Natural Resources Conservation Service (NRCS) Oklahoma 2023 Wetland Restoration Criteria and Guidelines (WRCG)

Introduction

This document contains the technical information used to guide decision making for Agricultural Conservation Easement Program–Wetland Reserve Easements (ACEP–WRE). This includes decisions related to eligibility, ranking, selection, restoration, enhancement, and management of wetlands and associated habitats.

Application Eligibility, Evaluation and Ranking

Following eligibility determinations for both the landowner(s) and the land offered for enrollment, NRCS evaluates and ranks the application. Conservation Assessment and Ranking Tool (CART) accessed through Conservation Desktop (CD) will be used to evaluate the applications. Each year, copies of the ranking tools will be published on NRCS Oklahoma's website.

Priority Areas

A priority geographic region is a tool used to target certain geographic regions of the State where restoration of wetlands may better achieve State and regional goals and objectives.

Oklahoma identified the following as priority areas.

1. Playa Lakes Joint Venture (see attached map)
2. Neosho Bottoms (see attached map)
3. Adjacent to existing WRP/WRE
4. Adjacent to Wildlife Refuge Area
5. Adjacent to State Wildlife Management Area

Eligible Land Types

Categories of eligible land types for ACEP-WRE:

- Farmed or Converted Wetlands, including:
  - Farmed or Converted Wetlands
  - Former or Degraded Wetlands
  - Lands Substantially Altered by Flooding
- Croplands or Grasslands Flooded by Overflow of a Closed Basin Lake or Pothole
- Riparian Areas
- Lands in the Conservation Reserve Program (CRP)
- Wetlands Restored or Protected Under a Private, State, or Federal Program
- Hydric Soil Minor Components (Inclusions) and Problematic Hydric Soils (Atypical Situations)
- Other Eligible Lands Adjacent Lands

TECHNICAL CONSIDERATIONS FOR LAND ELIGIBILITY

Eligible Land Types – Farmed or Converted Wetlands (CPM Title 440, Part 528.105, C)
I. Farmed wetland or converted wetland (together with the adjacent land that is functionally dependent on the wetlands) are eligible for enrollment, except those converted wetlands are not eligible if the conversion was not commenced prior to December 23, 1985, except as provided for in CPM, Title 440, Part 528.105–Land Eligibility, I–Other Eligible Lands – Adjacent Lands, (6), as stated below:

For the purposes of ACEP–WRE eligibility only, lands may be considered farmed wetland or converted wetland, if such land is identified by NRCS to be any of the following:

(i) Farmed or Converted Wetlands: Wetlands farmed under natural conditions, farmed wetlands, prior converted cropland, commenced conversion wetlands, or farmed wetland pasture. NRCS makes this determination based on 180(NFSAM).

(ii) Former or Degraded Wetlands: Former or degraded wetlands that occur on lands that have been or are being used for the production of food and fiber (including rangeland, pastureland, hay land, and forest production lands), were the

hydrology has been significantly degraded or modified and will be substantially restored through the implementation of the Wetland Reserve Plan of Operations (WRPO).

(iii) Lands Substantially Altered by Flooding. —Agricultural lands substantially altered by flooding so as to develop and retain wetland functions and values. To qualify, the alteration must be determined to be of such magnitude and permanency that it is unlikely that the alteration and the resultant wetland functions and values will cease to exist during the easement or contract period. Furthermore, the extent of the surface or subsurface flooding or saturation must be great enough to create hydrologic conditions that have or will develop hydric soil and hydrophytic vegetation characteristics over time.

Riparian Areas

Riparian areas along streams or other waterways are eligible, provided that the offered riparian area directly links wetlands less than one (1) mile apart and that those wetlands are currently protected or will be protected under the same ACEP-WRE easement transaction. Protected wetlands include areas currently enrolled under an existing easement or other resource protection device or circumstance that achieves the same objectives as an easement, such as a State or Federal wildlife management area. If the riparian area will link already-protected wetland areas, then no additional wetland acres are required to enroll the riparian acres. Eligible riparian areas should average no more than 300 feet in width, measured from the top of bank on one side, or 600 feet in width, if both sides of the river, stream, channel, or water body are offered for enrollment.

