

2024 Crop Plan for Candelaria Nature Preserve

Field Number or other location (Transition Habitat/Goal Habitat)	Acreage	Farmer/Company name	2023 History	Field Prep Estimate: Date and Method	Activity	Species List	Equipment Required	Other Activities – Date, type
1A (pollinator and wildlife crops)	2.85	CSWCD/Rio Grande Return	Created mini moist soil unit (MMSU) in January 2023, planted MMSU in February and July, irrigated MMSU monthly April through August. Remainder of 1A received precipitation, seeded w 2022 Pollinator Crop around woody habitat perches. Planted, bucket watered, mulched southern hedgerow.	Irrigation season deliver water to mini moist soil unit. Hand broadcast pollinator seed with monsoons. Manage nonnative by hand. No heavy equipment within field. Extract elms along east edge. Coordinate for turnout to become concrete apron before 2025 irrigation season.	Nonnative species control with hand labor. Maintain hedgerow and wood chip supply.	Containerized plants: <i>Rhus trilobata</i> , <i>Forestiera neomexicana</i> , <i>Ericameria nauseosa</i> , <i>Amorpha fruticosa</i> , <i>Chilopsis linearis</i> , <i>Solidago canadensis</i> , <i>Ribes aureum</i> , <i>Fallugia paradoxa</i> , <i>Celtis reticulata</i> . Seed: <i>Heterotheca villosa</i> , <i>Datura quercifolia</i> , <i>Datura wrightii</i> , <i>Erigeron divergens</i> , <i>Xanthisma spinulosum</i> , <i>Sphaeralcea</i> spp., <i>Ratibida tagetes</i> , <i>Senecio flaccidus</i> , <i>Dalea candida</i> , <i>Thelosperma megapotamicum</i> , <i>Glycyrrhiza lepidota</i> , <i>Linum lewisii</i> , <i>Helianthus annuus</i> , <i>Guara coccinea</i> , <i>Apocymun cannabinum</i> , <i>Metzelia multiflora</i> , <i>Anemopsis californica</i> .	none.	Pollinator-forage support planting and seeding in MARCH-MAY 2024 None.
1B (salt shrubland-SS)	5.51	CSWCD/Rio Grande Return	Maintained Chihuahuan Basins by bucket watering and weeding; Maintained 1B Basins by flood irrigation and weeding; Central grassland seeded and spot woodchipped.	Management of existing basins; irrigation as needed (approx. once monthly) No field prep required.	Install perches for insectivorous birds. Remove nonnative species and supplement wood chip mulch as it breaks down. Maintain middle grassland as native species continue to emerge and establish in wood chip patches. No equipment use in this zone, minimize all forms of disturbance.	Containerized plants: <i>Ribes aureum</i> , <i>Sarcobatus vermiculatus</i> , <i>Isocoma pluriflora</i> . Seed: <i>Datura quercifolia</i> , <i>Helianthus ciliaris</i> , <i>Astragalus lentiginosus</i> , <i>Linum lewisii</i> , <i>Sphaeralcea angustifolia</i> , <i>Datura wrightii</i> , <i>Leptochloa fusca fascicularis</i> , <i>Distichlis spicata stricta</i> , <i>Sporobolus airoides</i> , <i>Pleuraphis jamesii</i> , <i>Sorghastrum nutans</i> , <i>Sporobolus wrightii</i> , <i>Scleropogon brevifolius</i> , <i>Isocoma pluriflora</i> .		None.
1C (damp soil grassland-SG)	4.9	CSWCD/Rio Grande Return	Conservation fallow	Habitat design is in development. Construction in 2024 is pending design approval and funding.	Design and restoration planning will be completed in 2024. Design may include irrigation gate location changes on south side, enhancing the existing willows, construction of swales and berms for water management, and fenceline elm management pending completion of Integrated Pest Management plan. Soil sampling/chemical analysis	Containerized plants: <i>Asclepias subverticillata</i> , <i>Anemopsis californica</i> , <i>Apocynum cannabinum</i> , <i>Sporobolus wrightii</i> , <i>Lycium torryi</i> , <i>Lycium pallidum</i> , <i>Sarcobatus vermiculatus</i> , <i>Krascheninnikovia lanata</i> , <i>Atriplex canescens</i> . Seed: <i>Isocoma pluriflora</i> , <i>Grendelia squarrosa</i> , <i>Helianthus ciliaris</i> , <i>Linum lewisii</i> , <i>Leptochloa fusca fascicularis</i> , <i>Distichlis spicata stricta</i> , <i>Sporobolus airoides</i> , <i>Sporobolus wrightii</i> , <i>Sporobolus cryptandrus</i> , <i>Bouteloua gracilis</i> , <i>Bothriochloa laguroides</i> , <i>Pleuraphis jamesii</i> , <i>Panicum obtusum</i> .	In design development.	
