

# Wildlife Species Profiles



## ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



Woodling (1985), NDIS (2014), and Paul Foutz (pers. comm., CPW). The remaining maps were created using county occurrence. For birds, the following resources were used: Andrews and Righter (1992), First Colorado Breeding Bird Atlas (Kingery 1998), Second Colorado Breeding Bird Atlas (COBBAIL 2015), and CFO (2015). Reptile and amphibian maps were created using Hammerson (1999) and NDIS (2014). Mammal maps were created using NDIS (2014), Boyle (2006), Grunau et al. (1999), and Schorr (2001).

### Habitat Condition Scorecards

Habitat Scorecards are included with each species profile for the purpose of assessing habitat conditions before and after implementation of wetland habitat improvement projects. Please check the instructions for each species. In most cases, habitat variables should be assessed during late spring or early summer. Each habitat variable has assigned values for ranges of conditions; the variables and their assigned values are weighted according to importance of each variable as perceived by experts in the field.

Wildlife species profiles have been created for priority wetland-dependent birds, mammals, fish, amphibians, and reptiles. Example species covered include (clockwise from top left): least tern, Preble's meadow jumping mouse, redbelly dace, and northern leopard frog.

***The purpose of these profiles is to provide landowners and land managers with easy-to-use guidelines for understanding habitat needs of priority wetland-dependent wildlife.***

## Introduction

This series of species profiles consists of 18 profiles for 26 wetland-dependent wildlife species; three profiles cover guilds with multiple related species: the dabbling duck profile includes seven species; the frog profile and the redbelly dace profile each include two species. These 26 species were selected because they were included in research on habitat preferences completed as part of projects in the Lower South Platte River Basin (Ortega 2013) and the Lower Arkansas River Basin (Ortega

2014). Additional wetland-dependent priority species more specific to the mountains or western Colorado are not included in this series, but may be developed in the future.

### Colorado Distribution

County occurrence for species in the series is provided on the following page. A checkmark does not suggest regular occurrence in a county; rather, it may indicate that the species has been observed at least once or may hypothetically occur. If a species is checked, please refer to the profile for more detailed information.

### Maps

Colorado distribution maps were created using multiple credible sources. Maps were created for fish using Hydrologic Unit Codes, according to

### Getting Help

Most variables can easily be measured or determined by anyone. In some cases, users may wish to solicit assistance from CPW staff, such as District Wildlife Managers, Wetland Focus Area Committees, or Private Land Biologists at Natural Resources Conservation Service and U.S. Fish and Wildlife Service. Questions can also be addressed to the CPW Wetlands Program Coordinator, Brian Sullivan at (970) 472-4306 or [brian.sullivan@state.co.us](mailto:brian.sullivan@state.co.us).

# Colorado Distribution by County

Colorado County	BIRDS	American bittern	Bald eagle	Black rail*	Dabbling ducks	Least tern	Lewis's woodpecker	Long-billed curlew	Piping plover	Sandhill crane	Short-eared owl	MAMMALS	Preble's m. j. mouse	River otter	FISH	Arkansas darter	Brassy minnow	N. redbelly dace	S. redbelly dace	HERPS	N. leopard frog	Plains leopard frog	Red-sided garter snake	Yellow mud turtle
Adams		✓	✓		✓	✓	✓	✓		✓	✓		✓								✓		✓	
Alamosa		✓	✓		✓	✓	✓	✓		✓	✓										✓			
Arapahoe		✓	✓		✓	✓	✓	✓		✓	✓		✓								✓		✓	
Archuleta			✓		✓		✓	✓		✓				✓							✓			
Baca			✓	✓	✓		✓	✓		✓	✓											✓		✓
Bent		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓							✓	✓		✓
Boulder		✓	✓		✓	✓	✓	✓		✓	✓		✓	✓							✓		✓	
Broomfield		✓	✓		✓		✓	✓		✓	✓		✓	✓							✓		✓	
Chaffee		✓	✓		✓		✓	✓		✓	✓										✓			
Cheyenne		✓	✓		✓			✓		✓	✓										✓	✓		✓
Clear Creek			✓		✓		✓			✓											✓			
Conejos		✓	✓		✓		✓			✓	✓										✓			
Costilla		✓	✓		✓		✓	✓		✓	✓										✓			
Crowley		✓	✓	✓	✓	✓	✓	✓		✓	✓										✓	✓		
Custer		✓	✓		✓		✓	✓		✓				✓							✓	✓		
Delta		✓	✓		✓	✓	✓	✓		✓	✓			✓							✓			
Denver			✓		✓		✓	✓		✓			✓								✓		✓	
Dolores		✓	✓		✓		✓	✓		✓				✓							✓			
Douglas		✓	✓		✓	✓	✓	✓		✓	✓		✓					✓			✓		✓	
Eagle			✓		✓		✓			✓	✓			✓							✓			
Elbert			✓		✓		✓	✓		✓	✓		✓			✓					✓	✓		
El Paso		✓	✓		✓	✓	✓	✓		✓	✓		✓			✓					✓	✓		
Fremont		✓	✓		✓	✓	✓	✓		✓	✓			✓					✓		✓	✓		
Garfield			✓		✓		✓	✓		✓				✓							✓			
Gilpin			✓		✓																✓			
Grand		✓	✓		✓		✓	✓		✓	✓			✓							✓			
Gunnison		✓	✓		✓		✓	✓		✓	✓			✓							✓			
Hinsdale		✓	✓		✓		✓			✓				✓							✓			
Huerfano		✓	✓		✓	✓	✓	✓		✓	✓			✓							✓	✓		
Jackson		✓	✓		✓	✓	✓	✓		✓	✓			✓							✓			
Jefferson		✓	✓		✓	✓	✓	✓		✓	✓		✓	✓							✓		✓	
Kiowa		✓	✓		✓	✓	✓	✓	✓	✓	✓										✓	✓		✓
Kit Carson		✓	✓		✓			✓		✓	✓										✓	✓		✓
Lake		✓	✓		✓		✓			✓											✓			
La Plata		✓	✓		✓	✓	✓	✓		✓	✓			✓							✓			
Larimer		✓	✓		✓	✓	✓	✓		✓	✓		✓	✓							✓		✓	
Las Animas			✓		✓		✓	✓		✓	✓			✓							✓	✓		✓
Lincoln			✓	✓	✓		✓	✓		✓	✓					✓					✓	✓		
Logan		✓	✓		✓	✓	✓	✓		✓	✓			✓			✓				✓	✓	✓	✓