Additional criteria apply to this land eligibility category. See CPM, Title 440, Part 528, Section 528.105(E) for details before making decisions regarding eligibility for this category.

Wetlands Restored or Protected Under a Private, State or Federal Program

Eligible land types previously restored privately or under a local, State, or Federal restoration program, on which the restored wetland areas meet or are capable of meeting NRCS restoration standards and specifications are eligible. These may include but are not limited to wetlands restored under the restoration cost-share agreement enrollment option of the former Wetlands Reserve Program (WRP), the former NRCS Wildlife Habitat Incentives Program (WHIP), or another similar restoration program, such as the FWS Partners for Fish and Wildlife Program, and may during the agreement period or after, be enrolled in ACEP-WRE. positive attribute in ranking.

Other Eligible Lands – Hydric Soil Minor Components (Inclusions) and Problematic Hydric Soils (Atypical Situations)

(1) Often, there are minor components (small inclusions) of hydric soils in map units of nonhydric soils. These hydric soils are relevant in determining eligibility for ACEPWRE if hydrology and hydrophytic vegetation can be restored.
(2) Some soils that meet the hydric soil definition may not exhibit typical hydric soil morphology. These problematic hydric soils exist for several reasons, and their proper identification requires additional information, such as landscape position and presence or absence of restrictive soil layers, or information about hydrology.
(3) In some cases, problematic hydric soils may appear to be nonhydric due to the color of the parent material from which the soils developed. In others, the lack of hydric soil indicators is due to conditions that inhibit the development of redoximorphic features despite prolonged soil saturation and anaerobic conditions. In addition, recently developed wetlands may lack hydric

soil indicators because insufficient time has passed for their development, such as an agriculturally induced wet area created through compaction in a pasture. Sometimes, site disturbance, such as plowing, may obscure the evidence of hydric characteristics. For these situations, if site assessment and evaluation of the soils verifies that restoration of hydrology and hydrophytic vegetation is feasible, the areas may be considered eligible for enrollment in ACEP WRE.
(4) When hydric soil minor components (inclusions) or problematic hydric soils occur, the land proposed for enrollment could be considered eligible land if it otherwise meets one of the eligible land types listed in this section. The decision to use this land eligibility criterion must be made by the State conservationist and be based on the restorability and ecological merits of the site.
(5) The decision to enroll such areas in ACEP-WRE only applies to ACEP-WRE and its authorities and has no bearing on the manner in which these soils are handled under the wetland identification process for wetland compliance purposes (see 180- NFSAM). The State conservationist must specifically consider the wildlife benefits and overall need to facilitate effective program implementation.

Adjacent Lands

If land offered for enrollment is considered eligible land, NRCS may also consider enrollment of "adjacent lands." Adjacent lands are lands that –

- Do not meet one of the primary land eligibility criteria, but are an acceptable associated habitat as defined by this WRCG.
- Are directly adjacent or otherwise contiguous to the eligible land.
- Maximize wildlife benefits; (e.g., uplands that provide cover or another necessity to identified wildlife, nesting, forage, open areas to see predators, land that squares up a field to make maintenance possible).
- Do not exceed the acres of otherwise eligible land (one-to-one ratio) to be enrolled without a waiver from the State Conservationist.
- Contribute significantly to wetland functions and values for a list of wetlands functions and values) or are incidental but necessary for the practical administration and management of the easement. For example: Uplands that provide cover or another necessity to identified wildlife; uplands that provide nesting, cover, forage, open area to see predators; or the land squares up field or make maintenance possible.

NRCS determines on a case-by-case basis if an enrollment's adjacent lands meet the criteria listed above. If they do not meet the criteria, adjacent lands may also be included if determined by the NRCS necessary for practical administration and management of the easement (e.g., land needed for access).

