

COMPATIBILITY DETERMINATION

USE: Agricultural Practices for the Benefit of Wintering Waterfowl

REFUGE NAME: Bosque del Apache National Wildlife Refuge

ESTABLISHING and ACQUISITION AUTHORITY(IES):

Bosque del Apache National Wildlife Refuge (refuge) was established on November 22, 1939, by Executive Order No. 8289, as a refuge and breeding ground for migratory birds and other wildlife.

REFUGE PURPOSE(S):

“...for use as an inviolate sanctuary, or for any other management purposes, for migratory birds.” Migratory Bird Conservation Act (16 U.S.C. 712d)

The Wilderness Act of 1964 provides the following purposes for the Chupadera, Indian Well, and Little San Pasqual Wilderness Areas on the refuge:

“...to secure for the American people of present and future generations the benefits of an enduring resource of wilderness... wilderness areas ... shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character, and for the gathering and dissemination of information regarding their use and enjoyment as wilderness: ...” Wilderness Act of 1964.

NATIONAL WILDLIFE REFUGE SYSTEM MISSION:

“The mission of the Refuge System is to administer a national network of lands and waters for the conservation, management and, where appropriate, restoration of the fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans” (National Wildlife Refuge System Improvement Act of 1997, Public Law 105-57).

DESCRIPTION OF USE:

What is the use?

Agricultural Practices are utilized to manage the portion of the refuge’s acreage designated as croplands by the refuge manager. The refuge manager determines this acreage in order to produce 1.5 million pounds of supplemental forage for sandhill cranes as well as other resident and migratory wildlife. The execution of the agricultural practices within the designated acreage is performed by a third party agricultural producer (Producer) under the authority of a Forage Production and Harvest Agreement signed by both the Producer and the refuge manager. The refuge prepares an Annual Agricultural Management Plan that includes designated acreage that must be reserved solely for production of the Forage Crop (corn), as well as the Harvest Crop acreage that may be utilized for the benefit of the Producer in exchange for the production of the Forage Crop.

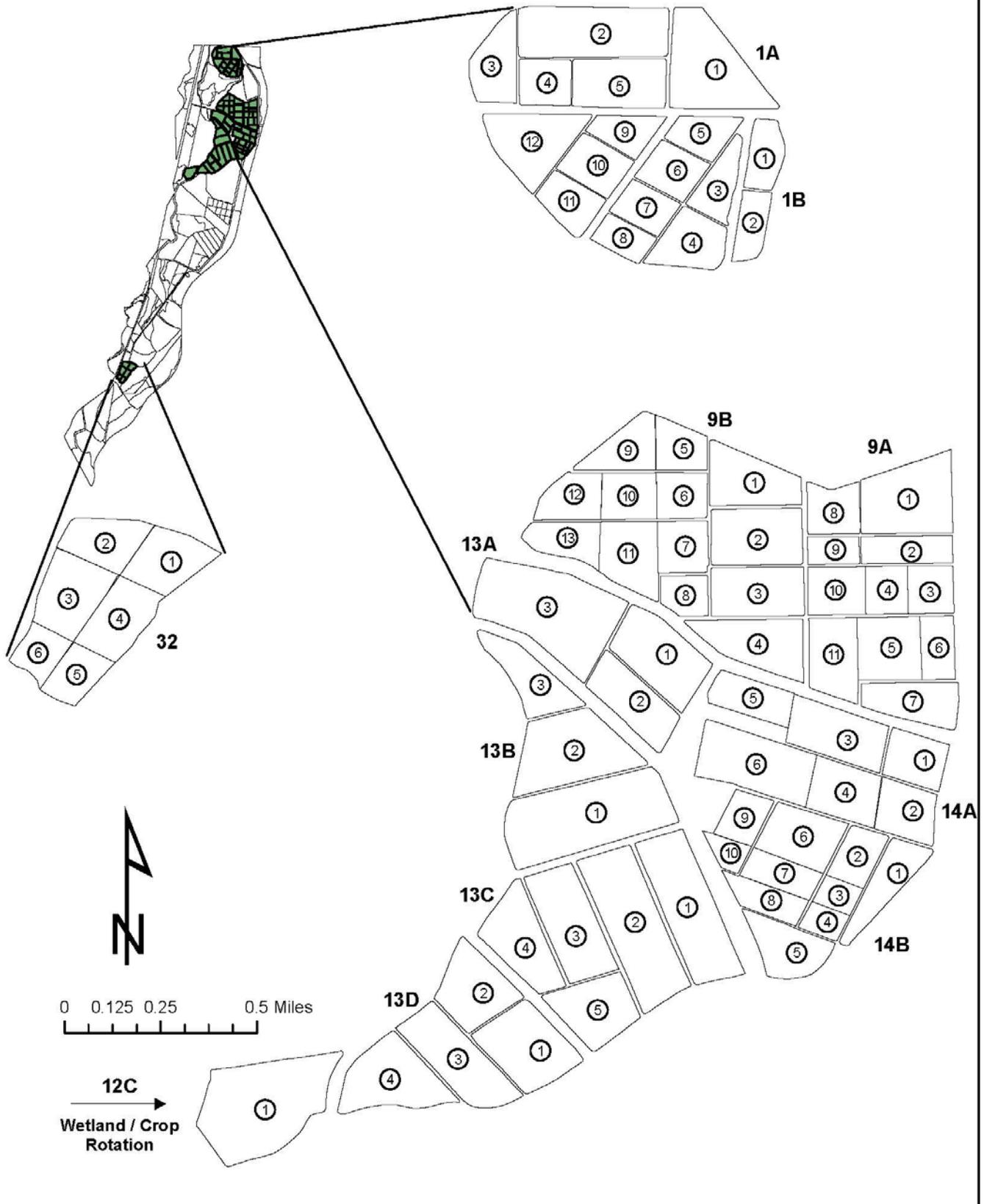
Where is the use conducted?