# Colorado Distribution by County

Colorado County	BIRDS	American bittern	Bald eagle	Black rail*	Dabbling ducks	Least tern	Lewis's woodpecker	Long-billed curlew	Piping plover	Sandhill crane	Short-eared owl	MAMMALS	Preble's m. j. mouse	River otter	FISH	Arkansas darter	Brassy minnow	N. redbelly dace	S. redbelly dace	HERPS	N. leopard frog	Plains leopard frog	Red-sided garter snake	Yellow mud turtle
Mesa		✓	✓		✓	✓	✓	✓		✓	✓			✓			✓				✓			
Mineral			✓		✓		✓			✓				✓							✓			
Moffat		✓	✓		✓		✓	✓		✓	✓			✓							✓			
Montezuma		✓	✓		✓		✓	✓		✓	✓			✓							✓			
Montrose			✓		✓		✓	✓		✓	✓			✓							✓			
Morgan		✓	✓		✓	✓	✓	✓		✓	✓			✓			✓				✓		✓	
Otero		✓	✓	✓	✓	✓	✓	✓		✓	✓										✓	✓		✓
Ouray		✓	✓		✓		✓	✓		✓				✓							✓			
Park		✓	✓		✓		✓	✓		✓	✓			✓							✓			
Phillips			✓		✓	✓		✓		✓	✓										✓	✓	✓	✓
Pitkin		✓	✓		✓		✓	✓		✓				✓							✓			
Prowers		✓	✓	✓	✓	✓	✓	✓		✓	✓					✓					✓	✓		✓
Pueblo		✓	✓	✓	✓	✓	✓	✓		✓	✓			✓		✓			✓		✓	✓		
Rio Blanco		✓	✓		✓	✓	✓	✓		✓	✓			✓							✓			
Rio Grande		✓	✓		✓		✓	✓		✓	✓										✓			
Routt		✓	✓		✓		✓	✓		✓				✓							✓			
Saguache		✓	✓		✓		✓			✓	✓			✓							✓			
San Juan		✓	✓		✓		✓			✓											✓			
San Miguel			✓		✓		✓	✓						✓							✓			
Sedgwick		✓	✓		✓	✓	✓	✓		✓	✓			✓			✓				✓	✓	✓	✓
Summit		✓	✓		✓		✓			✓				✓							✓			
Teller		✓	✓		✓		✓			✓											✓			
Washington		✓	✓		✓	✓	✓	✓		✓	✓			✓			✓				✓	✓	✓	✓
Weld		✓	✓		✓	✓	✓	✓		✓	✓		✓	✓			✓				✓		✓	
Yuma		✓	✓		✓	✓	✓	✓		✓	✓						✓				✓	✓	✓	✓

\*The black rail is not on the official list of priority species, but is a species of interest in the Lower Arkansas River Basin.

## Citations

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# American Bittern

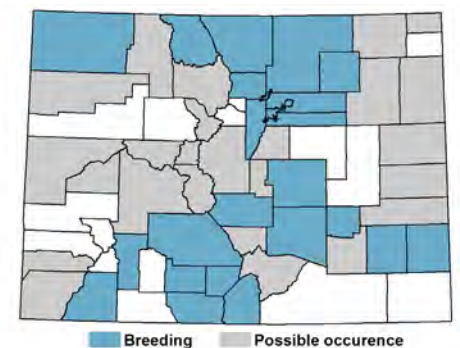
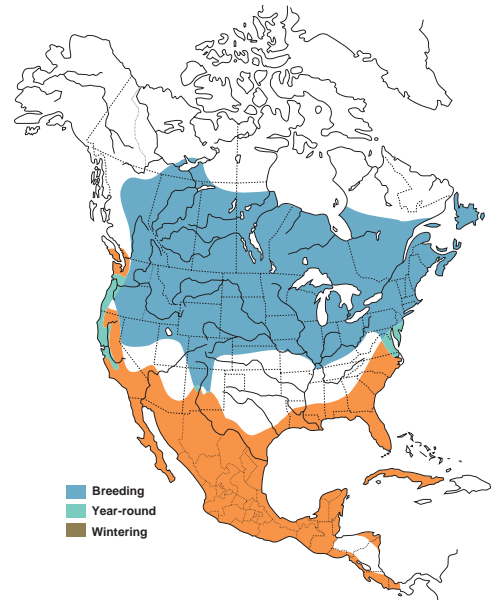
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## Species Distribution

### Range

American bitterns breed from the mid United States through northern Canada. In Colorado, American bitterns occur in non-contiguous areas throughout the state and are most common in the San Luis Valley.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COB-BAT (2015), and CFO (2015).



The American bittern (*Botaurus lentiginosus*, Family Ardeidae) is a secretive, marsh bird found throughout Colorado at lower elevations.

## Species Description

### Identification

The American bittern is a type of heron with a haunting low-frequency *dunk-a-doo* vocalization that sounds similar to a metal stake being driven into mud. Even with their large size (24–33 inches), they can be difficult to find because they are secretive, fairly solitary, and cryptic among emergent vegetation, especially dry vegetation.

### Preferred Habitats

American bitterns occur primarily in emergent marshes. However, depending on size and condition of the habitat, they might be found in beaver ponds, oxbows, herbaceous riparian wetlands, warm water sloughs, wet meadows and reclaimed gravel pits.

### Diet

American bitterns consume a wide variety of animal matter, such as amphibians, snakes, small mammals, fish, crayfish, crabs, insects, and spiders. They frequently feed at the interface of water and emergent vegetation.

### Conservation Status

American bitterns are listed as a Non-game Species of Management Concern by the U. S. Fish and Wildlife Service. States list them as endangered, imperiled, at risk, species of special concern, or species of greatest conservation need. In Colorado, American bitterns are listed as a Tier 2 Species of Greatest Conservation Need (CPW 2015). The International Union for Conservation of Nature lists the population as decreasing, but because of its extensive range and low rate of decline, it is considered of least concern.

# Preferred Habitat Conditions

Distance to disturbances	buffer >220 yards
Dominant vegetation	tall, dense and robust emergent vegetation
Height of herbaceous vegetation	3–6.5 feet
Interspersion	complex patterns that maximize interface between water and vegetation
Landscape context	proximity to other wetlands on the landscape
Percent emergent cover	60–80% with high amount of edge
Residual cover (litter)	mix of dead and live vegetation, with moderate litter depth
Size of habitat	large wetlands >25 acres
Water depth (predominant)	at least some open water 3–25 inches deep
Water quality	unpolluted water that will support preferred foods

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for American bitterns.

### Hydrology

- Preserve shallow wetlands interspersed with water.
- Avoid complete drawdowns to maintain food base.
- Throughout breeding season, maintain water levels between 3–25 inches.
- Avoid drawdowns before mid-August.

### Vegetation

- Preserve wetlands with robust vegetation.
- Occasionally set back succession with disking and/or drying.
- Maintain wide and dense vegetated buffer around emergent wetlands.
- Limit mowing, burning, and deferred grazing to once every 2–5 years, and avoid immediately around wetland, especially during breeding.
- Use no-tillage or minimal tillage practices; avoid conventional tillage.

### Contamination

- Reduce application of agricultural chemicals and other toxins.
- Reduce siltation and eutrophication.

### Land Use

- Restrict livestock grazing within 220 yards of wetland edge.

### Conservation

- Preserve wetlands greater than 25 acres, preferably larger.
- Maintain mosaic of wetlands in different successional stages.



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### Acknowledgements

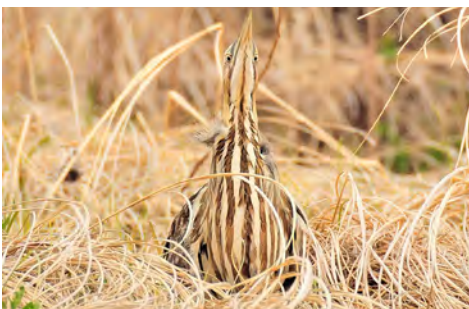
Pete Walker (Colorado Parks and Wildlife) and Colin Lee (Rocky Mountain Bird Observatory/Colorado Parks and Wildlife/Natural Resources Conservation Service) reviewed an earlier version and provided input on preferred habitat conditions.