Wetland Types in Oklahoma (using the Hydrogeomorphic Wetland Classification System)

In the administration of the Wetland Protection Policy under the National Food Security Act, NRCS is directed to use the Hydrogeomorphic (HGM) approach to classifying wetlands. For consistency we adopt the HGM classification system, herein, to explain wetland types common to Oklahoma and frequently targeted for restoration through ACEP-WRE.

The HGM approach detailed in Technical Note No. 190–8–76 (USDA 2008) separates wetlands into seven classes based on their geologic setting. The classes known to occur in Oklahoma include the Riverine, Depressional, Slope, and Lacustrine Fringe. Wetland classifications are based on the HGM classification key prepared by Waters et. al (2010; Appendix A). Since Lacustrine Fringe wetlands in Oklahoma are mostly associated with artificial impoundments, we eliminate them from further discussion. The remaining wetland classes and common subclassifications found in Oklahoma are detailed below.

Riverine Wetlands

We consider riverine wetland as those occurring on occasionally (5-50% chance annually) or frequently flooded soils in close proximity to stream channels. Dominant water sources are often overbank flow from the channel or subsurface hydraulic connections between the stream channel and wetlands. However, sources may be interflow and return flow from adjacent uplands, occasional overland flow from adjacent uplands, tributary inflow, and precipitation. Riverine wetlands provide protection from floods and can decrease nutrients and sediment in the water moving downstream. They also provide habitat for many species of wildlife (especially migratory birds), as well as provide recreational and educational opportunities.

Subclasses:

- In-channel – Wetland areas associated with sand and gravel bars within the river and stream channels. Streamflow is the hydrologic driver of these wetlands.
- Riparian - Riparian wetlands are on low, frequently inundated flood plains that have saturated soils associated with high water tables influenced by streamflow. Riparian wetlands occur adjacent to a natural levee of a river or stream. Hydrology is reflective of overbank events with water receding with the stream stage. Riparian sites are subject to scour and deposition of coarse sediments and debris piles.
- Floodplain – Flat, poorly drained area within the 5-year floodplain of a river or stream. The flat areas accumulate clay and fine sediments during flood events that restricts water percolation and ponds water for extended periods. Floodwater from overbank flow is the primary source of hydrology although some water is collected from runoff and direct precipitation. Floodplain wetlands include backwater swamps and sloughs.
- Connected Oxbow – A remnant river or stream channel within the 5-year floodplain that has been cut off from the main channel. Hydrology is primarily from overbank flow. Some oxbows may hold water year-round. Many categorize oxbows that exceed 2-meters in depth as fringe wetland but herein we do not separate. Oxbows that occur outside of the 5-year floodplain are considered depressional wetlands.
- Floodplain Depressions – Depressions within the 5-year floodplain of rivers and streams that are inundated by overbank flow with minor hydrology contributions from direct precipitation. Floodplain Depressions commonly derive from windthrow in forested wetland.

- Beaver Complex - Areas flooded by beaver impoundments often associated with small tributaries within the 5-year floodplain. Dominate hydrology is often associated with overland and overbank flow. Beaver impoundments commonly inundate other wetland subclasses identified above.

Impacts: Floodplains typically have fertile soils and as such are often heavily manipulated for agriculture production. Most common impacts are associated with agriculture activities that have attempted to increase production by removing some or all the hydrology. Levees and diversions are often constructed to intercept hydrology and keep high rainfall events from flooding crops. Ditches were dug, depressions filled and on occasion tile was installed to remove water. Channelizing stream segments directly impact in-channel wetlands and indirectly impact other riverine wetlands by lowering the water table and reducing overbank occurrences. Farming practices remove natural vegetation and, in some cases, exposed stream banks to sloughing. On areas where cropping ceased exotic grasses were commonly planted or abandon fields or they were allowed to revert (go-back). The process of reverting is often interrupted by invasive plants that become the dominate vegetation. Hydroperiods of most riverine wetland has been adversely affected by upstream impoundments that reduces out-of-bank events that historically recharged many wetlands.