Approximately 2.5% of the refuge's total land base is agricultural production (Refer to Map A). The refuge administers a Forage Production and Harvest Agreement on 1,026 acres in Units 1, 9, 13, 14, and 32.

The refuge would work closely with producers to meet the required 1.5 million pounds. The Producer must plant each year a minimum 300 acres in Units 1, 9, 12, 13, 14, and 32, in non-genetically modified organism (non-GMO) corn, producing 1.5 million pounds of shelled corn each year. The Producer may plant the remaining 726 acres in Units 1, 9, 12, 13, 14 and 32 in a crop approved by the Service; the Producer will then harvest the crop planted on the 726 acres for their own benefit. The Harvest Crop may include, but is not limited to: silage corn, seed corn, chile, grain, sudan, grass hay and alfalfa (with a maximum of 500 acres allowed for the production of alfalfa or other similar water-intensive crops). Harvest Crop will also be non-genetically modified (non-GMO). Additionally, as part of the refuge's long-term management strategy, it will phase out agricultural operations on 89 acres in Unit 1A, as part of a water delivery infrastructure project. The Producer will assist the refuge in this phase out, and may produce Harvest Crop in this area as agreed to by Producer and refuge to the extent necessary to ensure proper conversion from agricultural land to native habitat. No Forage Crop can be produced in Unit 1A. In addition, Unit 12 may be taken out of production totals. In some years, it may be used for Forage crop but will not be used for Harvest Crop Production.

Bosque Del Apache NWR

2015



When is the use conducted?

The Producer may begin to work and prepare fields starting on February 15, contingent on biological assessment that habituation and changes in energetic needs of migratory waterbirds has resulted in a shift of use away from cooperative fields; limiting the program's impacts to migratory birds. The Producer will operate during the standard operating season for agriculture on the refuge which is March 1 to October 31 annually. Fields in fallow can be mowed, disked, treated with chemical or a combination of the three throughout the spring, summer or fall to control invasive vegetation and crop pests. Alfalfa harvesting continues through summer.

How is the use conducted?