### Suggested Reading and Citations

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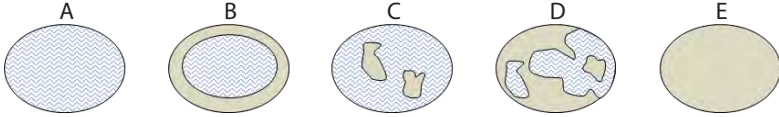


# Habitat Scorecard for American Bitterns (v. Jan 2016)

## Assessment of habitat before and after restoration or management actions

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

Key habitat variable and conditions	Value	Before	After
<b>Size of habitat</b>			
>25 acres	10.8		
>12 – 25 acres	7.2		
2.5 – 12 acres	3.6		
<b>Residual cover (litter) depth</b>			
>15 – 25 inches	10.3		
>8 – 15 inches OR >25 – 40 inches	6.8		
4 – 8 inches	3.4		
<b>Percent of water with emergent vegetation</b>			
>60 – 80%	10.3		
>30 – 60% OR >80 – 100%	6.8		
15 – 30%	3.4		
<b>Water quality</b>			
No visual evidence of turbidity or other pollutants	10.3		
Some turbidity or presence of other pollutants, but limited to small and localized areas within the wetland. Water may be slightly cloudy.	6.8		
Water is cloudy or has unnatural oil sheen, but the bottom is still visible. Note: If the sheen breaks apart when you run your finger through it, it is a natural bacterial process and not water pollution.	3.4		
<b>Dominant vegetation</b>			
Robust wetland herbaceous plants (e.g., cattail, bulrush, reedgrass) OR tall sedges >8 inches	10.3		
Low sedges, rushes, or grasses <8 inches	6.8		
Annual and perennial forbs OR open willows and shrubs	3.4		
<b>Height of herbaceous vegetation</b>			
>3 – 6.5 feet	9.7		
>1.5 – 3 feet	6.5		
1 – 1.5 feet OR >6.5 feet	3.2		
<b>Distance to developed areas (urban or industrial land uses)</b>			
>250 yards	9.7		
>100 – 250 yards	6.5		
50 – 100 yards	3.2		
<b>Interspersion</b>			
B or C or D	9.7		
E	3.2		
Interspersion patterns refer to the diagram (stippled = water, solid = vegetation)			
<b>Percent of wetland with some water</b>			
>70 – 100%	9.7		
>50 – 70%	6.5		
10 – 50%	3.2		
<b>Predominant depth of water</b>			
2 – 8 inches	9.2		
>8 – 40 inches	6.1		
<2 inches or >40 – 50 inches	3.1		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			

# Bald Eagle

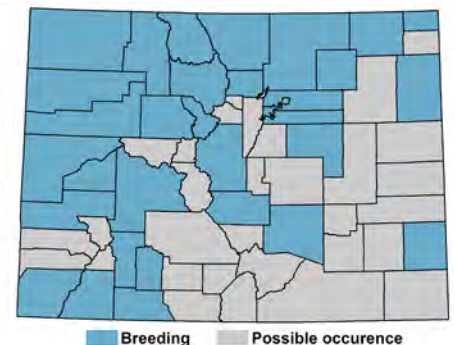
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## Species Distribution

### Range

Bald eagles live almost entirely within North America. Their distribution is highly scattered throughout North America and in Colorado. Up-to-date maps of their distribution in Colorado are unavailable due to their sensitive status.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COB-BATII (2015), and CFO (2015).



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Bald eagles (*Haliaeetus leucocephalus*, Family Accipitridae) prefer tall, mature trees for perching and nesting. From these perches, they watch for fish or other small prey.

## Species Description

### Identification

Our national emblem, the bald eagle, is distinguished by its white head and tail contrasting with a dark brown body in its full adult form. Immature bald eagles (first four years) may have light or brown heads and tails; they can best be distinguished from immature golden eagles by the light leading edge of the wing contrasting with darker flight feathers.

### Preferred Habitats

The most important wetland habitats for bald eagles are those connected with large bodies of water, such as rivers and reservoirs. Bald eagles use tall trees and dead snags along the edge of waterbodies to perch and watch for prey.

### Diet

Bald eagles are opportunistic foragers. They prefer fish when available, but also consume small mammals and birds, especially during winter.

### Conservation Status

The U. S. Fish and Wildlife Service removed bald eagles from the Federal list of endangered species in 2007 (USFWS 2007). In Colorado, bald eagles are listed as a Tier 2 Species of Greatest Conservation Need (CPW 2015). The number of bald eagle pairs breeding in Colorado increased from 14 pairs during Colorado Breeding Bird Atlas I (1987–1994) to 148 pairs during Colorado Breeding Bird Atlas II (2007–2011).

# Preferred Habitat Conditions

Distance between tall trees and open water with fish	the closer the better, best within 1 mile
Distance from human disturbance	varies with location; 100 to >500 yards
Dominant vegetation	open canopy and easy-to-access large trees with open horizontal branches
Tree size	mature, tall, large-diameter trees for perching and nesting

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for bald eagles.

### Hydrology

- Maintain water levels to maximize prey availability and foraging.
- Manage for a diversity of fish.

### Vegetation

- Thin dense forests (particularly in the vicinity of reservoirs), burn by prescription, and selectively harvest to achieve desired open canopy.
- Avoid clearcutting.
- Manage for age diversity and species diversity.
- Protect existing tall, large-diameter trees, including open-top trees and snags.
- Promote growth of trees in areas where lacking.
- Create super-canopy trees (much taller than the rest) by cutting.
- Revegetate with trees where appropriate.
- Create or protect openings that are  $\geq 8.5$  acres within 2 miles of shoreline; maintain these openings with sparsely-spaced roosting and/or nesting trees.

### Contamination

- Reduce contaminants.

### Land Use

- Reduce visual contact with disturbance using vegetation strips 8–100 yards wide.
- Minimize development along shorelines.

### Conservation

- Preserve undeveloped shores and adjacent forests.
- Maintain mosaic of wetlands in different successional stages.



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### Acknowledgements

Chase Taylor (Rocky Mountain Bird Observatory) reviewed an earlier version and provided input on preferred habitat conditions.

### Suggested Reading and Citations

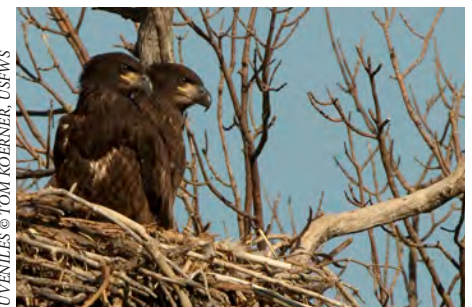
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# Habitat Scorecard for Bald Eagles (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

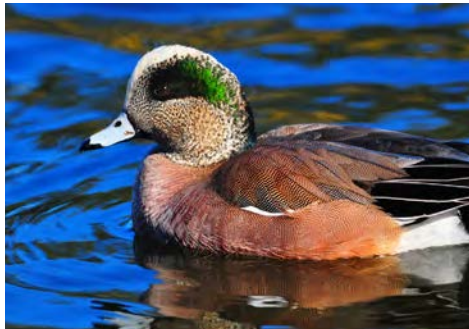
Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

