

Hodgson-Harris Reservoir 2018 Breeding Bird Survey



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Cover Photo: Snowy Egrets by Jérôme Michelet

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Executive Summary

We conducted a two-season breeding bird survey at Hodgson-Harris Reservoir, the adjacent Zaharias property, and the wetlands below the Hodgson-Harris Reservoir dam from April-July 2017 and May-July 2018. We observed birds and coded their breeding behaviors from public roads and trails on the periphery of the study area. Fourteen volunteers devoted more than 300 hours to this effort in 2017 and 10 volunteers devoted 184 hours in 2018.

We documented 47 potential nesting species in 2017 and 52 potential nesting species in 2018. Combining these observations with previous waterfowl surveys and breeding bird surveys from 2007-16, we developed a list of 67 potential nesting birds within the study area. We observed three Colorado Natural Heritage Program tracked species, all of which foraged but did not nest within the study area: Bald Eagle, American White Pelican, and Snowy Egret.

Several waterfowl species of concern in Boulder County nested within the study area. Blue-winged Teal, which have poor nesting success throughout the county, nested successfully at Hodgson-Harris Reservoir in 2008 and attempted nesting again in 2011 and 2012. American Avocets, which have poor nesting success in Boulder County due to fluctuating water levels in reservoirs, nested successfully at Hodgson-Harris Reservoir from 2007-12. Four nests in 2017 and two nests in 2018 failed when water in the reservoir rose too quickly, inundating the nests and eggs.

After including other observation data going back to 1987, we report a total of 132 bird species observed at Hodgson-Harris Reservoir year-round. This list includes 27 swans, geese, and ducks; 4 grebes; 6 herons; 11 hawks, eagles, and falcons; 21 shorebirds; and 7 gulls and terns. Species on the list categorized by Boulder County Audubon Society as "uncommon" or "occasional" include Tundra Swan, Snow Goose, Barrow's Goldeneye, Northern Bobwhite, Snowy Egret, Black-necked Stilt, Marbled Godwit, Sandhill Crane, and Merlin.

We believe that the diversity of nesting and migratory bird species at Hodgson-Harris Reservoir stems in large part from the diverse habitats present at and around the reservoir, including exposed shorelines, mud flats, emergent marshes, grasslands, and riparian woodlands. The reservoir's location is within a matrix of ponds and reservoirs in southeastern Boulder and northern Jefferson County. These are linked by protected open space and riparian corridors which contributes to the diversity of bird life found there.

Strategies that will maintain and enhance this avian diversity include:

1. Protecting grasslands and wetlands north and east of the Hodgson-Harris reservoir.

2. Maintaining water levels in the reservoir in spring and early summer that enable ducks and shorebirds to establish nests without those nests being affected or destroyed by rising water levels.
3. Continuing to restrict direct public access near waterfowl and shorebird nesting areas.

Introduction

This report includes the completed breeding bird surveys at Hodgson-Harris Reservoir during April-July 2017 and May-July 2018. The primary goals of the survey were:

1. To generate a comprehensive list of potential and confirmed nesting birds on and adjacent to the Hodgson-Harris Reservoir Boulder County Open Space property.
2. To evaluate nesting and foraging habitat for waterfowl and shorebirds and map their concentration areas.
3. To locate and map nesting and foraging locations for Boulder County, Colorado Natural Heritage, and Federal avian species of special concern.
4. To assess management strategies for enhancing nesting and migratory bird habitat.

We searched for breeding and migratory birds at the reservoir and in adjacent habitats, using binoculars and spotting scopes to note breeding behaviors and search for active nests. A total of 14 (2017) and 10 (2018) volunteers participated in the survey, completing more than 484 hours of field observations.

Study Area

Hodgson-Harris Reservoir, which is owned and managed by Boulder County Parks and Open Space, lies immediately southwest of US 36, east of 88th Street, and north of the Saddlebrooke subdivision at 39.940584, -105.143930. The reservoir was constructed in 1882 to store irrigation water (Boulder County Parks and Open Space webpage) and continues to be used for that purpose. Currently, much of the water in the reservoir is used to irrigate agricultural land on the Boulder County Parks and Open Space Rock Creek Farm property west of Broomfield.

The reservoir is bordered to the north by the undeveloped 24-acre Zaharias property, which consists of native mixed-grass prairie, non-native prairie, and a small cattail marsh along an intermittent stream that traverses the north end of the property (Figure 1). A prairie dog colony occupies the west-central portion of the grassland area, and coyotes and mink have been observed hunting prairie dogs within the colony (Susan Spaulding, Boulder County Parks and Open Space, pers. comm.). Another more extensive cattail marsh lies immediately downstream from the reservoir dam.