1D (dry soil grassland-BG)	9.13	CSWCD/Rio Grande Return	Wildlife crop	Maintain field borders for irrigation efficiency. Hand weeding and mowing to reduce abundance of invasive species.	Continue to add native dry grassland species via seeding and plugs. Mow to generate light mulch cover. Maintain field borders. Irrigate as needed and available. Continued weeding and mowing to reduce abundance of invasive species	Seed: <i>Thelosperma megapotamicum</i> , <i>Grindelia squarrosa</i> , <i>Dimorphocarpa wislizeni</i> , <i>Cleome serrulata</i> , <i>Polanisia dodecandra</i> , <i>Guara parviflora</i> , <i>Ipomopsis longiflora</i> , <i>Datura quercifolia</i> , <i>Datura wrightii</i> , <i>Heterotheca villosa</i> , <i>Psilostrophe tagetina</i> , <i>Ratibida tagetes</i> , <i>Senecio flaccidus</i> , <i>Senecio riddellii</i> , <i>Xanthisma spinulosum</i> , <i>Astragalus lentiginosus</i> , <i>Dalea scariosa</i> , <i>Linum lewisii</i> , <i>Metzelia multiflora</i> , <i>Sphaeralcea</i> spp., <i>Guara coccinea</i> , <i>Oenothera</i> spp., <i>Sporobolus airoides</i> , <i>Sporobolus wrightii</i> , <i>Sporobolus cryptandrus</i> , <i>Bouteloua gracilis</i> , <i>Bothriochloa laguroides</i> , <i>Pleuraphis jamesii</i> , <i>Panicum obtusum</i> .	Tractor, flail mower, rototiller, seed drill; skidster	
1E (wildlife crops transition to Damp Soil Grassland SG)	8.17	CSWCD/Rio Grande Return	Wildlife crop	Maintain or relocate field borders for irrigation efficiency. Mechanical and targeted mowing to reduce abundance of nonnative species. Consider raking for nonnative species control. Flood irrigation as available.	Increase diversity (hand seeding and plugs) within standing crop; irrigate as required. Based on monitoring cover and diversity of native species, plant to new high-value habitat crops (millet, oats) in April-May and to winter wildlife crop in August-September. Continued hand weeding and mowing to reduce abundance of invasive species	Millet, oats, dryland corn, barley, rye, wheat.	Tractor, flail mower, rototiller, seed drill; skidster	Consider goat mob grazing for weed management and create public engagement campaign, press release, or similar. May become priority field because of proximity to nature blind.

2A (arroyo margin AS transition to Dry Soil Grassland BG)	1.45	CSWCD/Rio Grande Return	Conservation fallow	Prepare soil in March. Plant to wildlife transition crops in spring. Irrigate as available. No-till seed to AS species with monsoons or in fall. Reconstruct field borders for irrigation efficiency.	Management of invasive species ongoing. Seeding from RMP Table 10 as determined by 2024 design plan.	Seed: Sporobolus spp., Bouteloua spp., Muhlenbergia spp., Pascopyrum smithii, Pleuraphis jamesii, Sorghastrum nutans.	In design development.	Design and restoration planning through 2024. Medium priority dependent on staff capacity. Possible pollinator-focused design.