Key habitat variable and conditions	Value	Before	After
<b>Dominant vegetation</b>			
Open canopy with dominant snag or tall trees with open horizontal branches	18.5		
<b>Distance to permanent open water capable of supporting fish from a live or dead tree &gt;30 feet tall</b>			
<55 yards	17.5		
55 yards – 1 mile	11.7		
>1 – 2 miles	5.8		
<b>Percent total canopy cover that is &gt;6.5 feet</b>			
10 – 40%	17.5		
>40 – 60%	11.7		
>60 – 100%	5.8		
<b>Height of tallest tree within 100 yards of focal area</b>			
>50 feet	17.5		
>30 – 50 feet	11.7		
15 – 30 feet	5.8		
<b>Distance from development</b>			
>0.3 mile	10.3		
0.2 – 0.3 miles	6.8		
100 yards – 0.2 miles	3.4		
<b>Apparent water depth</b>			
<20 feet deep within 100 yards of shore	14.5		
<20 feet deep within 50 yards from shore but deeper beyond	9.7		
>20 feet deep within 50 yards from shore	4.8		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			

# Dabbling Ducks

ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



Several species are included in the Dabbling Duck guild. Top row from left: American wigeon (*Anas americana*), blue-winged teal (*A. discors*), cinnamon teal (*A. cyanoptera*). Second row from left: gadwall (*A. strepera*), green-winged teal (*A. crecca*), mallard (*A. platyrhynchos*). Bottom: northern pintail (*A. acuta*).



## Species Description

### Preferred Habitats

The most important wetland habitats for dabbling ducks during spring and fall migration include beaver ponds, emergent marshes, warm water sloughs, moist soil units, wet meadows, and herbaceous riparian wetlands. During winter, most small wetlands freeze and ducks congregate in deeper water, such as open river channels, warm water sloughs, reservoirs, and deep gravel pits, or on open sandbars. During the breeding season, most dabbling ducks nest in upland vegetation.

### Diet

Most dabbling ducks consume far more invertebrates during the breeding season compared with other times of year. During non-breeding seasons, the diet varies according to species but includes seeds, aquatic vegetation, tubers, and crop grains.

### Conservation Status

The population status differs among species. All ducks in this guild are federally protected game birds in the United States, Canada, and Mexico. Colorado Parks and Wildlife designated these ducks as priority species because they provide valuable hunting and viewing opportunities.

## Species Distribution

### Range

The ducks in this guild are widely distributed. With the exception of cinnamon teal, all have a distribution beyond the Americas. They are found throughout most of Colorado during at least part of the year. In general, outside of winter, the greatest concentrations include the San Luis Valley, North Park, and the Front Range within the South Platte River Basin.

GADWALL © TOM KOERNER, USFWS / AMERICAN WIGEON © BILL GRACEY

NORTHERN PINTAIL © GEORGIA HART / MALLARD © MICHAEL MENEFEE, CNHP / ALL TEAL PHOTOS © TOM KOERNER, USFWS

# Preferred Habitat Conditions

Dominant vegetation	sedges, rushes, grasses, forbs, and aquatic vegetation
Density of plants desirable to ducks	abundant (desireable plants are often seed bearing species such as pondweeds, dock, sedges, and some grasses)
Emergent vegetation within open water	21–50% for diurnal use 61–80% for nocturnal use
Interspersion	complex patterns that maximize interface between water and vegetation
Landscape context	proximity to other wetlands on the landscape
Size of habitat	>20 acres for wet meadows >2 acres for other wetlands excluding reservoirs
Submergent vegetation	31–60%
Water depth (predominant)	4–12 inches



NORTHERN PINTAIL © TOM KOERNER, USFWS

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for dabbling ducks.

### Hydrology

- Maintain water depths 4–12 inches.
- Time drawdowns in summer to coincide with desired vegetation.
- Drawdown gradually for the greatest diversity of vegetation.
- Re-flood in late summer or early fall for fall migrants.

### Vegetation

- Consider establishing submerged aquatic vegetation.
- Consider revegetating with native plants during drawdown if devoid of vegetation for long periods.
- Use disturbance techniques to set back succession.
- Control undesirable vegetation, especially robust plants, exotics, and woody vegetation.
- Control woody vegetation at young age.
- Create 50:50 interspersion or hemimarsh conditions (1:1 open water to emergent vegetation).
- Manage for diversity of native plants.
- Use drawdowns to accelerate decomposition.

### Land Use / Other

- Limit time of grazing and maintain appropriate stocking rate; where possible, protect wetland with fencing.

### Conservation

- Minimize disturbance by humans.
- Control for burrowing mammals only if needed to maintain integrity of levees or to avoid excessive vegetation removal or obstructions.
- Control fish that cause turbidity, e.g., carp.
- Provide diversity through wetland complexes on landscape.

MALLARDS © TOM KOERNER, USFWS



### Acknowledgements

Brian Sullivan (Colorado Parks and Wildlife) reviewed an earlier version and provided input on preferred habitat conditions.

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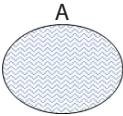
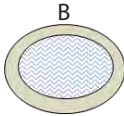
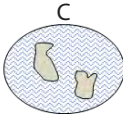
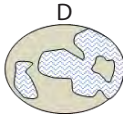

# Habitat Scorecard for Dabbling Ducks (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Select appropriate checklist: (1) **Emergent Wetlands, Playas, and Impoundments**, (2) **Wet Meadows**, or (3) **Sandbars**. Enter one value that best describes migratory (spring/fall) conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Emergent Wetlands, Playas, and Impoundments

Key habitat variable and conditions	Value	Before	After
<b>Dominant vegetation</b>			
Sedges, rushes, grasses, forbs, and aquatic vegetation	18.7		
Robust wetland herbs (cattail, bulrush, reedgrass, etc.)	12.5		
Open willows / shrubs, Closed canopy trees (>50% cover)	6.2		
<b>Percent of emergent vegetation within water</b>			
21 – 50%	18.7		
5 – 20%	12.5		
50 – 100%	6.2		
<b>Predominant depth of water</b>			
4 – 12 inches	18.7		
>12 – 25 inches	12.5		
>25 – 40 inches	6.2		
<b>Percent submergent vegetation</b>			
>30 – 60%	17.8		
>10 – 30%	11.8		
0 – 10%	5.9		
<b>Interspersion</b>			
C or D	15.0		
B	10.0		
A or E	5.0		
<p>Interspersion patterns refer to the above diagram (stippled = water, solid = vegetation)</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>A</p> </div> <div style="text-align: center;">  <p>B</p> </div> <div style="text-align: center;">  <p>C</p> </div> <div style="text-align: center;">  <p>D</p> </div> <div style="text-align: center;">  <p>E</p> </div> </div>			
<b>Size of habitat</b>			
>2 acres	11.1		
>0.5 – 2 acres	7.5		
0.25 – 0.5 acres	3.7		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			

# Habitat Scorecard for Dabbling Ducks (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

Instructions: Select appropriate checklist: (1) **Emergent Wetlands, Playas, and Impoundments**, (2) **Wet Meadows**, or (3) **Sandbars**. Enter one value that best describes migratory (spring/fall) conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Wet Meadows (natural or irrigation-influenced)