To the south, the reservoir is bordered by the Saddlebrooke subdivision. We conducted our bird surveys from a road within the subdivision that runs along the south side of the reservoir and from 88th Street on the west side of the reservoir. We included all birds seen or heard within the area bordered by the Saddlebrooke subdivision to the south and southeast, US 36 to the north, and 88th Street to the west.

Hodgson-Harris Reservoir is among more than a dozen water storage reservoirs in southeastern Boulder and northwestern Jefferson County that are linked by extensive areas of publicly-protected open space and riparian corridors following streams. This linkage with other, larger reservoirs may partially explain the high diversity of migratory and overwintering waterfowl species (27 swan, goose, and duck species and 21 wader and shorebird species) observed at the reservoir.

Figure 1- Hodgson-Harris Reservoir

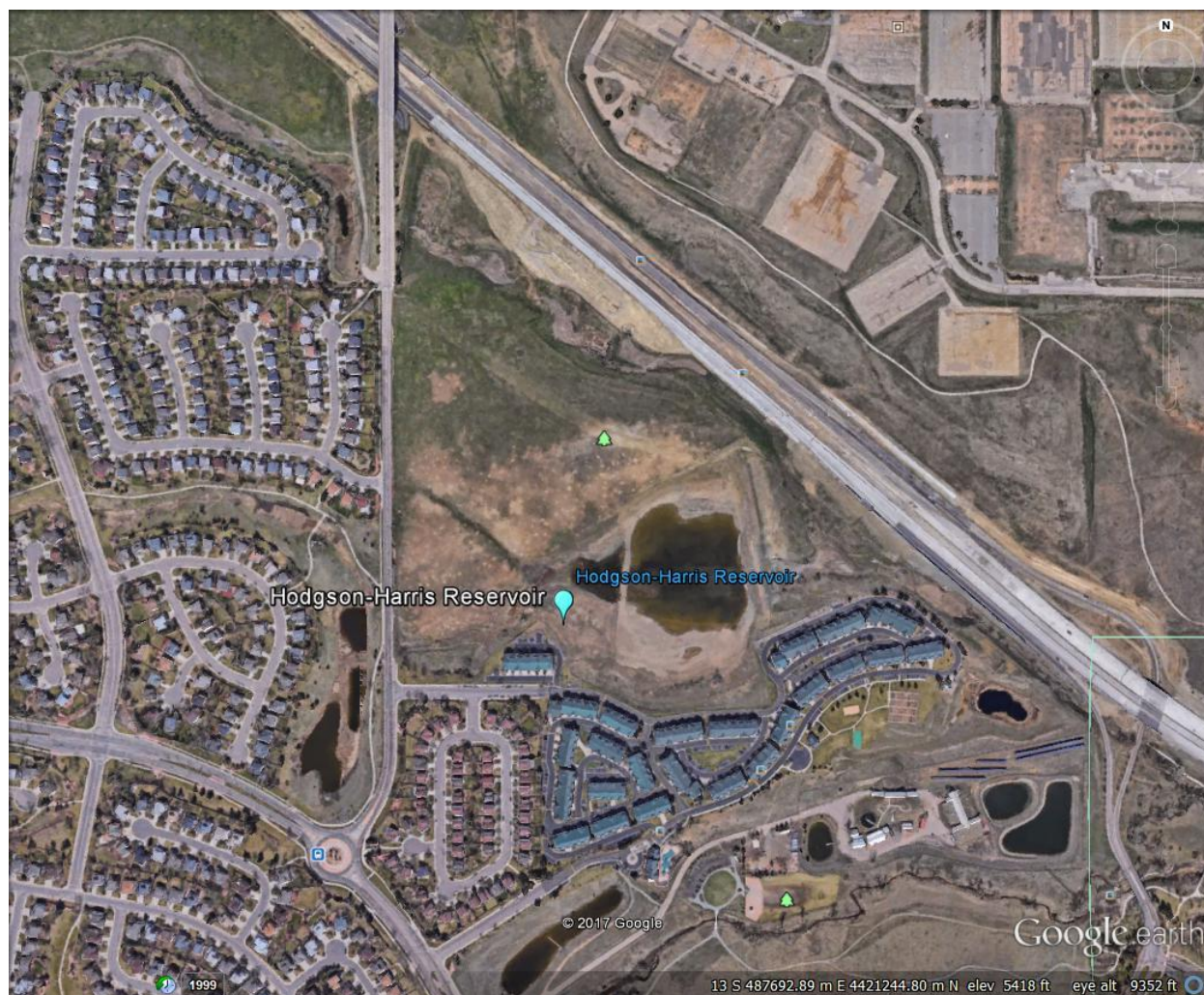
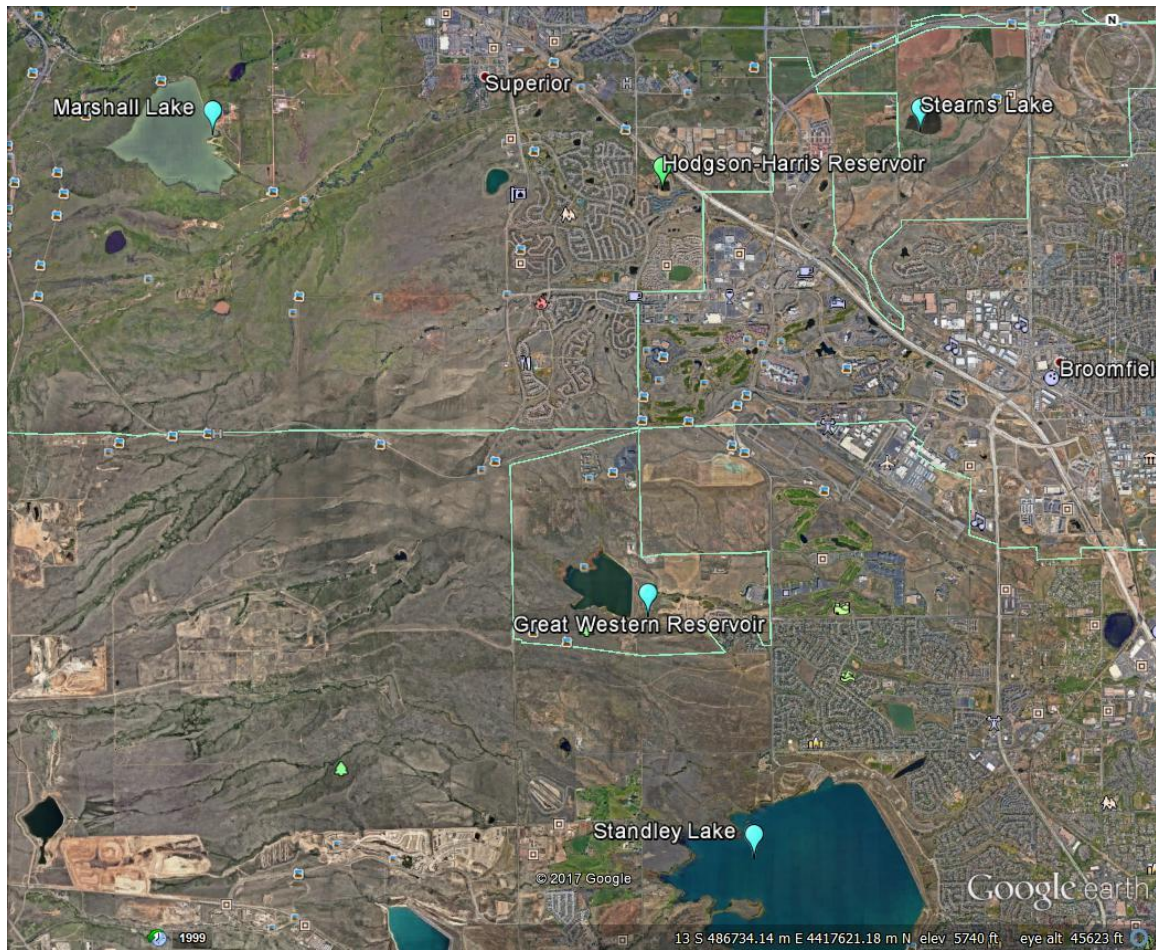


Figure 2 - Reservoirs and Undeveloped Lands near Hodgson-Harris Reservoir



Methods

During each visit to the study area, we recorded breeding behaviors of all birds seen or heard. Behaviors were coded using Colorado Breeding Bird Atlas II protocols (Wickersham 2016; Table I; Appendix III). Following these protocols, all birds observed within suitable nesting habitat during their documented breeding season (Kingery 1998) were characterized as "potential nesting species." Birds exhibiting nesting behaviors (e.g., adults carrying food to fledglings, adults sitting on nests, adults with recently fledged young) were characterized as "confirmed nesting species."