2B (sandbar-SNB)	2.7	CSWCD/Rio Grande Return	Conservation fallow	Design plan is in development. Construction is possible in 2024 depending on plan approval and available funding.	Management of invasive species ongoing	Seed: Gaillardia pulchella, Thelesperma megapoticum, Baileia multiradiata, Helianthus annuus, Dimorphocarpa wislizenii, Cleome serulata, Polanisia dodecandra, Nama hispidum, Guara parviflora, Ipomopsis longiflora, Datura spp., Heterotheca villosa, Psilostrophe tagetina, Ratibida spp., Senecio spp., Solidago altissima, Symphotrichum ericoides, Xanthisma spinulosum, Cucurbita foetidissima, Astragalus spp., Dalea spp., Metzelia multiflora, Guara coccinea, Oenothera spp., Erigeron devergens, Achnatherum hymenoides, Sporobolus spp., Bouteloua spp., Bothriochloa laguroides, Pleuraphis jamesii. Containerized plants: Ericameria nauseosa, Artemisia fillifolia, Gutierrezia sarothrae, Atriplex canescens, Krascheninnikovia lanata, Psoralea scoparius, Yucca glauca, Opuntia spp..	In design development.	Design and restoration planning through 2024, with elements that may consider hydrology that would maintain clay cap. Low priority.
2C (sandbar-SNB)	2.7	CSWCD/Rio Grande Return	Conservation fallow	Design plan is in development. Construction is possible in 2024 depending on plan approval and available funding.	Management of invasive species ongoing	Seed: Gaillardia pulchella, Thelesperma megapoticum, Baileia multiradiata, Helianthus annuus, Dimorphocarpa wislizenii, Cleome serulata, Polanisia dodecandra, Nama hispidum, Guara parviflora, Ipomopsis longiflora, Datura spp., Heterotheca villosa, Psilostrophe tagetina, Ratibida spp., Senecio spp., Solidago altissima, Symphotrichum ericoides, Xanthisma spinulosum, Cucurbita foetidissima, Astragalus spp., Dalea spp., Metzelia multiflora, Guara coccinea, Oenothera spp., Erigeron devergens, Achnatherum hymenoides, Sporobolus spp., Bouteloua spp., Bothriochloa laguroides, Pleuraphis jamesii. Containerized plants: Ericameria nauseosa, Artemisia fillifolia, Gutierrezia sarothrae, Atriplex canescens, Krascheninnikovia lanata, Psoralea scoparius, Yucca glauca, Opuntia spp..	In design development.	Design and restoration planning through 2024. Low priority.
2D (ephemeral wetland EW, damp soil wetland WM, and Salt Shrubland SS)	13.26	CSWCD/Rio Grande Return	Wildlife crop	Irrigate as available to allow barley to grow. Monitor for sandbur. Surface till and replant with warm season wildlife crops.	Surface till to reestablish irrigation efficiency prior to additional seeding with cover crop mix.	Millet, oats, dryland corn, barley, rye, wheat.	Tractor, flail mower, rototiller, seed drill; skidster	Design plan for 2024; dependent on implementation of ABQ Open Space Wetland Action Plan (WAP), plan will include grading, liner, water delivery, shoreline protection, wetland plug plantings, and seeding. HIGH PRIORITY. Needs funding source.
3A (Salt Shrubland SS)	3.73	CSWCD/Rio Grande Return	Conservation fallow	Prepare soil in March. Plant to wildlife transition crops in spring. Irrigate as available. No-till seed to BG species with monsoons or in fall. Reconstruct field borders for irrigation efficiency.	Plant with SS species from RMP Table 9 as available, especially grasses. Mow to increase cover of native relative to non-native. Management of invasive species ongoing.	Seed: Sporobolus spp., Bouteloua spp., Muhlenbergia spp., Pascopyrum smithii, Pleuraphis jamesii, Sorghastrum nutans.	Tractor, flail mower, rototiller, seed drill; skidster	Design and restoration planning through 2024. Low priority. Treatment may dependent on spring growth.
3B (Dry Soil Grassland BG)	3.91	CSWCD/Rio Grande Return	Seeded to native early seral species (drought-tolerant seed mix including teff, millet, grama grass-dominant), crimped straw for soil stability.	No soil preparation needed	Another year of BG seeding; spread straw, crimp into soil simultaneous to seed mix in spring, irrigate as needed. Soil sampling/chemical analysis. Monitor and manage invasive species.		none.	Design and restoration planning through 2024. Low priority. Expand and enhance hedgerow along edges (west, north)
3C (Arroyo Margin AS)	1.43	CSWCD/Rio Grande Return	Removed nonnatives with hand tools.	Field seeded with target habitat species; no irrigation needed. Monitor for establishment and cover.	Eradicate invasive species		none.	Consider shrub and tree planting (hand auger) with species from RMP Table 10 as available.