Key habitat variable and conditions	Value	Before	After
Dominant vegetation			
Sedges, rushes, grasses, forbs, and aquatic vegetation	28.2		
Robust wetland herbs (cattail, bulrush, reedgrass, etc.)	18.8		
Open willows / shrubs, Closed canopy trees (>50% cover)	9.4		
Percent of herbaceous vegetation that is too dense for a duck to move through			
0 – 20%	28.2		
>20 – 50%	18.8		
>50 – 80%	9.4		
Height of herbaceous vegetation			
8 – 20 inches	26.7		
>20 – 80 inches	17.8		
>80 inches	8.9		
Size of habitat			
>20 acres	16.9		
>5 – 20 acres	11.3		
2.5 – 5 acres	5.6		
Total (of 100 possible): add all numbers in before or after columns			

# Habitat Scorecard for Dabbling Ducks (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

Instructions: Select appropriate checklist: (1) **Emergent Wetlands, Playas, and Impoundments**, (2) **Wet Meadows**, or (3) **Sandbars**. Enter one value that best describes migratory (spring/fall) conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Sandbars

Key habitat variable and conditions	Value	Before	After
Dominant vegetation			
Sedges, rushes, grasses, forbs, and aquatic vegetation	25.6		
Robust wetland herbs (cattail, bulrush, reedgrass, etc.)	17.1		
Open willows / shrubs, Closed canopy trees (>50% cover)	8.5		
Percent of herbaceous vegetation that is too dense for a duck to move through			
0 – 20%	25.6		
>20 – 50%	17.1		
>50 – 80%	8.5		
Percent of herbaceous vegetation that is easy for a duck to move through			
0 – 30%	25.6		
>30 – 60%	17.1		
>60 – 100%	8.5		
Percent cover of woody vegetation >6.6 feet (2 meters) in height			
0 – 20%	23.2		
>20 – 40%	15.4		
>40 – 100%	7.7		
Total (of 100 possible): add all numbers in before or after columns			



# Least Tern

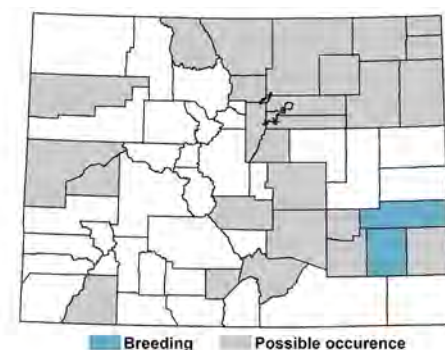
ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



## Species Distribution

### Range

Least terns range extensively along coasts and major rivers in North America, Central America, the Caribbean, and northern South America. In Colorado, least terns breed only in the Lower Arkansas River Basin. During migration, they occasionally occur in the Lower South Platte River Basin, and less frequently on the west slope.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COB-BAIL (2015), and CFO (2015).



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The least tern (*Sternula albifrons*, Family *Laridae*) is a small, ground nesting bird that nests in open, sandy soil. They are rare throughout their range, including in Colorado.

## Species Description

### Identification

At 8–9 inches in length and slightly smaller than an American robin, the least tern is the smallest tern of North America. Their white forehead contrasting with a black cap is easily seen in flight. They have a yellow bill tipped in black.

### Preferred Habitats

Interior least terns nest on sandy shores of reservoirs and gravel pits; although not usually considered wetlands, these habitats are often adjacent to or associated with wetlands along the shores. Sandbars, particularly along the Arkansas River, represent potential nesting habitat, however, the regulation of water probably precludes least terns from successfully nesting. They forage in streams, reservoirs, marshes, gravel pits, and other impounded wetlands.

### Diet

The diet of least terns consists primarily of small (1–4 inches long), slender ( $\frac{1}{2}$  inch) fish that swim near the surface. To a lesser degree, they also feed on aquatic invertebrates.

### Conservation Status

The interior population is Federally listed as endangered. In Colorado, least terns are listed as endangered and a Tier 2 Species of Greatest Conservation Need (CPW 2015). During the second Colorado Breeding Bird Atlas (2007–2011), least terns were observed and confirmed breeding in only two priority blocks: Adobe Creek Reservoir and just south of Neesopah and Neegronda Reservoirs. During the previous Colorado Breeding Bird Atlas (1987–1994), they had also been confirmed as breeders in the vicinity of Neenoshe Reservoir.

# Preferred Habitat Conditions

Dominant vegetation	open view with little to no vegetation
Height of vegetation	< 6 inches
Location of nesting habitat patch	next to water with an unobstructed view
Nesting substrate	sand or fine gravel, free from silt and/or clay
Percent canopy cover	none
Percent herbaceous cover	0–5%
Size of nesting habitat <i>if</i> other ideal conditions met	> 0.2 acres
Size of unvegetated patch on vegetated bar	> 1 acre
Water depth at nest sites	0 inches
Woody debris on ground	presence of woody debris near nests (not well understood)



## Acknowledgements

Dr. Eileen Kirsch (U. S. Geological Service) reviewed an earlier version and provided input on preferred habitat conditions.

## Suggested Reading and Citations

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# Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for least terns.

## Hydrology / Substrate

- Manage and time flows to benefit habitat (scouring) while minimizing nesting mortality.
- Create sand and gravel river islands.
- Control vegetation by flooding after breeding and lower water level prior to arrival in spring.
- Add sand to islands as needed.
- Add small amount of woody debris where needed.

## Vegetation

- Control vegetation to create or maintain sparse vegetation.

## Land Use

- Curtail cattle grazing near potential nesting sites.

## Conservation

- Provide exclosures/enclosures or electric fencing where needed to protect from predators.
- Close beaches to human use during breeding season.
- Create educational signage to protect breeding birds from human disturbance.



# Habitat Scorecard for Least Terns (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Select appropriate checklist: (1) **Nesting** (e.g., sandbars, reservoir edges, gravel pits) or (2) **Foraging** (e.g., emergent marshes, ponds, stream channels, warm water sloughs). Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Nesting Habitat (e.g. sandbars, reservoir edges, gravel pits)

Key habitat variable and conditions	Value	Before	After
<b>Dominant vegetation</b>			
Open bare ground	11.8		
Low grass	3.9		
<b>Location: Juxtaposition of habitat patch to water</b>			
Totally surrounded by water	11.8		
Partially connected and adjacent to water	7.9		
Not adjacent to water	3.9		
<b>Location: Distance with unobstructed view (from appropriate patch)</b>			
>275 yards	11.8		
>100 – 275 yards	7.9		
50 – 100 yards	3.9		
<b>Percent total canopy cover 6.6 feet</b>			
NO canopy cover > 6.6 feet	11.8		
<b>Substrate</b>			
>75% coarse and/or fine sand	11.3		
<b>Size of habitat patch (Answer for ONLY one, using best option)</b>			
<b>Size of entirely unvegetated bar or island</b>			
>0.25 acre	10.7		
>0.06 – 0.25 acre	7.1		
0.02 – 0.06 acre (~900 sq feet – ~2,500 sq feet)	3.6		
<b>Size of unvegetated patch on otherwise vegetated bar or island</b>			
>1 acre	10.7		
0.5 – 1 acre	7.1		
0.25 – 0.5 acre	3.6		
<b>Predominant water depth</b>			
No water	10.7		
<b>Vegetation height</b>			
<6 inches	9.4		
6 – 20 inches	3.1		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			



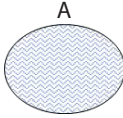
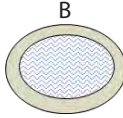
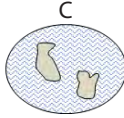
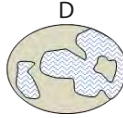

# Habitat Scorecard for Least Terns (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Select appropriate checklist: (1) **Nesting** (e.g., sandbars, reservoirs, and gravel pits) or (2) **Foraging** (e.g., emergent marshes, ponds, stream channels, warm water sloughs). Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Foraging Habitat (e.g. emergent marshes, ponds, stream channels, warm water sloughs)

Key habitat variable and conditions	Value	Before	After
<b>Interspersion</b>			
A or B	27.1		
C	18.0		
D	9.0		
Interspersion patterns refer to the above diagram (stippled = water, solid = vegetation)	    		
<b>Dominant vegetation</b>			
Open water (no vegetation)	24.3		
Sparse emergent vegetation	16.2		
<b>Presence of small fish</b>			
Abundant small fish 1 – 4 inches	24.3		
Abundant aquatic invertebrates	16.2		
<b>Distance to potential nesting habitat</b>			
<3 miles	24.3		
3 – 6 miles	16.2		
>6 – 9 miles	8.1		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			

# Lewis's Woodpecker

ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



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Lewis's woodpeckers (*Melanerpes lewis*, Family *Picidae*) nest in open cottonwood or ponderosa pine stands and hunt insect in flight.