Results and Discussion

In 2018, we observed a total of 74 species, of which 52 are potential nesting species within the study area (birds observed within suitable nesting habitat during their documented breeding season) and 18 were confirmed nesting (Table 2). We observed three Colorado Natural Heritage Program tracked species within the study area during their documented breeding season: American White Pelican, Snowy Egret, and Bald Eagle.

We observed an additional four Boulder County species of concern (Hallock and Jones 2010, Boulder County Parks and Open Space 2013) within the study area during their documented breeding season: Double-crested Cormorant, Great Blue Heron, American Avocet, and Cedar Waxwing.

We combined our 2018 breeding season observations with waterfowl and other bird surveys from 2007-17 to develop a list of all recent potential breeding species within the study area (Table 2). This list includes 67 potential nesting species, of which 25 have been confirmed nesting.

Table 1 - Selected Breeding Bird Codes (see also Appendix III)

Observed:		
O: observed but not a potential breeder in this habitat		
Possible Breeder:		
#: seen or heard in suitable nesting habitat		
X: singing bird in suitable nesting habitat		
Probable Breeder:		
P: pair	M: 7 or more singing birds	C: courtship
A: agitated behavior	T: territory	
Confirmed Breeder:		
NB: nest building	ON: occupied nest	FL: fledged young
NE: nest with eggs	FF: feeding fledglings	CF: carrying food

Table 2 - 2007-18 Breeding Season (April-July) Observations

Bold – confirmed nesting

Italic – Boulder County special concern

Species	2007	2008	2009		2011	2012	2016	2017	2018	2007-18
Canada Goose	FL	FL	FL					A	FL	FL
Wood Duck							#			#
Blue-winged Teal		ON			P	P			P	ON
Cinnamon Teal					#				#	#
Northern Shoveler					#				P	P

Species	2007	2008	2009		2011	2012	2016	2017	2018	2007-18
Gadwall								P	P	P
American Wigeon								P	P	P
Mallard		ON	FL		FL	FL		FL	FL	FL
Northern Pintail					O					O
Green-winged Teal					#					#
Redhead									O	O
Ring-necked Duck									O	O
Lesser Scaup									O	O
Bufflehead	O				O					O
Common Merganser							O		O	O
Ruddy Duck									O	O
Northern Bobwhite							#			#
Pied-billed Grebe		ON						NE	NY	NY
Eared Grebe							O			O
Western Grebe								C	P	C
Rock Pigeon								T	#	T
Eurasian Collared-Dove								NB	FL	FL
Mourning Dove								ON	FL	ON
Common Nighthawk					#					#
Broad-tailed Hummingbird									#	#
Virginia Rail		#								#
Sora		T	T					#		T
American Coot					#			#	T	T
American Avocet	FL	FL	FL		NE	FL		NE	NB	NE
Killdeer		FL	FL		FL	FL		ON	FL	ON
Spotted Sandpiper						FL		T	#	FL
Lesser Yellowlegs									O	O
Solitary Sandpiper									O	O
Baird's Sandpiper								O		O
Wilson's Snipe			T					T		T
Wilson's Phalarope			O							O
Ring-billed Gull								O	O	O
<i>Double-crested Cormorant</i>	O	O	O		O	O	O	O	O	O
American White Pelican	O	O	O		O	O	O	O	O	O
<i>Great Blue Heron</i>	O	O	O		O	O	O	O	O	O
<i>Snowy Egret</i>		O					O	O	O	O
<i>Black-crowned Night-Heron</i>	T	O	O						#	T
Turkey Vulture								O	O	O
<i>Bald Eagle</i>								O	O	O
Cooper's Hawk							#		#	#
Swainson's Hawk								#		#
Red-tailed Hawk								#	#	#
Great Horned Owl					#				#	#