4A East ¼	3	CSWCD/Rio Grande	Created large habitat berm, planted and maintained 137	No soil preparation needed	Bucket water grasses and shrubs planted in fall.	Seed: Sporobolus spp., Bouteloua spp., Muhlenbergia spp., Pascopyrum smithii, Pleuraphis jamesii, Sorghastrum nutans.	Truck and water totes, Skidster, auger, tractor, seed drill.	Maintain reduced invasive species, mowing/raking.

(wildlife crops) Non-Irrigated		Return	native habitat shrubs, planted coyote willow south of viewing platform.	Habitat has been planted and seeded.	Management of invasive species ongoing.	Muhlenbergia spp., Pascopyrum smithii, Pleuraphis jamesii, Sorghastrum nutans.		
4A West ½ (wildlife crops) Irrigated	3.26	CSWCD/Rio Grande Return	Conservation fallow (due to platform construction)	Soil preparation in March for immediate planting to wildlife crops (oats, daikon radish for compaction issues). Irrigate as available.	Irrigate grasses and shrubs planted in fall. Maintain reduced invasive species, mowing/raking.	Oats, radishes, teff, millet, barley, wheat, rye.	Tractor, flail mower, rototiller, seed drill; skidster	Planting only in SW corner; majority of this field needs to remain open for tractor access and surface irrigation.
4B (wildlife crops to Sandbar SNB)	3.87	CSWCD/Rio Grande Return	Millet, sunflowers	Monitor millet germination in March-April. If weed species germination is high relative to millet and sunflower germination, then high mow to generate light mulch and no-till drill to millet, oats, sunflowers. Irrigate as available.	Ongoing management of invasives.	Millet, oats, sunflowers.	Tractor, flail mower, rototiller, seed drill; skidster	Continue removal of invasives along south and west of field. Soil sampling/chemical analysis.
4C (wildlife crops to Sandbar SG)	3.27	CSWCD/Rio Grande Return	Millet, sunflowers	Monitor millet germination in March-April. If weed species germination is high relative to millet and sunflower germination, then high mow to generate light mulch, incorporate and no-till drill to millet, oats, sunflowers. Irrigate as available.	Ongoing management of invasives.	Millet, oats, sunflowers.	Tractor, flail mower, rototiller, seed drill; skidster	Soil sampling/chemical analysis.
4D (Ephemeral Wetland EW, Damo Soil Wetland WM).	5.3	CSWCD/Rio Grande Return	Wildlife crops	Monitor nonnative species cover. Irrigate for existing wildlife crop.	Hand broadcast or no-till drill with sunflower seed and cover crop mix (red clover, oats, Soil sampling/chemical analysis	Sunflower, red clover, buckwheat, cowpeas, barley, wheat, rye.	Tractor, flail mower, rototiller, seed drill; skidster	Wetland Action Plan (WAP) is in process in 2024. Stakeholder and technical input currently being Mowing of invasive species, hand weeding of annuals.
Hedgerows		CSWCD/Rio Grande Return	Bucket watered, maintained woodchip mulch.	Auguring as needed for planting preparation.	Plant native species, mulch and irrigation as needed.		Skidster, auger, truck, water totes.	Wood chips for mulch, weed suppression. No change from 2023.
Woodward House Nursery		CSWCD/Rio Grande Return	Maintained tallpot shrubs; used modified system for grass and wetland plug care.	Ongoing; management of space with partners	Install additional nursery tables, irrigation, planting up seedlings to tall pots.		Skidster.	

*Exact species will reflect availability and native substitutions may be made.

- 1 Shepherdia argentea
- 2 Fallugia paradoxa
- 3 Ericameria nauseosa
- 4 Lycium torreyi
- 5 Baccharis salicifolia
- 6 Amorpha fruticosa
- 7 Artemisia filifolia
- 8 Atriplex canescens
- 9 Forestiera neomexicana
- 10 Rhus trilobata
- 11 Prosopis pubescens
- 12 Prosopis glandulosa
- 13 Sporobolus wrightii
- 14 Yucca elata
- 15 Chilopsis linearis
- 16 Asclepias subverticillata