## Species Description

### Identification

Named after the explorer Meriwether Lewis, Lewis's woodpeckers differ from most other woodpeckers in their foraging habits, including catching insects in flight. They are approximately 11 inches long with hefty bodies. Their backs and wings are a greenish black and bellies a pinkish to salmon rose. Their green color is due to reflection from feather structure rather than from green pigment; therefore, the intensity of green varies with lighting, and they can appear almost black in poor lighting.

### Preferred Habitats

Cottonwood gallery forest is the most important wetland type used by Lewis's woodpeckers. However, they also use riparian shrub wetlands and wet meadows, and they forage over stream channels.

### Diet

Lewis's woodpeckers forage opportunistically on locally abundant insects, including outbreaks in burned forests and hatches over water and wet meadows. During summer months, they feed primarily on insects; in fall and winter, they switch to feeding heavily on mast fruits (especially acorns) and agricultural grains or waste.

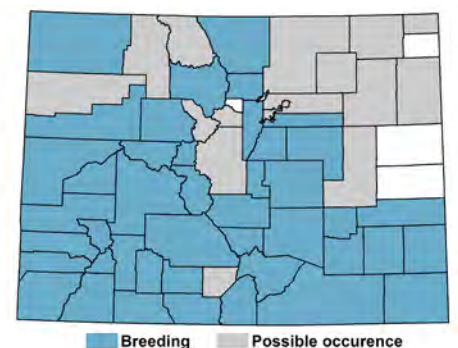
### Conservation Status

Almost all populations of Lewis's woodpeckers have declined. The most recent Colorado Breeding Bird Atlas (COBBA 2007–2011) indicates that they were observed in 36% fewer blocks than during the first COBBA (1987–1994). In Colorado, Lewis's woodpeckers are listed as a Tier 2 Species of Greatest Conservation Need (CPW 2015).

## Species Distribution

### Range

The patchy distribution of Lewis's woodpecker is restricted to western North America, from southern New Mexico to mid British Columbia and from California to eastern Colorado. In Colorado, they can occur almost anywhere and have been known to breed in well over half of Colorado's counties.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COBBAII (2015), and CFO (2015).

# Preferred Habitat Conditions

Clusters of large-diameter trees	5–15 tree clusters
Dominant vegetation	open canopy with snags (standing dead trees) and some shrub or brushy layer
Height of trees	>50 feet
Percent bare ground	very little (<5%)
Percent cover of canopy trees	prefer open canopy >15–30%
Percent mowed or fallow fields within 100 yards	>40%
Percent of mast fruits (e.g., acorns) or grain (e.g., corn) within 100 yards	>35%
Percent shrub and/or brushy layer	prefer some shrub/brush 10–33%
Size of habitat	>15 acres

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for Lewis's woodpeckers.

### Hydrology

- Manage stream flow to encourage cottonwood regeneration.

### Vegetation

- Retain at least 50% of snags >9 inches in diameter during post-fire salvage logging.
- Retain large snags.
- Protect clumps of large trees and snags.
- Encourage regeneration of cottonwoods/snags in riparian zones.
- Maintain open forests.
- Maintain understory shrub community.

### Pesticides

- Reduce pesticide exposure.

### Land Use

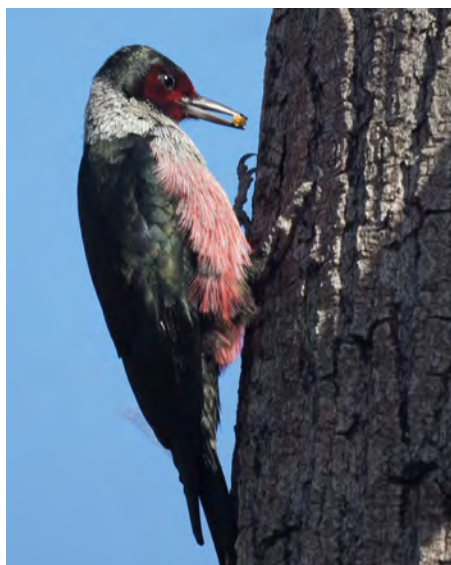
- Limit browsing by livestock.

### Silviculture

- Maintain six or more snags per acre.
- Where snags are unavailable, consider topping trees.
- Provide no-logging buffer zone to protect nesting habitat.



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### Acknowledgements

Dr. Kerry Vierling (Department of Fish and Wildlife Science, University of Idaho) reviewed an earlier version and provided input on preferred habitat conditions.

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# Habitat Scorecard for Lewis's Woodpeckers (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

Key habitat variable and conditions	Value	Before	After
<b>Dominant vegetation</b>			
Open canopy with snags	15.9		
<b>Tree height</b>			
>50 feet	15.9		
>35 – 50 feet	10.6		
15 – 35 feet	5.3		
<b>Percent cover of dominant canopy trees</b>			
>15 – 30%	14.4		
>30 – 50%	9.6		
5 – 15% OR >50 – 80%	4.8		
<b>Percent shrub or brush layer</b>			
10 – 33%	12.6		
>33 – 50%	8.4		
>50%	4.2		
<b>Percent bare ground</b>			
0 – 5%	12.6		
>5 – 15%	8.4		
>15 – 35%	4.2		
<b>Number of mature tree clusters</b>			
5 – 15 clusters	11.2		
3 – 4 clusters	7.4		
1 – 2 clusters	3.7		
<b>Size of habitat</b>			
>15 acres (>6 ha)	6.2		
>2 – 15 acres (>2 – 6 ha)	4.1		
1.2 – 5 acres (0.5 – 2 ha)	2.1		
<b>Percent mowed or fallow fields within 100 yards</b>			
>40 – 100%	6.2		
20 – 40%	4.1		
<20%	2.1		
<b>Percent mast fruits (e.g., acorns) or grain (e.g., corn) within 100 yards</b>			
>35 – 100%	5.6		
20 – 35%	3.7		
<20%	1.9		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			