Restoration: Restoration starts with the return of hydrology by plugging ditches, breaching dikes and removal of overburden from depressions. Often hydrology cannot be completely restored, and structural measures may be installed to approximate a more accurate reflection of the historic hydrology. Embankments are often necessary to confine hydrology to easement property without affecting neighboring lands. Occasionally hydrology may be enhanced beyond what might have historically occurred (size, hydroperiod) in favor of providing wetland wildlife habitat. Water control structures may be installed to facilitate management of wetland plant communities including the control of invasive plants.

Impacts are often such that historic features may not be readily discernable, and restoration may include creating floodplain features (e.g., scour channels, micro-depression, etc.) as a close approximation of what might have been present historically based on local conditions. Low-level embankments will impound water to an average of 18 to 24 inches deep across the wetland. Water control structures are used in conjunction with low-level dikes to drain the water from dike structures to mimic the historic wet/dry cycle of riverine wetland hydrology. Macro-depressions, averaging approximately 24 to 36 inches deep, may be created for deeper water areas within an impoundment area or as standalone depressions. These macro-depressions are not drained, allowing natural wet/dry cycles to prevail, like landscape scars that are eroded from the floodplain during natural flood events. Micro-depressions, which are on average six (6) to 12 inches deep, are small depressional areas that generally do not exceed 1,000 square feet. Micro-depression zones are scraped out across a relatively flat or gently sloping floodplain with suitable soils to create multiple pockets of water. Along with low spoil piles from the excavations, micro-depression zones can greatly increase variations in microtopography, connectivity, and interspersion to increase plant and habitat diversity. Side slopes on excavated areas will typically be 1:10 or flatter. All areas outside the restored wetland areas are planted back to the historical vegetative cover (either native grasses and forb species or hardwood trees) or to an alternative community.

Adjacent Lands: There are adjacent lands that support various plant communities of tree and herbaceous vegetation. Adjacent lands are critical in providing nesting and brooding habitat for migratory birds and other wildlife. Adjacent lands also help decrease the amount of sediment received by the wetland. Adjacent lands contribute to the hydrology of the wetland

from runoff during high rainfall events. Adjacent lands within the Riverine classification include additional floodplain acres beyond the 25-year flood event. These adjacent floodplain areas are vital in reducing downstream flooding and conserving soil and wildlife resources in these riverine systems. For these reasons, it is important to include adjacent lands when considering easement offer areas. Ratio of 1:1 or less of adjacent lands to eligible wetlands. Any additional acres included in the offer area would only be considered for enrollment if strict application of the ratio would create unmanageable boundaries or remaining land not enrolled would be impractical or prohibitive for the landowner to crop. Approval of these adjacent lands can be addressed on a case-by-case basis by the Oklahoma NRCS State Conservationist for up to a 5:1 ratio of adjacent lands to eligible lands. An additional increase in this ratio may occur if it is determined that there are unique circumstances related to an entire riverine wetland complex, the increase is deemed warranted for the protection of the wetland, and the request is approved by NHQ.

Depressional Wetlands

Depressional wetlands occur in topographic depressions. Dominant water sources are precipitation, ground water discharge, and both interflow and overland flow from adjacent uplands. The direction of flow is normally from the surrounding uplands toward the center of the depression. Elevation contours are closed, thus allowing the accumulation of surface water. Depressional wetlands may have any combination of inlets and outlets or lack them completely. Dominant hydrodynamics are vertical fluctuations, primarily seasonal. Depressional wetlands may lose water through intermittent or perennial drainage from an outlet, by evapotranspiration and, if they are not receiving ground water discharge, may slowly contribute to ground water.

