush pruning is discouraged to avoid stressing trees. Mindful pruning enhances flowering. Fruit trees can be pruned during the dormant season to enhance structure and distribute fruiting wood. Consider timing as a crucial element in plant health care. The best time of year to prune is during dormancy generally when all of the foliage (Deciduous Trees) has dropped. Pruning during hot weather can cause additional stress to the tree.

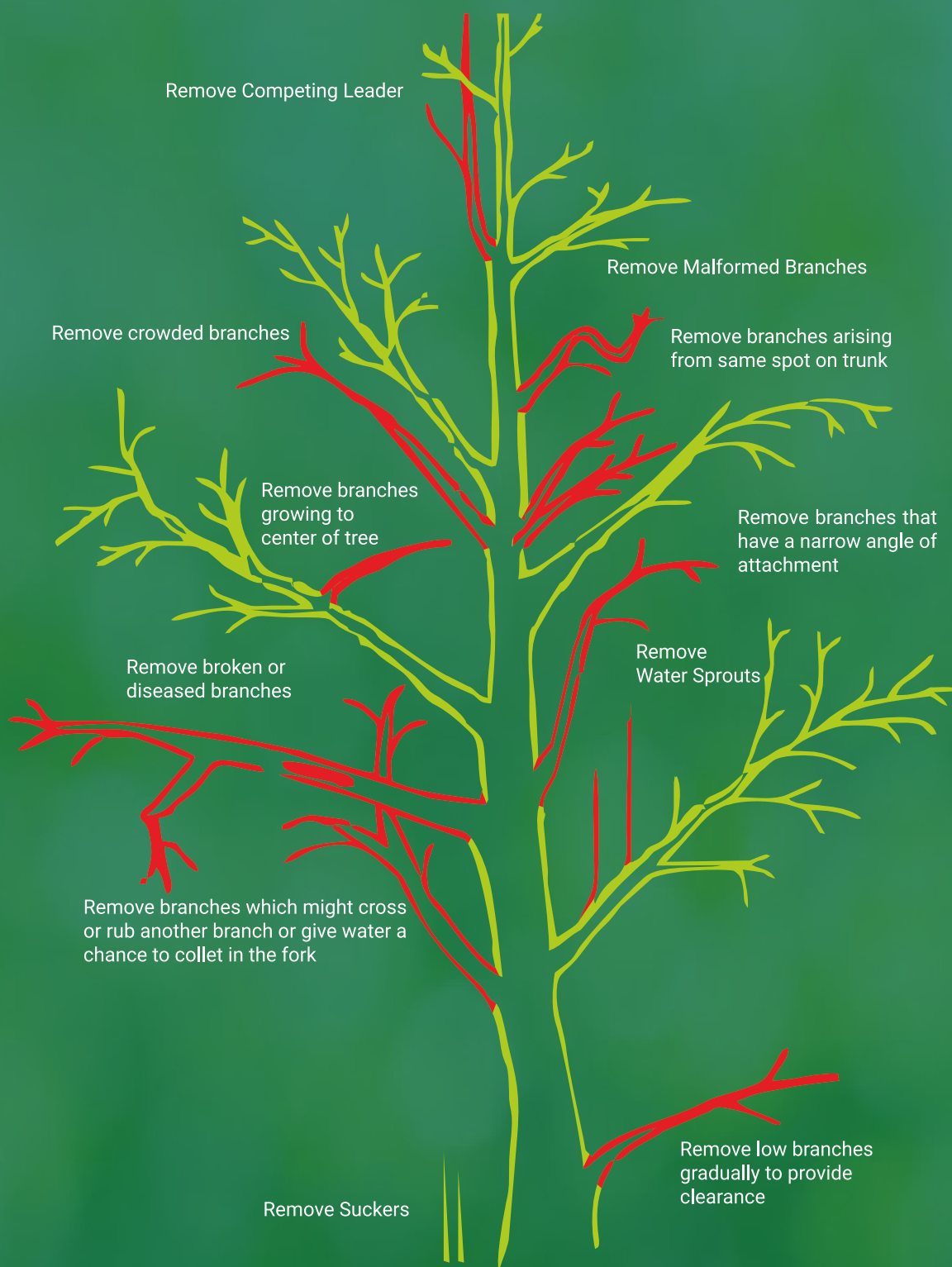




SAVE A TREE AND SAVE EVERYTHING ELSE



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CHANDIGARH ADMINISTRATION



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