The refuge would manage the Forage Production and Harvest Agreement, a 5-year agreement that outlines the obligations and expectations of the Service for use of irrigated croplands on the refuge. The producer will produce agricultural crops in Units 1, 9, 12, 13, 14 and 32 within the refuge. The Producer will plant each year a minimum 300 acres in Units 1B, 9, 12, 13, 14 and 32, in non-genetically modified organism (non-GMO) corn, producing 1.5 million pounds of shelled corn each year. The Producer may plant the remaining 726 acres in Units 1, 9, 12, 13, 14 and 32 in a crop approved by the Service for their own benefit. The harvest crop may include, but is not limited to: silage corn, seed corn, chile, grain, sudan, grass hay and alfalfa (with a maximum of 500 acres allowed for the production of alfalfa or other similar water-intensive crops). Harvest Crop will also be non-genetically modified (non-GMO). To the extent the Producer is unable to provide a minimum of 1.5 million pounds of in-the-field corn, the Producer will compensate the refuge for the shortfall as outlined in the agreement which includes, providing the refuge the balance of poundage due in non-GMO grain corn, if unavailable, the produce can provide in-kind services that equal the commercial value of the poundage of the corn needed for a shortfall payment. In-kind services may include replacement of wells and pumps, purchasing materials for electric fencing, purchase and installation of water control structures such as Langeman gates, purchase and installation of solar panels to offset utility costs of pumping, repair of concrete ditches, combining fields for greater efficiency, purchasing and planting heirloom corn seed, planting of native grass pasture or other improvements to forage production program or infrastructure as determined by refuge manager.

As part of the refuge's long-term management strategy, it will phase out agricultural operations on 89 acres in Unit 1A, as part of a water delivery infrastructure project. The Producer will assist the refuge in this phase out, and may produce Harvest Crop in this area as agreed to by Producer and refuge to the extent necessary to ensure proper conversion from agricultural land to native habitat. No Forage Crop can be produced in Unit 1A.

Currently all irrigations are conducted through gravity fed flood irrigation. Irrigation is dictated by climate, soil type and plant maturity stage (every 7 to 14 days). The refuge biology program coordinates water management with cooperators. Crop fields are laser leveled for minimal grade which facilitates irrigation efficiency and water conservation.

All grain fields are rotated with a soil-building crop (alfalfa) or augmented with fertilizer. Typically, a pre-plant fertilizer is applied at a rate of 150 to 200lbs/acres, this can occur prior to listing (berm development for corn planting) or post listing depending on agricultural practices.

A second fertilizer treatment is conducted in conjunction or following cultivation. Fertilizer can be liquid or solid augmentation.

Non-alfalfa fields are plowed annually (two consecutive years) and returned to alfalfa on the third year. Alfalfa fields are ripped or plowed after 5-7 years of hay production. Soil treatments (disking, plowing, ripping, leveling, listing and planting) occur from mid-February through mid-May. Alfalfa planting can occur as early as March and corn planting typically begins in mid-May. Each grain variety has a variable planting rate. Specific to current management protocol corn is planted a rate of 29-30,000 seeds per acre.

Prior to use of any chemicals for the purpose of controlling or eliminating non-desirable plants or pests the refuge and the Service approve all pesticide applications. Pesticides currently approved for use by the Producer in corn fields include the insecticides Warrior II and Tracer Naturalyte Insect Control and the herbicide Northstar. Alfalfa herbicides approved include Select 2EC and Pursuit. Other herbicides such as Honcho Plus, 2,4-D Amine, Roundup and Arsenal Power Line are used to maintain ditches, roadside, electrical boxes and other infrastructure. Pesticides are applied at the discretion of the Producer following the approved methods and rates directed within the pesticide label. Approvals are reviewed annually and chemicals are added or removed from the list as appropriate. Annual usage rates, dates of application and efficacy estimates must be provided to the refuge manager by the Producer not later than thirty (30) days after each harvest.

The yield of grain available for sandhill crane feeding is determined through field sampling conducted in early October. Collected metrics include plant height, number of plants, ear size and the presence/absence of worms/pests. Using these metrics the average bushel/acre is determined for each field. This data is then used to determine daily feeding prescriptions. The refuge's grain crop is knocked over using a large bar attached to an agricultural tractor throughout the winter (Nov 1 – Feb 1) for the purpose of maintaining body condition of wintering cranes. Standing residual crop material is mowed to allow other waterfowl access to waste grain. The refuge attempts to minimize foraging by snow geese to encourage birds to continue south out of the Middle Rio Grande Valley (MRGV).

