EXHIBIT M

Landscape Plan: Species List & Planting Plan

LCMG Earth-Sheltered Growing Dome — City Planning Department, Site Plan Review

1. Purpose and Scope

This exhibit presents the complete landscape planting plan for the Laramie County Master Gardeners (LCMG) community food forest and edible landscape demonstration site in Cheyenne, Wyoming. The 9,500-square-foot site is designed as a three-layered food forest: canopy fruit trees, mid-layer berry shrubs, and a dense understory of nitrogen-fixing perennials, native ground covers, and pollinator-supporting forbs. All species are selected from cold-hardy cultivars adapted to USDA Plant Hardiness Zone 4b/5a and sourced through Fort Collins Wholesale Nursery and affiliated retail partners.

This document is submitted to the City Planning Department to demonstrate the species composition, quantity, spacing, and ecological rationale for the proposed planting. All selections are consistent with the 2026 Wyoming Urban & Community Forestry Program requirements for community orchard and edible landscape grant projects.

2. Species List and Procurement Budget

The table below lists all funded plant specimens by layer, with quantities, unit costs, and subtotals drawn from the approved project budget. Understory and ground cover plants (~360 specimens) are sourced through LCMG seed swaps, UW Extension propagation, and partner donations at no procurement cost to the grant.

Item / Variety	Qty	Unit Cost	Subtotal
Canopy Fruit Trees (25 specimens)			
Haralson / Zestar Apple	3	$55	$165
Montmorency / Carmine Jewel Sour Cherry	2	$55	$110
American / Stanley Plum	2	$50	$100
Nanking Cherry	2	$35	$70
Dolgo Crabapple	2	$50	$100
Ure Pear / Golden Spice Pear	2	$55	$110
Toka Plum / Pembina Plum	2	$50	$100
Mount Royal Plum	2	$50	$100
Evans Bali Sour Cherry	2	$50	$100
Autumn Brilliance Serviceberry	4	$60	$240
Subtotal — Canopy Trees	**25**		**$1,295**

Item / Variety	Qty	Unit Cost	Subtotal
Berry Shrubs (50 specimens)			
Golden / Buffalo Currant 'Crandall'	6	$22	$132
Gooseberry 'Pixwell' / 'Hinnomaki Red'	6	$20	$120
Raspberry 'Heritage' / 'Boyne'	8	$15	$120
Serviceberry 'Regent' Saskatoon	5	$22	$110
Elderberry 'York' / 'Adams'	4	$25	$100
American Black Currant 'Consort'	5	$20	$100
Red Currant 'Red Lake'	5	$20	$100
Honeyberry 'Borealis' / 'Aurora'	5	$22	$110
Sea Buckthorn (male & female pair)	6	$20	$120
Subtotal — Berry Shrubs	**50**		**$892**
Understory Perennials, Forbs & Ground Covers (~200 plants)			
Wild Strawberry (Fragaria virginiana)	~50	Donated/Swap	—
Leadplant (Amorpha canescens)	~30	Donated/Swap	—
Illinois Bundleflower (Desmanthus illinoensis)	~20	Donated/Swap	—
Blue Wild Indigo (Baptisia australis)	~20	Donated/Swap	—
Creeping Oregon Grape (Mahonia repens)	~30	Donated/Swap	—
Prairie Dropseed (Sporobolus heterolepis)	~25	Donated/Swap	—
Yarrow (Achillea millefolium, native)	~25	Donated/Swap	—
Subtotal — Understory Layer	**~200**	**Donated / Swap**	**—**
TOTAL — All Planted Specimens	**~275**		**$2,187**

Budget note: Remaining grant balance ($2,813) is allocated to tree guards and stakes, planting event logistics, interpretive signage, and contingency. Understory and ground cover plants (~360 plugs/pots) are sourced via LCMG seed swaps, UW Extension propagation, and native plant donations from partner organizations, with cost offset by volunteer propagation labor.

3. Species Detail: Botanical and Ecological Reference

The following table provides full species detail for each plant in the planting plan, including type, cold-hardiness zone, mature dimensions, pollination requirements, and primary ecological value. This information supports site plan review and serves as a field reference for volunteer planting teams.