Subclasses:

- *Groundwater Depression* –The primary source of hydrology in groundwater depressional wetlands if subsurface movement of water. Overland flow and precipitation can contribute but the water budget and hydroperiod is mostly influenced by groundwater that is often perched on a clayey subsoil strata. The extent and duration of ponding is seasonally variable. Groundwater depressional wetlands are commonly found within hummocky sandy terraces of major rivers throughout the central part of the state.
- *Closed Surface Water Depression* – A surface-water depression wetland occurs were precipitation and overland flow collect in a depression. The bottom of the depression is usually above the water table but may experience some minor inflows associated with seasonal rises in the water table. A layer of silt or clay limits permeability and ponds water over an extended period. Hydrology is dictated by precipitation and wetlands often experiencing prolonged dry period in response to droughts. Playa Lakes are an example of Closed Surface Water Depressions.
- *Open Surface Water Depression* – Similar in hydrology to Closed Surface Water Depression except the depression contains an outlet. Sometimes associated with intermittent or ephemeral streams distinguished by having wide and deep basins forming depressions. Hydrology is derived from overland flow, overbank flow and precipitation. The hydroperiod is variable and dependent in part on the basin's depth.

Impacts: The topographic position of depressional wetlands hinders hydrology manipulation and as such depressions are not typically heavily manipulated. Hydrology is often influenced by climatic variability which may result in prolonged period of dry. Because of this, many depressional wetlands are farmed under natural conditions with varying success. Those with a

history of agriculture production often have experienced sediment deposition from overland ephemeral erosion and repeated cultivation. Partial excavation is common within playas to provide a more reliable source of livestock water.

Adjacent Lands: Adjacent lands established with native vegetation that surround depressional wetlands are a vital component to the watershed hydrology for the wetland and should be managed to benefit and protection. Playas function in a closed system of which adjacent lands are strategic to the hydrology of playas. Adjacent lands consisting of native vegetation also create habitat for ground nesting bird species and reduce sediment accumulation in the playa. The riparian areas surrounding depression may be vital refugia for wildlife species during droughty conditions. Approval of these adjacent lands can be addressed on a case-by-case basis by the Oklahoma NRCS State Conservationist for up to a 5:1 ratio of adjacent lands to eligible wetlands.

Restoration: Restoration of depressions is determined by soils investigation to determine the extent of the overburden. When completing the soils investigation, it is important to note the depth of the clay layer to make sure that it is not over excavated. Spoil areas will be in an improved area designated, away from the inlet. Buffer areas will be planted to Native Grass based off Ecological Site Descriptions with pollinator habitat being considered.

Slope Wetlands

Slope wetlands are found in association with the discharge of groundwater to the land surface or on sites with saturated overland flow and no channel formation. They normally occur on slightly to steeply sloping land. The predominant source of water is groundwater or interflow discharging at the land surface. Precipitation is often a secondary contributing source of water. Hydrodynamics are dominated by downslope unidirectional water flow. Slope wetlands can occur in nearly flat landscapes if groundwater discharge is a dominant source to the wetland surface. Slope wetlands lose water primarily by saturated subsurface flows, surface flows, and by evapotranspiration. They may develop channels, but the channels serve only to convey water away from the slope wetland. Slope wetlands are distinguished from depression wetlands by the lack of a closed topographic depression and the predominance of the groundwater/interflow water source.

Impacts: Slope wetland hydrology is most commonly manipulated by channel formation or ditching which conveys the water away from the wetland. While not common in Oklahoma, tile installation may be used to remove or reduce the hydrology in slope wetlands. Because many slope wetlands occur at the headwaters of tributaries some impacts occur from developing water impoundments. Channel formation or advancement may be a result of increased overland flow and trailing associated with livestock grazing. Channel advancement and vegetation disturbance may result from rooting activity from feral swine that are attracted to wetlands.

Adjacent Lands: Adjacent lands should be established with native vegetation and managed to reduce or slow overland flow and stabilize headwater channels. The riparian areas surrounding slope wetlands may be vital refugia for wildlife species during droughty conditions. Approval of these adjacent lands can be addressed on a case-by-case basis by the Oklahoma NRCS State Conservationist for up to a 5:1 ratio of adjacent lands to eligible wetlands.

Restoration: Restoring slope wetland hydrology requires the plugging and/or the removal of drainage features that may require reconstruction of the stream headwater.