Maintenance of the existing approximately 22 miles of roads (gravel/dirt) is required to allow access to agricultural units. Maintenance of existing irrigation infrastructure including one lift pump, 9 deep wells, 16 miles of concrete lined water delivery ditches, approximately 125 water turn outs and water control structures and 14 miles of drainage ditches is required.

Why is this use being proposed?

Corn, milo and other cereal grains or pasture covers provide a high carbohydrate energy source used by migrating and resident waterfowl, songbirds, deer and other wildlife during the colder months of winter. This allows energy requirements for migrating wildlife to be met while remaining on refuge lands. Without agriculture this pattern of wildlife behavior likely would not occur, resulting in increased wildlife impacts and depredation pressure to neighboring landowners. Resident species, including javelina, turkey, quail, passerines, raptors and small mammals also benefit from the agricultural practices through the availability of high calorie food and cover habitat. Additionally, agricultural practices are a cost effective tool for the refuge to

meet the agricultural demand that migrant waterfowl place on the refuge, provide additional income for the surrounding community, and save on costs that would be associated with refuge personnel time and equipment maintenance if the refuge staff were to perform the agricultural practices rather than the third party Producer.

AVAILABILITY OF RESOURCES:

Adequate funding and staff are available to manage the agricultural program. Administering Forage Production and Harvest Agreement and Annual Agricultural Management Plan requires 120 staff hours each year. Refuge Producers apply the agricultural pesticides, maintain and level fields, purchase seed, apply fertilizers and handle all other aspects of the agricultural program on their respective units.

Specific recurring annual expenses include:

Road maintenance (grading) & materials (gravel) (10 years)	\$10,000
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Periodic/unpredictable expenses requiring special funding that may occur in the next 10 years include:

Concrete water delivery ditch repair or replacement	\$10,000/ \$500,000
Lift pump repair/replacement	\$5,000-\$10,000/ \$30,000
Deep well repair/replacement	\$10,000/\$100,000

ANTICIPATED IMPACTS OF THE USE:

Anticipated Impacts of Use

Short and Long-term Impacts:

Agricultural activities on the refuge are directly related to and support the purposes for which the refuge was established. Agricultural production will result in short-term disturbances and long-term benefits to both resident and migratory wildlife using the refuge.

Activities to prepare agricultural fields (disking, plowing, leveling, cultivating, etc) may have adverse impacts on soil and vegetation. Disking for instance, may cause top soil loss and ground disturbance. These activities may also cause the spread of invasive species by the seed bed and seed dispersal of undesirables. The adverse impacts of these activities are expected to be minimal and incidental. Actions to improve soil health are also conducted through rotation of fields with a nitrogen-fixing legume crop of alfalfa to replenish nutrients and maintain good soil health. This action would have long-term beneficial impacts on soil. Additionally, maintaining agricultural areas also limit encroachment of undesirable woody species.

Agricultural fields add to the diversity of habitats provided on the refuge. The available habitat for wildlife is scattered throughout the refuge in a diverse mosaic of wetland, riparian, and upland areas. Maintaining an agricultural program will increase habitat for migratory and resident wildlife on the refuge. Pesticides are used on agricultural fields to meet invasive plant and crop pest management objectives in the least hazardous, most effective way. Pesticides can efficiently and effectively suppress or kill unwanted plants and insects, and the Service uses them

in such a manner as to minimize adverse effects on non-target resources. Additionally pesticides used have a short lifespan and mechanisms of breakdown which minimizes impacts on soils and reducing the potential impacts on nearby water. Pesticides use on agricultural fields is based on need and all pesticides have been approved by both the EPA and through the Service's Pesticide Use Proposal process.

Short-term impacts will include disturbances and displacement of wildlife that is typical of any heavy equipment operation. Human activity on refuge agricultural production units including vehicle traffic, irrigation activities, and tractor usage increases wildlife disturbance due to noise and activity and may cause temporary displacement of wildlife use of agricultural and adjacent habitats. Agricultural infrastructure including service roads and irrigation ditches can be barriers to smaller less mobile wildlife species limiting movements or making them more susceptible to predation.