Species / Variety	Type	Zone	Mature H × W	Pollination Notes	Ecological Value
Canopy Fruit Trees (25 specimens)					
Haralson / Zestar Apple	Fruit Tree	3–4	15–20' × 15–20'	Plant 2+ varieties together	Pollinator bloom; wildlife fruit; long-lived canopy
Montmorency / Carmine Jewel Sour Cherry	Fruit Tree	3–4	8–15' × 10–15'	Self-fertile	Early spring bloom; bird fruit; pollinator magnet
American / Stanley Plum	Fruit Tree	3–4	10–15' × 10–12'	Needs pollinator pair	Native species; wildlife value; pollinator magnet
Nanking Cherry	Fruit Tree	3	6–10' × 6–10'	Plant 2 for fruit set	Extremely hardy; early bloom; bird habitat
Dolgo Crabapple	Fruit Tree	3–4	20–25' × 20–25'	Universal apple pollinator	Early nectar source; wildlife fruit; canopy anchor
Ure Pear / Golden Spice Pear	Fruit Tree	3–4	12–18' × 10–14'	Cross-pollinate with each other	Cold-hardy pear; wildlife food source
Toka Plum / Pembina Plum	Fruit Tree	3–4	12–15' × 10–12'	Cross-pollinate with each other	Productive plum pair; wildlife habitat
Mount Royal Plum	Fruit Tree	4	10–15' × 10–12'	Self-fertile; assists other plums	Reliable self-fertile pollination anchor
Evans Bali Sour Cherry	Fruit Tree	3–4	12–15' × 10–14'	Pair with Montmorency Cherry	Early bloom; bird and pollinator support
Autumn Brilliance Serviceberry	Small Tree	3–4	15–25' × 12–18'	Self-fertile; early nectar	Native relative; spring bloom; bird food
Berry Shrubs (50 specimens)					
Golden / Buffalo Currant 'Crandall'	Shrub	3–4	4–6' × 4–5'	Self-fertile; fragrant spring bloom	Native; major pollinator shrub; bird berries

Species / Variety	Type	Zone	Mature H × W	Pollination Notes	Ecological Value
Gooseberry 'Pixwell' / 'Hinnomaki Red'	Shrub	3–4	3–5' × 3–5'	Self-fertile; very cold-hardy	Dense structure = bird nesting; pollinator plant
Raspberry 'Heritage' / 'Boyne'	Shrub	3–4	4–6' × clumping	Self-fertile; everbearing	Pollinator bloom; fruit for birds and mammals
Serviceberry 'Regent' Saskatoon	Shrub	2–4	4–6' × 4–6'	Self-fertile; wildlife value	Native; early bloom; critical bird food; fall color
Elderberry 'York' / 'Adams'	Shrub	3–4	6–10' × 6–8'	Cross-pollinate between cultivars	Exceptional wildlife value; large pollinator umbels
American Black Currant 'Consort'	Shrub	3–4	4–6' × 4–5'	Self-fertile; strong aroma	Good for preserves; songbird habitat; early bloom
Red Currant 'Red Lake'	Shrub	3–4	4–6' × 4–5'	Self-fertile; reliable producer	Reliable fruiter; pollinator support; bird food
Honeyberry 'Borealis' / 'Aurora'	Shrub	2–4	4–6' × 4–5'	Requires cross-pollination between vars	Earliest fruit of season; pollinator magnet
Sea Buckthorn (male & female pair)	Shrub	3–4	8–12' × 6–10'	Requires male + female plants	Nitrogen fixer; wildlife windbreak; orange berries
Understory Perennials, Forbs & Ground Covers (~200 plants)					
Wild Strawberry (Fragaria virginiana)	Ground Cover	3–5	4–6" × spreading	Self-fertile; spreads by runners	Dense mat suppresses bindweed; pollinator; bird food
Leadplant (Amorpha canescens)	Shrub/Forb	2–8	2–4' × 3–4'	Excellent pollinator plant	Nitrogen fixer; feeds adjacent fruit trees; caterpillar host

Species / Variety	Type	Zone	Mature H × W	Pollination Notes	Ecological Value
Illinois Bundleflower (Desmanthus illinoensis)	Perennial Forb	4–9	2–4' × 2–3'	Native pollinator support	Nitrogen fixer; bird seed; caterpillar host; deep taproot
Blue Wild Indigo (Baptisia australis)	Perennial Forb	3–9	3–4' × 3–4'	Major pollinator plant	Long-lived nitrogen fixer; 50+ yr plant; taproot competes with bindweed
Creeping Oregon Grape (Mahonia repens)	Evergreen G.C.	4–8	12–24" × 2–3'	Self-fertile; pollinator bloom	Year-round cover under canopy; bird berries; shade-tolerant
Prairie Dropseed (Sporobolus heterolepis)	Bunchgrass	3–9	18–24" × 24"	N/A	Songbird seed; soil stabilizer; fills gaps between shrubs
Yarrow (Achillea millefolium, native)	Perennial Forb	3–9	18–24" × 24"	Pollinator support	Predatory insect habitat for orchard pest control; rhizomatous spreader

4. Planting Density Summary

The 9,500 SF site is designed at standard food forest spacing: canopy trees at 15–18 ft centers, shrubs at 6–8 ft centers, and understory plants filling the ground plane at 2–4 ft centers beneath and between the woody layers. The resulting plant community is self-reinforcing — nitrogen fixers feed adjacent fruit trees, dense ground covers outcompete bindweed, and diverse bloom sequences support pollinators from early April through October.