Compatible Use Authorization

A Compatible Use Authorization (CUA) is a use or activity conducted on a wetland reserve easement that NRCS determines, in its sole discretion, is consistent with the long-term protection and enhancement of the wetland and other natural values of the easement area when performed according to amount, method, location, timing, frequency, intensity, and duration limitations prescribed by NRCS. Compatible uses must not adversely affect habitat for migratory birds, at-risk species, and threatened or endangered species.

Food Plots
By policy, food Plots may be planted on up to 5 percent of the total easement acres to provide winter forage for wildlife. These areas may be prepared and planted to small grains, row crops, legumes or cover crops with **no harvest allowed**. Landowners are responsible for understanding and complying with applicable State and Federal wildlife baiting laws applicable to local and migratory wildlife.

Trails
Trails may be developed to provide access for maintenance and management activities, recreation, and general quiet enjoyment of the easement. If trails are mowed and kept short (<6 inches) they may continue to be mowed throughout the primary nesting season (May 1 – July 1). However, if the vegetation on the trail grows beyond 6 inches in height, mowing shall be suspended during the primary nesting season.

Moist Soil Management
Moist soil management is encouraged for landowners that are interested in management to improve habitat for migratory waterfowl and shore birds. Moist soil management utilizes water level manipulations and periodic soil disturbances (disking) to promote seed producing plant for waterfowl food. It is a management goal to hold water from fall thru winter with an early spring (Jan – Mar), gradual drawdown to provide migrating shorebird habitat and facilitate germination of moist soil plants.

Prescribed Burning - Prescribed fire is considered an ecological driver for some wetlands and their buffer acres and is considered necessary maintenance of those restored community. Burning will be used to reset succession, control woody invasion, and improve habitat for targeted species.

All other CUA's (i.e., Haying and Grazing) will be issued on a case-by-case basis with consultation from USFW, ODWC, NRCS WRP Specialist and NRCS Wildlife Biologist. All approved Haying or Mowing under an approved CUA must not be during the nesting season (May 1-July 1).

REFERENCES

Dvorett, D., J. R. Bidwell, C. A. Davis, and C. DuBois. 2007. An HGM Approach for Assessing Wetland Functions in Central Oklahoma: Hydrogeomorphic Classification and Functional Attributes. FY 2007 §104(b)(3) Wetland Program Development Project. CA# CD 96661801. 82 pp.

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Oklahoma Conservation Commission. 2000. The Oklahoma Wetlands Reference Guide (James E. Henley and Mark S. Harrison, authors). Oklahoma Conservation Commission, Oklahoma City, Oklahoma.