Species	2007	2008	2009		2011	2012	2016	2017	2018	2007-18
Belted Kingfisher								#	#	#
Downy Woodpecker								#		#
Northern Flicker								#	X	X
American Kestrel								#	CF	CF
Western Wood-Pewee								T	O	T
Say's Phoebe			P					T	CF	CF
Western Kingbird								FL	NB	FL
Eastern Kingbird					#				#	#
Blue Jay								#	#	#
Black-billed Magpie								#	#	#
American Crow								C	#	C
Common Raven					O				O	O
Tree Swallow								#	NB	NB
Violet-green Swallow								#	O	#
N. Rough-winged Swallow					#				CF	CF
Bank Swallow					#				#	#
Cliff Swallow								#	NB	NB
Barn Swallow								ON	ON	ON
Black-capped Chickadee					P			#	P	P
House Wren									#	#
Blue-gray Gnatcatcher									O	O
American Robin								CF	UN	CF
European Starling								CF	CF	CF
<i>Cedar Waxwing</i>								#		#
House Sparrow								NY	NB	NB
House Finch								NB	#	NB
Lesser Goldfinch								FF	#	FF
American Goldfinch								FF	#	FF
Chipping Sparrow									O	O
Vesper Sparrow					X			T	#	T
Song Sparrow								T	FF	FF
Yellow-headed Blackbird								X		X
Western Meadowlark								T	X	T
Bullock's Oriole									#	#
Red-winged Blackbird								FL	A	FL
Brown-headed Cowbird								P	P	P
Brewer's Blackbird							#		#	#
Common Grackle								NY	C	NY
Great-tailed Grackle										#
Common Yellowthroat									X	X
Yellow Warbler								T	#	T
Yellow-rumped Warbler									O	O
Western Tanager									O	O
Blue Grosbeak					X					X

Species	2007	2008	2009		2011	2012	2016	2017	2018	2007-18
Total Species								55	74	92
Possible/Probable Nesting								47	52	67
Confirmed Nesting								16	18	25

We combined reported observations from 2007-2018 breeding season surveys with those from annual waterfowl surveys and other reported observations (eBird) to compile a list of 132 bird species observed at Hodgson-Harris Reservoir (Appendix II). This list includes 27 waterfowl species (swans, geese, and ducks); 4 grebes; 6 herons; 11 hawks, eagles, and falcons; 21 shorebirds; and 7 gulls and terns. Species on this list categorized by Boulder County Audubon Society as "uncommon" or "occasional" (Boulder County Audubon Society 1978-2015) include Tundra Swan, Snow Goose, Barrow's Goldeneye, Northern Bobwhite, Snowy Egret, Black-necked Stilt, Marbled Godwit, and Merlin.

Table 3 - 2017-18 Nesting Activity Details for Selected Species of Interest

Species	# of nesting pairs		# successful nests		Total # fledged young	
	2017	2018	2017	2018	2017	2018
Blue-winged Teal	0	0	0	0	0	0
Pied-billed Grebe	1	2	0	2	0	5
American Avocet	4	2	0	0	0	0

Table 4 - Maximum Number of Individuals of Selected Species of Interest Seen During Any One Observation

Species	2017	2018
Blue-winged Teal	3	8
Pied-billed Grebe	5	10
American White Pelican	23	21
Snowy Egret	5	5
Black-crowned Night-Heron	2	3 *

*overnighted frequently throughout July

Waterfowl, Shorebirds, and Grebes

Blue-winged Teal nested successfully near the cluster of willows on the south side of Hodgson-Harris Reservoir in 2008 (Susan Spaulding, Boulder County Parks and Open Space, pers. comm.),

and volunteers observed potential nesting pairs in 2011 and 2012. While not uncommon in Boulder County, Blue-winged Teal rarely nest successfully (Jones 2013, Wickersham 2016). They typically require bodies of water with gently sloping shorelines bordered by grass or marsh vegetation in which to hide their nests, and most Boulder County reservoirs do not possess these qualities (Jones 2013, Wickersham 2016).

Mallards nested successfully in 2008-12 and 2015-18, and we observed pairs of Gadwalls and American Wigeons during April and May. Wood Ducks, Cinnamon Teal, Northern Shovelers, and Green-winged Teal also have been seen at the reservoir during their documented breeding season, but nesting has not been confirmed.

American Avocets nested successfully on the north and south shores of the reservoir during 2007-12. Four Avocet pairs constructed and incubated eggs in nests along the southwest shore during 2017 (Figure 3), and two pairs attempted nesting in 2018. However, in both years all of these nests were flooded by rapidly rising water in April and May. Avocets rarely nest successfully in Boulder County due to the absence around our prairie reservoirs of exposed mud flats throughout their April-June nesting season (Wickersham 2016).

Killdeer nested successfully in 2008-12 and 2017-18. Like Avocets, they nest on exposed mud flats and undisturbed ground. We observed territorial Spotted Sandpipers and Wilson's Snipes at the reservoir throughout April-July. Nesting Spotted Sandpipers successfully fledged young in 2012.

Pied-billed Grebes nested successfully from 2007-11 and in 2018. In 2017, one nest contained eggs but volunteers observed these being eaten by a muskrat. In 2018, two nests were eventually successful; four young fledged from one and one fledged from the other. In 2018, both nests had to be rebuilt in late June after having been flooded in May by rising water. Volunteers in 2018 watched the adult grebes successfully defend their new nests from muskrats.