There are no anticipated direct adverse impacts to threatened or endangered species. The endangered southwestern willow flycatcher and threatened yellow-billed cuckoo are not expected to be directly affected due to species preference for riparian forests. The endangered New Mexico meadow jumping mouse needs a combination of early succession woody vegetation, wet meadow annual and perennial vegetation and appropriate hydrologic conditions for survival. Currently, this combination of conditions is found adjacent to ditches that deliver water to agricultural fields. The ditches have stable surface water levels which help to avoid trapping mice in the ditch during low water or washing mice away during high water, therefore, agricultural operations are not expected to have adverse impacts on the New Mexico meadow jumping mouse. Though water management and delivery may have an indirect impact on Rio Grande silvery minnow and southwestern willow flycatcher on the active floodplain, during critical times the refuge prioritizes endangered species needs, therefore no adverse impacts are expected.

Cumulative Impacts:

Agricultural production only occurs on lands that have been previously in agricultural production for the last 75 years. The adverse impacts described above are minimal and short-term. The proposed action is not expected to incrementally add to any other state, private, or federal actions that are proposed or currently occurring in the area. The proposal benefits numerous wildlife species and supports hunting, wildlife observation, wildlife photography, environmental education, and interpretation. Additionally, the refuge supports a portion of the Middle Rio Grande Valley (MRGV) wintering sandhill crane population to reduce region-wide impacts, minimizing crop depredation on farmers within the MRGV.

PUBLIC REVIEW AND COMMENT:

This compatibility determination is available for public review and comment until February 19, 2015. The refuge will consider all substantive comments received.

DETERMINATION:

Use is not compatible

Use is compatible, with the following stipulations

STIPULATIONS NECESSARY TO ENSURE COMPATIBILITY:

To ensure compatibility with the Refuge System and the refuge goals and objectives, agricultural practices can only occur under the following conditions:

- Only crops proven to be beneficial to wildlife, particularly wintering sandhill cranes and waterfowl will be allowed.
- Annual corn production surveys will be conducted to ensure the Producer is employing proper crop husbandry practices and meeting production goals.
- Refuge management and Producer will meet each winter to develop the Annual Agricultural Management Plan. This plan will detail the annual cropping pattern, crop rotation and crop varieties, and develop an approved list of herbicides/pesticides. The plan must be approved before agricultural practices can commence annually.
- All harvested crops will be removed from the refuge no later than October 31.
- Agricultural practices will generally not be allowed from November 1 to February 1 to minimize disturbance to wildlife.
- Forage Production and Harvest will only be allowed on the 1,026 acres approved by the refuge manager for the purpose of agricultural production. No new acreage will be designated as appropriate for agricultural production under this Compatibility Determination. .

JUSTIFICATION:

The agricultural program supports the refuge purposes by providing cover and forage for wildlife migratory and resident wildlife and by contributing to a diversity of habitat types on the refuge. Since 1987, interagency agreements with the New Mexico Department of Game and Fish and U.S. Department of Agriculture-Animal and Plant Health Inspection Services have set winter MRGV population objectives and distribution proportions for sandhill cranes and light geese, which require the refuge to support a portion of the wintering sandhill cranes population. At this time, there is discussion of removing population objectives for light geese due to continental population concerns. The acreage in production by the Producer greatly reduces the budgetary and manpower requirements that would be needed if the refuge staff operated all of the cropland. Mowing and haying benefits wildlife by providing and maintaining open areas for feeding and resting, minimizing encroachment by woody species, and removing standing vegetation in areas targeted for native plant restoration. Additionally, wildlife viewing opportunities are enhanced through concentrating birds. Finally, depredation impacts by wildlife foraging to crops produced by neighboring landowners are lessened. Therefore, through the Compatibility Determination Process, the refuge has determined that agricultural practices for the benefit of wildlife on the refuge, in accordance with the stipulations provided above, is a compatible use that will not materially interfere with or detract from the fulfillment of the Refuge System or the purpose of the refuge.

Signature: Refuge Manager _____
(Signature and Date)

Concurrence: Regional Chief _____
(Signature and Date)

Mandatory 5 year Re-Evaluation Date: _____

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