**Candelaria Nature Preserve**

**Crop Plan 2022**

* [Interactive Map](https://cabq.maps.arcgis.com/apps/instant/interactivelegend/index.html?appid=84c532b6b2494f1682ae65f0ff13b8ad)

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| **Field Conditions** |
| **Field Name** | **Field Work Occurring in 2022** | **Crop/Treatment** |
| 1D, 1E | Irrigation, No-till seed drill   | Target Condition: Wildlife farming, Blue Gramma grassland Alfalfa (extant crop)March seeding: Red Clover, Cowpeas, Oats, Foxtail millet, Pearl Millet, Buckwheat, Lewis Flax, Lance Leaved Coreopsis, Plains Coreopsis, Desert Globemallow, grey-headed prairie Clover, White prairie clover, desert marigold (> 14% of Seed mix)  |
| 1C | Disk 8" to level, Drill Seed. Irrigation to germinate and establish.  | Target condition: Damp soil grasslandJune field preparation, Late Summer seeding (with monsoons) Drill alkali Sacaton, Globemallow, Sideoats gramma, Rake weeds Fall: outplant of Vine Mesquite, Saltgrass pilot mosaic outplanting  |
| 1A | Strip till and seed drill along edges (buffer). Irrigation as deliveries are available.  Early spring goat grazingSolarization to prepare pollinator planting spacesSelect outplanting | Target condition is pollinator meadow. Foxtail millet, barley, red clover, teff, hairy vetch, buckwheat, oats, blue flax, plains coreopsis, lance leaf coreopsis, white prairie clover, gray prairie coneflower, desert globemallow. We are monitoring the response to irrigation. Johnsongrass, bindweed, Siberian elm all are present.  |
| 1B | Outplanting native species with irrigation availability, “Island” restoration design: channeled surface water to shallow basin planting sites, Maintenance of weed pressure and no-till drill Alkali Sacaton  | Target condition is salt shrubland habitat. Four wing Saltbush, Giant Sacaton, Screwbean Mesquite, Datura, False Indigo Bush, Alkali Sacaton, Honey Mesquite out planting  |
| 2B 2C | Undisturbed for soil recovery, weed control | Target condition is sandbar habitat. |
| 2D | Wetland construction (TBD) | Target condition is salt shrubland habitat. |
| 4D | Wetland construction (TBD) | Target condition is salt shrubland habitat.  |
| 3A | Undisturbed for soil recovery, weed control | Target condition is salt shrubland habitat. |
| 3B | Seed grass and forb crop to initiate soil cover - If irrigation available | Target condition is blue grama habitat, Late May no till seeding, Teff, millet, globemallow dominant seed mix Weed control (drill Gramma, Alkali Sacaton with monsoon  |
| 2A | Undisturbed for soil recovery, weed control | Target condition is arroyo margin habitat. |
| 3C | Undisturbed for soil recovery, weed control, Structural management  | Target condition is arroyo margin habitat.Prioritized out planting: Giant Sacaton, Willow Baccharis, Screwbean Mesquite, Sumac |
| 4C | No till methods. Early Spring seed drill. Irrigation to establish. Mowing on edges and berms to control invasive species spread.Artificial perch installation   | Target condition is wildlife Farming. Foxtail millet, red clover, hairy vetch, buckwheat, oats, blue flax, plains coreopsis, lance leaf coreopsis, white prairie clover, gray prairie coneflower, desert globemallow, native sunflower, triticale. |
| 4B | No till methods. Early Spring seed drill. Irrigation to establish. Mowing on edges and berms to control invasive species spread. Artificial perch installation | Target condition is wildlife Farming. Foxtail millet, red clover, hairy vetch, buckwheat, oats, blue flax, plains coreopsis, lance leaf coreopsis, white prairie clover, gray prairie coneflower, desert globemallow, native sunflower, triticale. |
|  4A | Disc 8" to level, drill seed. Irrigation to establish | Target condition is wildlife forage.  Teff and millet dominant seed mix, May seed drill   |
| Hedgerows  | Monitor plant growth, out planting and weed control, mulching to encourage soil moisture retention, artificial perch installation | Reduction of Elm coverage, Out planting: Net leaf hackberry, Willow Baccharis, Screwbean Mesquite, Four-wing Saltbush  |
| **Undisturbed Soil Descriptor:** Fields that are undisturbed allow the land to recover, increase biodiversity, conserve water, and minimize erosion. This practice is often utilized during drought years when there is insufficient irrigation available. These fields will be mowed to control weeds and prevent them from going to seed or spreading. Mowed material is left on the soil as a green waste mulch weed control.  |

**Narrative Statement**

Candelaria Nature Preserve is stewarded using practices that are known to enhance benefits to wildlife and enhance ecological value. These practices also include the tools of agriculture. The current activities are part of a phased management approach to convert these historic fields into valuable and vibrant patches of wildlife habitat. Current activities include planting for wildlife, irrigation, mitigation of agricultural weeds, ecological monitoring, and public and youth engagement.