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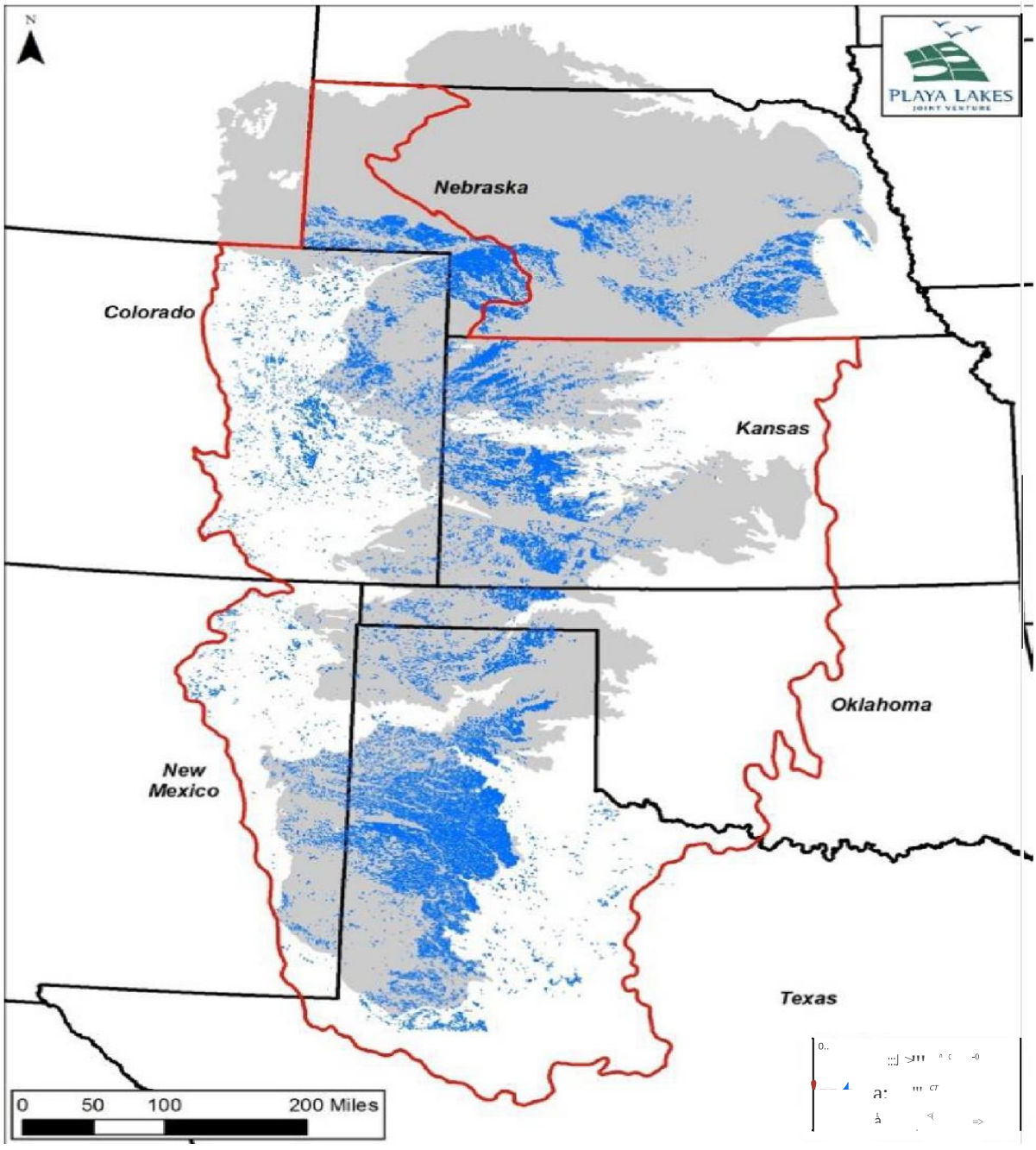
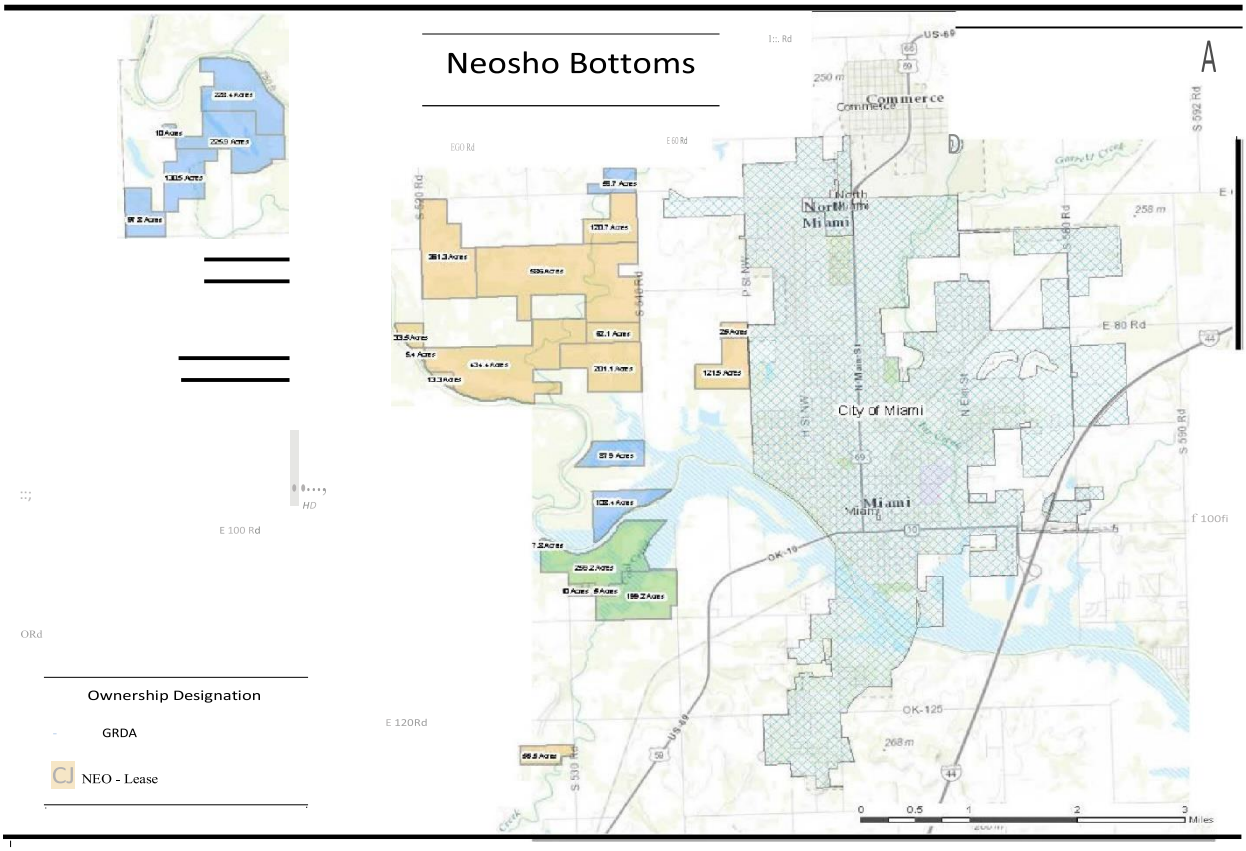
Playa Lakes Joint Venture