Figure 3- Location of American Avocet nests in 2017 (green) and 2018 (pink)



Species of Special Concern

During the 2017 and 2018 surveys we observed three Colorado Natural Heritage Program tracked species (Bald Eagle, American White Pelican, and Snowy Egret) and four Boulder County species of concern (Double-Crested Cormorant, Great Blue Heron, American Avocet, and Cedar Waxwing). We found no evidence that any of these species nested within the study area, but several do nest within close proximity and forage frequently at Hodgson-Harris Reservoir.

Table 5 - Colorado Natural Heritage Program Tracked Birds Observed During Their Documented Breeding Season at Hodgson-Harris Reservoir

Species	Global Rank	State Rank	Agency Lists	State/Federal Status	CNHP Status	Hodgson-Harris Reservoir Status
Bald Eagle	G5	S1B, S3N	BLM, USFS	State listed	Fully tracked	Year-round resident
American White Pelican	G4	S1B	BLM		Fully tracked	Summer visitor
Snowy Egret	G5	S2B			Fully tracked	Summer resident

Global Ranking Codes: G3, vulnerable to extirpation or extinction; G4, widespread, abundant, and apparently secure; G5, demonstrably widespread, abundant, and secure; T, rank applies to subspecies or variety.

State Ranking Codes: S1, state critically imperiled; S2, state imperiled; S3, state rare or uncommon; S4, state apparently secure; B, breeding populations; N, non-breeding populations.

¹ Colorado Natural Heritage Program. 2017. CNHP tracked bird species. www.cnhp.colostate.edu/download/list/birds.asp

Double-Crested Cormorant (Boulder County watchlisted).

In Colorado, Double-Crested Cormorants typically nest on islands in lakes and reservoirs or in deciduous trees along streams and shorelines. No nesting was documented within Boulder County during the recently completed second Colorado Breeding Bird Atlas project (Wickersham 2016).

We observed foraging and perching Double-crested Cormorants, including young of the year, at Hodgson-Harris Reservoir throughout April-July in 2017-18, and potential nesting habitat exists in the cattail marsh at the west end of the reservoir and in cattails and cottonwoods below the reservoir dam.

Great Blue Heron (Boulder County watchlisted).

Great Blue Herons nest colonially, primarily in cottonwood groves, throughout eastern Boulder County (Hallock and Jones 2010, Wickersham 2016). We observed herons foraging at Hodgson-Harris Reservoir throughout April-July. While the few scattered cottonwoods along the reservoir shoreline may not constitute prime nesting habitat for the social herons, Great Blue Herons could conceivably nest within the study area in the future.

American White Pelican (Colorado Natural Heritage Program fully tracked).

American White Pelicans nest on predator-resistant islands in four large Colorado reservoirs (Wickersham 2016). We observed several American White Pelicans fishing at Hodgson-Harris reservoir throughout spring and early summer, but suitable nesting habitat for them does not exist within the study area. The closest known breeding colony is at Riverside Reservoir, southeast of Greeley (Wickersham 2016).

Snowy Egret (Colorado Natural Heritage Program fully tracked).

In Colorado, Snowy Egrets nest in mixed colonies with Black-crowned Night-Herons and White-faced Ibises. At least eight nesting colonies have been documented in the state, and the closest ones to Hodgson-Harris Reservoir are in Denver City Park and the Wheat Ridge Greenbelt south of Westminster (Wickersham 2016). We saw four or more Snowy Egrets catching fish in the reservoir throughout April-July (see cover photo), and these individuals may have flown in from the Denver City Park, approximately 20 km away, or from the Wheat Ridge Greenbelt, approximately 15 km away.

Bald Eagle (Colorado Natural Heritage Program fully tracked, Boulder County isolated and restricted).

Bald Eagles nest in approximately 10 locations in Boulder County, typically constructing their large stick nests in cottonwoods on properties that are closed to human recreational access (Hallock and Jones 2010). The closest active nests to Hodgson-Harris Reservoir are along Coal Creek approximately 3 km west of McCaslin Boulevard and in a Cottonwood Grove 800 m west of Stearns Lake in Broomfield. The mature Bald Eagles we saw fishing in spring and summer may have flown in from these nesting territories.

American Avocet (Boulder County isolated and restricted).

See discussion below under "Nesting Waterfowl and Shorebirds."

Cedar Waxwing (Boulder County watchlisted).