Layer	Species Included	Approx. Qty	Spacing
Canopy Fruit Trees	Apple, Sour Cherry, Plum, Nanking Cherry, Crabapple, Pear, Serviceberry	25	15–18 ft centers
Berry Shrubs	Currant, Gooseberry, Raspberry, Serviceberry, Elderberry, Honeyberry, Sea Buckthorn	50	6–8 ft centers

Layer	Species Included	Approx. Qty	Spacing
Understory Forbs & Grasses	Leadplant, Bundleflower, Wild Indigo, Prairie Dropseed, Yarrow	~140	2–4 ft centers
Ground Cover	Wild Strawberry, Creeping Oregon Grape	~220	12–18 in. on center
TOTAL — All Layers	**All layers combined**	**~435**	**See above**

5. Key Design Principles

5.1 Nitrogen Fixers Feed Fruit Trees

Leadplant, Illinois bundleflower, and blue wild indigo are sited within 6–10 feet of canopy trees. Their root-associated bacteria fix atmospheric nitrogen and transfer it to adjacent woody plants, meaningfully reducing fertilizer inputs over time — a critical benefit on a volunteer-maintained site.

5.2 Bindweed Suppression Strategy

Wild strawberry and creeping Oregon grape are deployed as the primary ground plane, creating a dense mat that deprives bindweed of the light and bare soil it requires to germinate. Bindweed is the primary invasive weed pressure at the LCMG Demonstration Garden site; the ground cover strategy provides passive, chemical-free suppression.

5.3 Layered Bloom Sequence for Continuous Pollinator Support

Nanking cherry and honeyberry bloom earliest (late March–April), followed by apples, cherries, and plums (April–May), then elderberry, currants, and gooseberries (May–June), and finally raspberries, yarrow, and leadplant through summer. This sequence ensures continuous nectar and pollen availability for native bees and managed honeybees throughout the growing season — directly supporting the regional agricultural ecosystem.

5.4 Pollination Pairs and Self-Fertile Selections

All tree species requiring cross-pollination are planted in confirmed compatible pairs within the design: Haralson and Zestar apple are co-sited; Toka and Pembina plum are planted together; Ure and Golden Spice pear are co-planted; Evans Bali and Montmorency sour cherry are within pollination range. Self-fertile selections (Mount Royal plum, Montmorency cherry, all currants, gooseberry, and raspberry) ensure productive fruit set even if cross-pollination is suboptimal in early establishment years.

6. Community and Environmental Benefits

6.1 Food Security & Access

The food forest will produce multi-season fresh fruit accessible to Laramie County residents. LCMG will organize harvest events to distribute yield to community members and local food pantries.

6.2 Education & Demonstration

The site functions as a hands-on outdoor classroom where residents can observe cold-hardy food forest design, pruning techniques, integrated pest management, native plant establishment, and pollinator habitat principles — topics directly relevant to home gardeners throughout Laramie County.

6.3 Urban Forest Enhancement

Twenty-five long-lived canopy trees are added to Cheyenne's urban forest, providing shade, stormwater interception, carbon sequestration, and wildlife habitat while yielding edible fruit.

6.4 Pollinator & Wildlife Habitat

The layered design provides nesting structure, early-season nectar, and late-season fruit and seed for native bees, songbirds, and beneficial insects — directly supporting the regional agricultural ecosystem.

7. Implementation Timeline

Phase	Activity	Target Date
1 — Preparation	Site layout staking, soil pH testing, irrigation planning	April 2026
2 — Procurement	Order trees & shrubs from FCWN retail partner; confirm understory sources	April 2026
3 — Planting	Volunteer planting events; canopy trees, shrubs, ground cover installation	May–June 2026
4 — Establishment	Irrigation management, pest monitoring, stake adjustment, mulching	June–Sept 2026
5 — Completion	Signage installation, final documentation, grant reporting	Oct 2026

End of Exhibit M — Landscape Plan: Species List & Planting Plan