Special attention was made to select a diverse seed mix for the wildlife farming fields. The seed mix will be planted in early June 2022, including both traditional agricultural grain crops for the benefit of migratory birds and annual and perennial native wildflowers to support pollinators. These wildlife crop fields are receiving regular irrigation, when available, to ensure establishment.

Use of this diverse mix will promote greater variability in bloom, seed set, and tolerance to limited irrigation availability throughout this season. Standing crop will be given a chance to set seed and may then be strategically mowed to shatter seed and provide forage throughout the winter migratory bird season.

Perennial species seeded in 2021 will respond earlier to available winter precipitation and spring irrigation, when available. Subsequent planting in wildlife farming fields in 2022 will be implemented through no-till seeding methods with minimized soil disturbance.

Despite irrigation water and frequency at another record minimum this season, prioritized fields on Candelaria Nature Preserve are being irrigated. Established alfalfa will be seeded with more diverse crop and native species mixes to provide necessary large-field habitat for migratory birds into the fall and winter of 2022/2023.

Planning for the remainder of fields dedicated to specific habitat types is ongoing through the 2022 season. Management of some fields as undisturbed will continue into the 2022 season. This approach will restore the dryland soil moisture regime of these native habitats, reduce invasive species spread and persistence, and provide conditions suitable for planting out native species in future seasons.

Restoration activities in the near-term will focus on selection and purchase of available native plant materials, propagation of rare or hard-to-find species, and installation of woody debris as habitat focus areas. Pilot out planting will proceed in this season towards Salt-Shrubland Habitat using concentrated planting to develop micro-habitats.  Many restoration activities will rely on volunteer service to be successful. If you wish to participate, please contact friends of CNP at Friends.of.CNP.ABQ@gmail.com. The Candelaria Nature Preserve is on its way toward offering greater ecological value to both wildlife and human visitors!

Thank you,

 - CSWCD and Rio Grande Return





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| **Crop Description and Function** |
| **Crop/Species** | **Growth form** | **Ecological Function** | **Wildlife benefit** | **Notes:** |
| Foxtail millet | Grain, medium to tall  | Drought tolerant, fast growing annual  | Migratory bird forage, insect and arthropod habitat | Agricultural grain – Late summer planted for fall maturation and seed production |
| Red clover | Small, bunching groundcover  | N – fixation, soil stabilization, infiltration and perennial cover | Pollinator forage and habitat  | Perennial with medium life span in cultivated fields  |
| Teff | Grain, medium  | Drought tolerant, fast growing annual | Migratory bird forage, insect and arthropod habitat | Agricultural grain – Late summer planted for fall maturation and seed production |
| Hairy vetch | Low, deep-rooted | N – fixation, soil stabilization, infiltration and perennial cover | Pollinator forage and habitat | Agricultural cover crop and  |
| Buckwheat | Low, groundcover | Drought tolerant, fast growing annual | Migratory bird forage, insect and arthropod habitat | Reseeding annual with nutritious seeds |
| Oats | Grain, medium  | Annual, biomass and mulch at end of season | Migratory bird forage, insect and arthropod habitat, nesting material | Agricultural grain – Late summer planted for fall maturation and seed production |
| Blue flax | Low growing native forb | Drought tolerant, fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed |
| Rye  | Grain, medium  | short lived Perennial, Allelopathy, structural variation,  | Wildlife forage, thatch cover and residue to enhance soil cover | Perennial, low cost  |
| Barley | Grain, medium to tall | Drought tolerant, fast growing annual | Migratory bird forage, insect and arthropod habitat, nesting material | Agricultural grain – Late summer planted for fall maturation and seed production |
| Desert marigold | Low growing native forb  | Drought tolerant, fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed  |
| Lance leaf coreopsis  | medium growing native forb | Fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed |
| White prairie clover  | Medium growing native forb | Drought tolerant, fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed |
| **Crop/Species** | **Growth form** | **Ecological Function** | **Wildlife benefit** | **Notes:** |
| Grey prairie coneflower  | medium growing native forb | Drought tolerant, fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed |
| Desert globemallow  | medium growing native forb | Drought tolerant, fast growing perennial cover | Pollinator forage and habitat | Low cost, plentiful native seed |
| Blue gramma  | Native short bunchgrass  | Drought tolerant, fast growing perennial cover | Granivore forage | Low cost, plentiful native seed |
| Seed mix in 2022 is selected based on availability, seasonal timing, irrigation availability and existing exotic species weed pressure.  Selected mix will promote biodiversity through above and below-ground variation in growth forms, flowering and seed set, along with introduction of both perennial and annual native species for pollinator forage diversity. Perennial species will benefit from reduced tillage and reseeding in subsequent seasons with no-till methods – leading to greater diversity of habitat overall.   |