Once considered uncommon in Boulder County, Cedar Waxwings have increased in numbers locally as deciduous trees have proliferated on the plains and in the foothills (Boulder County Audubon Society 1978-2015). We observed Cedar Waxwings foraging in cottonwoods and adjacent shrubs along the reservoir south shore in May and June. Marginal nesting habitat may exist at the western end of the reservoir, where a few deciduous trees grow among scattered shrubs.

Management Recommendations

Nesting Waterfowl and Shorebirds

Successful nesting of waterfowl and shorebirds at Hodgson-Harris Reservoir depends on maintaining relatively stable water levels during the breeding season; encouraging growth of native grasses, cattails, and other sheltering vegetation along the shoreline; and buffering nests from disturbance by people. It's likely that one factor favoring successful nesting of Blue-winged Teal, American Avocets, and other ducks and shorebirds at this relatively small reservoir is the diversity of habitat types present. This includes: bare shoreline, mud flats, open water, cattail marsh, riparian woodland, and grassland.

The following management actions should ensure that ducks and shorebirds continue to nest successfully.

1. *As much as possible, maintain water levels in the reservoir that favor successful shorebird nesting.* Drawing down water levels in March and early April to around 40 acre-feet exposes mud flats favored by avocets for nesting. Slow drawdown tends to leave areas of exposed mud flats, which are favored by avocets for foraging. Once nesting is detected, nests can be monitored by volunteers, and refill of the reservoir can be delayed until young have fledged, typically before 30 July (Robinson et. al. 1997, Wickersham 2016). Avocet surveys should begin no later than 15 April. If no nesting is detected by 1 May, gradual filling of the reservoir can begin.
2. *Protect and maintain wetlands and areas of grassland along the reservoir west and north shores.* Since Blue-winged Teal typically nest in vegetated upland habitat (Rohwer, Johnson, and Loos 2002), maintaining healthy vegetation around the reservoir should increase chances of nesting success. In addition, buffering nesting areas from human disturbance and reducing easy access by urban-adapted predators--such as raccoons, coyotes, and domestic dogs--should also encourage nesting. Various state wildlife agencies recommend buffers ranging anywhere from 40-320 m around waterfowl nesting areas. Given the relatively small size of Hodgson-Harris Reservoir and its proximity to urban subdivisions, *we believe that a 100 m vegetative/human disturbance buffer around historic nesting areas should be sufficient to entice Blue-winged Teal and other waterfowl to continue to nest near the reservoir shoreline.*
3. *Monitor waterfowl and shorebird nesting sites at least weekly each year, 15 April-31 July.* Volunteers can monitor nests through spotting scopes to determine their status. Any signs of nesting disturbance can be reported to Boulder County Parks and Open Space wildlife staff.
4. *Where possible, restore degraded grasslands on the north side of the reservoir to native prairie.* Nesting waterfowl evolved with native grasslands and so the structure of native mixed-grass prairies tends to favor successful nesting (Rohwer, Robinson, and Loos 2002).

Migratory Waterfowl and Shorebirds

The diversity of wintering geese and ducks at Hodgson-Harris Reservoir may stem in part from the reservoir's location within a matrix of reservoirs and protected open space that extends from

Standley Lake to the south to Stearns Lake to the north (Figure 2). Maintaining this network of protected open space and other undeveloped land while also maintaining sufficient water in Hodgson-Harris Reservoir to discourage premature freeze-up in winter should ensure that waterfowl continue to congregate on the reservoir. Continued closure of the reservoir to direct public access will provide protection for migrating and wintering birds.

Additional notes

In both 2017 and 2018, Hodgson-Harris Reservoir was completely filled with irrigation water in April and early May. As a result, nesting by American Avocets, Pied-billed Grebes, and possibly Blue-winged Teal was negatively affected.

For several weeks during May-June, 2018, re-roofing construction took place throughout the Saddlebrooke subdivision. During this period of significantly increased traffic and noise near the south and east shores of Hodgson-Harris Reservoir, volunteer observers anecdotally noted a substantial decrease in both the number of species and number of individual birds in the study area.

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Lindsey Sterling-Krank, Director of the Prairie Dog Coalition, visited the study area and helped us to assess the health and importance of the prairie dog colony on the Zaharias property north of the reservoir. We thank her for sharing her time and expertise.

Appendix I: Photos - Selected Birds and Habitats of Special Interest



Double-crested Cormorant, 2017. Stephen Jones photo.



American White Pelican, 2017. Dick Marin photo.