Neosho Bottoms



Appendix A: HGM Classification Key

Key to HGM National Classes and Wetland Subclasses in the Central Irregular Plains, Arkansas Valley, and South-Central Plains Ecoregions of Oklahoma (from Walters et. al. 2010).

1. Wetland is within the 5-year floodplain of a river but not fringing an impounded water body..... **Riverine**

1. Wetland is associated with a topographic depression or slope…….....2

2. Wetland is located on a topographic slope or relatively flat area and has groundwater as the primary water source. Wetland does not occur in a basin with closed contours ..... **Slope**

2. Wetland is located in a natural or artificial (dammed/excavated) topographic depression.....3

3. Topographic depression has permanent water greater than 2 meters..... **Lacustrine Fringe**

3. Topographic Depression does not contain permanent water greater than 2 meters deep.... **Depression**

DEPRESSION

1. Wetland is created by a process other than natural topography or hydrology and is less than 2 meters in depth ..... **Created**

1. Wetland is not created by a process other than natural topography or hydrology.....**2**

2. Wetland is in a remnant river channel not regularly flooded by river ..... **Closed Surface Water**

2. Wetland is not in a remnant river channel **3**

3. Wetland has an inlet and/or outlet to surface flow ..... **Open Surface Water**

3. Wetland has high bank creating a catchment basin ..... **Closed Surface Water**

LACUSTRINE FRINGE

1. Wetland is in littoral zone of a man-made lake fed primarily by a permanent river.....**Reservoir Fringe**

1. Wetland is in littoral zone of a man-made lake fed primarily by an ephemeral drainage or overland flow **2**

2. Wetland in greater than 2 meters in depth ..... **Pond Fringe**

2. Wetland is less than 2 meters in depth .....See **DEPRESSION**

RIVERINE

1. Wetland is within the bank full channel ..... **In-channel**

1. Wetland is not within the bank full channel **2**

2. Wetland occurs in riparian zone ..... **Riparian**

2. Wetland is beyond riparian zone..... **Floodplain**

SLOPE

1. Wetland originates with groundwater on or at the base of a slope..... **Headwater Slope**