# Long-billed Curlew

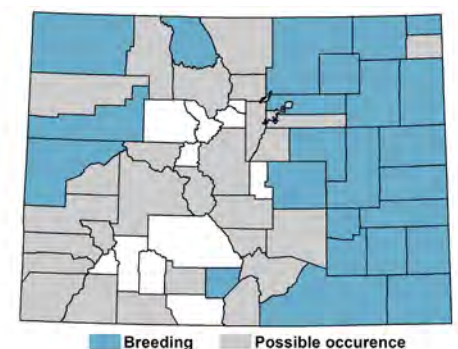
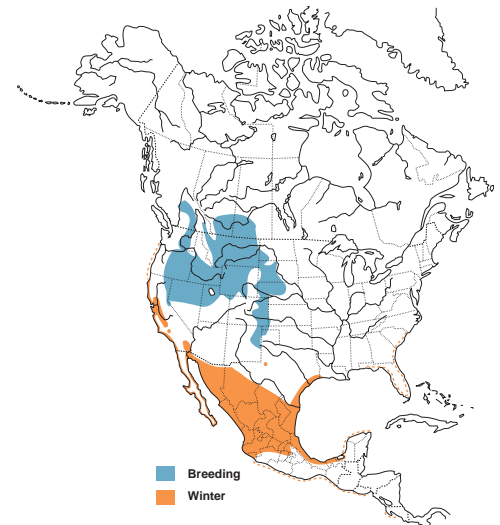
ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



## Species Distribution

### Range

Long-billed curlews breed in the western United States, including eastern Colorado, and in southwestern Canada. During migration, long-billed curlews occur sporadically in western Colorado and regularly throughout eastern Colorado.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COBBAII (2015), and CFO (2015).



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Long-billed curlews (*Numenius americanus*, Family Scolopacidae) have a distinctive long bill that curves downward. They can be found near playas and ponds in eastern Colorado.

## Species Description

### Identification

The long-billed curlew, at 20–26 inches in length, is the largest shorebird in North America. Their primitive-sounding *curlee* vocalizations are considered a harbinger of spring. Their down-curved, sickle-shaped bill is the largest among shorebirds and inspired their genus name, *Numenius*, derived from the Greek word, noumenios, meaning of the new crescent moon.

### Preferred Habitats

Long-billed curlews are considered a grassland species, but they are rarely observed far from water. In Colorado, they are usually associated with ponds, reservoirs, playas, and wet meadows.

### Diet

Long-billed curlews probe or peck for invertebrates, including mollusks, worms, crustaceans, spiders, and

insects, particularly grasshoppers. They also eat some vertebrate species, including fish, amphibians, and bird eggs/nestlings.

### Conservation Status

Populations of long-billed curlews have experienced overall declines in many areas, especially throughout the eastern United States, due primarily to habitat loss and historic over-hunting. In Colorado, long-billed curlews are listed as a Tier 2 Species of Greatest Conservation Need (CPW 2015). The Breeding Bird Survey indicates a significant population decline in Colorado, and the Colorado Breeding Bird Atlas indicates a decrease in distribution. Confirmed breeding observations of long-billed curlews were reported in ~60% fewer priority blocks during the second Colorado Breeding Bird Atlas (2007–2011) compared to the first atlas (1987–1994).

# Preferred Habitat Conditions

Dominant vegetation	short grasses, sedges, and short annual forbs
Height of herbaceous vegetation	8–20 inches
Landscape context	mosaic of short grasslands, meadows, agricultural fields, and wetlands
Percent cover of emergent vegetation	0–33%
Size of habitat	>50 acres
Water depth in wet meadows	0 or hummocks
Water depth in wetlands	0–6 inches

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for long-billed curlews.

### Vegetation

- Create and maintain diversity of vegetation within wet meadows by mowing, rotational burning, and/or grazing as appropriate.
- Remove residual vegetation.
- Control tall dense vegetation.
- Use periodic prescribed burns to control tall vegetation.
- Control woody plants and shrubs within appropriate grasslands.
- Control height of vegetation through appropriate livestock grazing.
- Use livestock grazing to maximize low vegetation but reduce grazing intensity during breeding period to reduce trampling effects.

### Pesticides

- Avoid controlling grasshoppers with pesticides.
- Reduce use of herbicides on grasslands.

### Conservation

- Protect breeding birds from human disturbance.
- Create 220–325-yard buffers around suitable habitat.



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### Acknowledgements

Colin Lee (Rocky Mountain Bird Observatory/ Colorado Parks and Wildlife/Natural Resources Conservation Service) reviewed an earlier version and provided input on preferred habitat conditions.

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# Habitat Scorecard for Long-billed Curlews (v. Jan 2016)

## *Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Select appropriate checklist: (1) **Playas** or other wetlands or (2) **Wet Meadows**. Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

### Playas or Other Wetlands

Key habitat variable and conditions	Value	Before	After
Percent of water with emergent vegetation			
0 – 33%	25.2		
>33 – 50%	16.8		
>50 – 70%	8.4		
Predominant depth of water			
0 – 6 inches	25.2		
>6 – 7 inches	16.8		
>7 – 8 inches	8.4		
Size of habitat			
>50 acres	19.9		
>12 – 50 acres	13.3		
7 – 12 acres	6.6		
Height of herbaceous vegetation			
8 – 20 inches	19.9		
>20 – 40 inches	13.3		
>40 inches	6.6		
Dominant vegetation			
Low grasses <8 inches	9.8		
Low sedges, rushes <8 inches OR Annual or perennial forbs	6.5		
Tall grasses >8 inches	3.3		
Total (of 100 possible): add all numbers in before or after columns			



# Habitat Scorecard for Long-billed Curlews (v. Jan 2016)

## *Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

Instructions: Select appropriate checklist: (1) **Playas** or other wetlands or (2) **Wet Meadows**. Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

### Wet Meadows

Key habitat variable and conditions	Value	Before	After
Height herbaceous cover			
8 – 20 inches	28.7		
>20 – 40 inches	19.1		
>40 inches	9.6		
Predominant depth of water			
0 or hummocks	28.7		
Size of habitat			
>50 acres	21.4		
>12 – 50 acres	14.3		
7 – 12 acres	7.2		
Percent of herbaceous vegetation that is too dense or hard for animal movement			
0 – 20%	11.2		
>20 – 50%	7.4		
>50 – 80%	3.7		
Dominant vegetation			
Low grasses <8 inches	10.0		
Low sedges, rushes <8 inches OR Annual or perennial forbs	6.7		
Tall grasses >8 inches	3.3		
Total (of 100 possible): add all numbers in before or after columns			

# Sandhill Crane

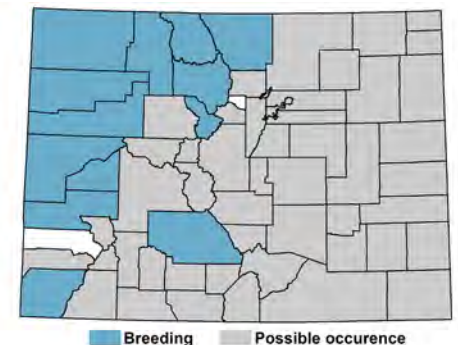
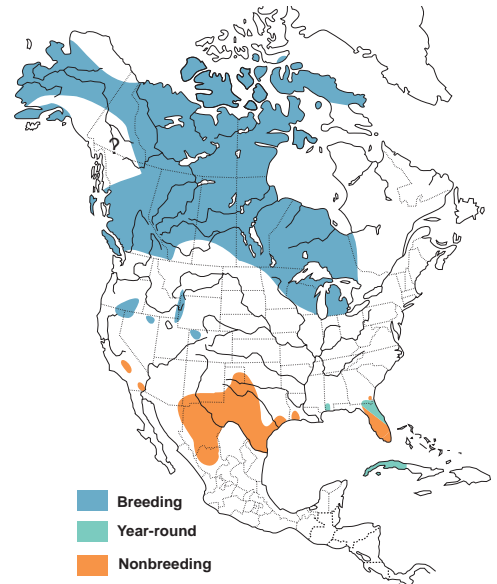
ASSESSING HABITAT QUALITY FOR PRIORITY WILDLIFE SPECIES IN COLORADO WETLANDS



## Species Distribution

### Range

Sandhill cranes breed in a variety of northern regions, including northwestern Colorado. During migration, sandhill cranes can occur almost anywhere in Colorado.