Western Grebe, 2018. Susan Bauer photo



Great Blue Heron, 2018. Susan Bauer photo.



American avocets, 2017. Dick Marin photo.



American avocets on one of four 2017 nests. Vernon Tomenko photo.



Emergent wetland below dam, 2017. Susan Bauer photo.



Pied-billed Grebe with young, 2018. Tim Kilbride photo.

Appendix II: Birds Observed at Hodgson-Harris Reservoir from 1987-2017

Italics: Colorado Natural Heritage Program listed species / Boulder County special concern

<u>Species</u>	<u>Status</u>
Greater White-fronted Goose	Migrant
Snow Goose	Migrant
Ross' Goose	Migrant
Cackling Goose	Winter resident
Canada Goose	Year-round resident
Tundra Swan	Migrant
Wood Duck	Year-round resident
Blue-winged Teal	Summer resident
Cinnamon Teal	Summer resident
Northern Shoveler	Year-round resident
Gadwall	Year-round resident
American Wigeon	Year-round resident
Mallard	Year-round resident
Northern Pintail	Summer resident
Green-winged Teal	Summer resident
Canvasback	Winter resident
Redhead	Winter resident
<i>Ring-necked Duck</i>	Winter resident
Greater Scaup	Winter resident
Lesser Scaup	Winter resident
Bufflehead	Winter resident
Common Goldeneye	Winter resident
<i>Barrow's Goldeneye</i>	Winter resident
Hooded Merganser	Winter resident
Common Merganser	Winter resident
Red-breasted Merganser	Winter resident
Ruddy Duck	Winter resident
Northern Bobwhite	Year-round resident
Pied-billed Grebe	Year-round resident
Eared Grebe	Migrant
Horned Grebe	Winter resident
Western Grebe	Summer resident
Rock Pigeon	Year-round resident
Eurasian Collared-Dove	Year-round resident

Species

American Pipit
House Finch
Lesser Goldfinch
American Goldfinch
Vesper Sparrow
Chipping Sparrow
Song Sparrow
Dark-eyed Junco
Red-winged Blackbird
Western Meadowlark
Bullock's Oriole
Yellow-headed Blackbird
Brewer's Blackbird
Common Grackle
Great-tailed Grackle
Brown-headed Cowbird
Common Yellowthroat
Yellow Warbler
Yellow-rumped Warbler
Western Tanager
Blue Grosbeak

Status

Winter resident
Year-round resident
Summer resident
Year-round resident
Summer resident
Migrant
Year-round resident
Winter resident
Year-round resident
Year-round resident
Summer resident
Summer resident
Summer resident
Summer resident
Summer resident
Summer resident
Summer resident
Summer resident
Migrant
Migrant
Summer resident

Total species: 132

Potential nesting: 72

Boulder County special concern: 9

Appendix III. Breeding Codes and Their Interpretation

Adapted from Colorado Breeding Bird Atlas II protocols. All the following codes apply to a species seen or heard during its breeding season:

Observed:

O: Migrants and species observed that cannot be nesting within area. Examples: gulls without visible nesting colonies, Swainson's thrush on plains.

Possible:

#: Species found in suitable nesting habitat.

X: One or more singing birds in suitable nesting habitat during their breeding season.

Probable:

M: Seven or more singing birds of a given species heard on a single day.

P: Pair observed in suitable nesting habitat.

T: Permanent territory presumed through territorial behavior, defense, chasing other birds, or song in the same location on at least two occasions a week or more apart.

C: Courtship behavior between a male and a female or copulation. Includes display or food exchange.

V: Visiting probable nest site, but no further evidence obtained. This particularly applies to woodpeckers and nuthatches, who often fly into holes they may not use for nesting.

A: Agitated behavior or anxiety calls of adult, indicating nest site or young in vicinity.

N: Nest building by bald eagles in winter or excavation of nest hole by wrens and woodpeckers.

Confirmed:

NB: Nest building or adult carrying nesting material. Use for all species except wrens and woodpeckers.

DD: Distraction display or injury feigning. Use particularly for killdeer and curlews.

UN: Used nest or eggshells found. This one is particularly good for magpies and orioles, whose old nests are conspicuous in early spring but harder to find later.

FL: Recently fledged young. It's OK if they can fly, but not far!

ON: Occupied nest indicated by adult entering or leaving nest site.

FF: Feeding recently fledged young.

CF: Adult seen carrying food for young (you don't have to see the young!).

NE: Nest with eggs.

NY: Nest with young seen or heard. Listen for chirps and rasps when the adults bring in food.