North America map used by permission from Cornell Lab of Ornithology's Birds of North America Online (<http://bna.birds.cornell.edu/bna>). Colorado map based on Andrews and Righter (1992), Kingery (1998), COB-BAT (2015), and CFO (2015).



Sandhill cranes (*Grus canadensis*, Family *Gruidae*) are impressive birds with a wide wingspan, red eye patch, and loud trumpeting call.

## Species Description

### Identification

With a length of 3½–4 feet and wingspan of 6–7 feet, sandhill cranes are hard to miss, but they are sometimes mistaken for great blue herons. Their graceful dancing helps establish and maintain pair bonds, which last a lifetime, and their warbling or trumpeting calls can be heard from a mile away.

### Preferred Habitats

Sandhill cranes occupy numerous wetland habitats, including emergent marshes, seeps and springs, wet meadows, moist soil units, playas, reservoirs, and streams. They rely heavily on grain crops; therefore, wetlands close to crops are preferred.

### Diet

During migration, sandhill cranes depend on corn and other grains, such as wheat, barley, and oats. Other food

items include snails, crayfish, insects, roots, tubers, small vertebrates, and waterfowl eggs.

### Conservation Status

There are several subspecies of sandhill crane. The greater sandhill crane (*G. c. tabida*), listed as a Tier 1 Species of Greatest Conservation Need in Colorado (CPW 2015), winters primarily in New Mexico, with spring and fall stopovers in the San Luis Valley of Colorado. *Grus c. canadensis* migrates through the eastern plains of Colorado. Although two other subspecies (*G. c. pulla* and *G. c. nesiotes*) are Federally endangered, sandhill crane populations appear to be stable or increasing in most areas. In Colorado, breeding records were confirmed in 40% more priority blocks during the second Colorado Breeding Bird Atlas (2007–2011) than the first atlas (1987–1994), suggesting they use more areas for breeding than was known historically.

# Preferred Habitat Conditions

Distance from shore where water is 4–8 inches deep	50–100 yards
Dominant vegetation	open water in roosting wetlands; low grasses, annual forbs and crop plants in foraging wetlands
Habitat size	>2.5 acres
Height of vegetation	<3.3 feet
Percent emergent cover in roosting wetlands	0–20% (open view and little to no emergent vegetation)
Percent herbaceous cover in foraging wetlands	80–100%
Water depth (predominant)	4–8 inches in roosting wetlands; 0 or hummocks in foraging wetlands

## Management Recommendations

This fact sheet contains easy-to-use guidelines for understanding habitat needs of Colorado Parks and Wildlife priority wetland-dependent wildlife. A number of practical steps can be taken to improve habitat for sandhill cranes.

### Hydrology

- Manage hydrology to maintain adequate width and depth (4–8 inches deep) for roosting.
- Maintain flowing water to prevent spread of disease.

### Vegetation

- Maintain availability of vegetation that produces food.
- Control woody vegetation where needed, especially along shorelines.
- Maintain wetland vegetation at early seral stage.
- Control encroaching coarse emergent vegetation (e.g., cattail, bulrush).
- Use appropriate cattle grazing or fall burning to maintain grass height <10 inches.

### Land Use / Other

- Maintain juxtaposition of roosting and feeding sites within 2.5 miles.
- Discourage land use changes that reduce availability of small grains.
- Provide grit (e.g., pebbles and small gravel) at roost sites if needed.
- Remove unused fences, towers, and utility lines.
- Avoid development of new roosting habitat adjacent to dangers (e.g., utility lines).

### Conservation

- Monitor harvest rate; adjust as needed to maintain desirable population numbers.
- Form and maintain partnerships between agencies and agricultural producers.



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### Acknowledgements

Rick Schnaderbeck (U. S. Fish and Wildlife Service) reviewed an earlier version and provided input on preferred habitat conditions.

### Suggested Reading and Citations

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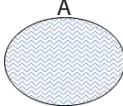
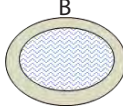

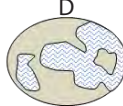

# Habitat Scorecard for Sandhill Cranes (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

**Instructions:** Select appropriate checklist: (1) **Roosting** (e.g., emergent marshes, playas, moist soil units, reservoirs) or (2) **Foraging** (e.g., emergent marshes, wet meadows, moist soil units, recharge ponds). Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Roosting Habitat (e.g., emergent marshes, playas, moist soil units, reservoirs)

Key habitat variable and conditions	Value	Before	After
<b>Predominant depth of water</b>			
>4 – 8 inches	23.1		
>8 – 12 inches or 2 –4 inches	15.4		
<b>Percent of emergent vegetation</b>			
0 – 20%	20.8		
>20 – 40%	13.9		
>40 – 100%	6.9		
<b>Distance from shore where water is 4–8 inches deep</b>			
>55 – 165 yards	19.6		
>25 – 55 yards	13.1		
15 – 25 yards	6.5		
<b>Dominant vegetation</b>			
Open (little to no vegetation)	18.5		
Grasses	12.3		
<b>Interspersion</b>			
A	9.0		
B or C	6.0		
D	3.0		
Interspersion patterns refer to the above diagram (stippled = water, solid = vegetation)	    		
<b>Size of habitat</b>			
>2.5 acres	9.0		
<2.5 acres	3.0		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			



# Habitat Scorecard for Sandhill Cranes (v. Jan 2016)

*Assessment of habitat before and after restoration or management actions*

Project Name: \_\_\_\_\_ Date(s) of Assessment: \_\_\_\_\_

Instructions: Select appropriate checklist: (1) **Roosting** (e.g., emergent marshes, playas, moist soil units, reservoirs) or (2) **Foraging** (e.g., emergent marshes, wet meadows, moist soil units, recharge ponds). Enter one value that best describes early to mid-summer conditions of each habitat variable, using the numbers in the value column. Habitat variables are in shaded boxes; ranges of condition are directly below each variable. If condition is outside range or is not described, enter a zero.

## Foraging Habitat (e.g., emergent marshes, wet meadows, moist soil units, recharge ponds)

Key habitat variable and conditions	Value	Before	After
<b>Dominant vegetation</b>			
Low grasses, annual forbs, and crops	20.8		
<b>Size of habitat</b>			
> 2.5 acres	20.8		
< 2.5 acres	6.9		
<b>Percent of herbaceous vegetation (no woody plants)</b>			
>80 – 100%	19.8		
>60 – 80%	13.2		
30 – 60%	6.6		
<b>Predominant depth of water</b>			
0 or hummocks	19.8		
<b>Height of herbaceous cover</b>			
8 – 20 inches	18.8		
>20 – 40 inches	12.5		
>40 inches	6.3		
<b>Total (of 100 possible): add all numbers in before or after columns</b>			