

Montana's Colonial-nesting Waterbird Inventory

2010 Annual Report



**Submitted to U.S. Fish and Wildlife Service and American Bird
Conservancy**

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November 18, 2010

This report details 2010 implementation of the Western Colonial Waterbird Monitoring and Inventory program in Montana. Montana Fish, Wildlife and Parks and Montana Audubon are partnering with the U.S. Fish and Wildlife Service (USFWS) and American Bird Conservancy on this west-wide colonial-nesting waterbird program. For the 2010 field season, we focused on ten colonial-nesting waterbirds identified in the USFWS program that are also Species of Concern in Montana (see Table 1 for species list). We also focused on Double-crested Cormorants because this species has been targeted for management action in other parts of its range. Other colonial-nesting waterbird species were recorded incidentally.

Waterbird conservation planning requires coordinated range-wide inventory and monitoring programs (Kushlan et al. 2002). In Montana, eleven colonial-nesting waterbird species are identified as high priority species for conservation action or monitoring (Casey 2000; Montana Natural Heritage Program and Montana Fish, Wildlife and Parks 2009). The wetland habitats on which these birds depend are classified as a Tier 1 habitat, or habitat in greatest need of conservation (Montana Fish, Wildlife and Parks 2005). Determining priority areas for maintaining wildlife diversity, and especially diverse assemblages of Species of Concern, is one of the primary conservation needs for wetland habitats. However, waterbirds will often move breeding colonies as wetland conditions change making localized surveys of limited value without regional comparisons. Thus, participation in a region-wide colonial-nesting waterbird inventory may provide critical information for conservation of Montana's waterbirds.

Montana Audubon has been collecting information on bird populations in wetlands and other habitats as part of their Important Bird Area program. Biologists at the National Wildlife Refuges and some of the Wildlife Management Areas in the state have fairly comprehensive local data on wetland birds. There have also been several regional surveys for waterbirds over the previous 10 years (e.g., Casey 2004; Begley 2007). Much of this information is stored in the Montana Natural Heritage database. Involvement with the USFWS coordinated west-wide surveys were undertaken to complement the existing information on waterbirds in Montana.

Methods

We selected wetlands to survey based on previously recorded breeding by our target species in the Montana Natural Heritage Program database, local knowledge, or perceived site potential. Sites that had previous documentation of breeding by our target species but were not sampled in 2009 were our highest priority for surveys in 2010. Key sites, defined as those with

more than 200 individuals or 2 or more colonies of target species in 2009, were also high priority for 2010 sampling. Sites were surveyed primarily between June 2 and July 30 with a two exceptions. We conducted one survey for early nesting pelicans and cormorants on May 26 and an empty nest count for Franklin's Gull on August 24. We continued surveys later in the season than in 2009 because birds nested later this year, presumably in response to weather conditions. Staff from National Wildlife Refuges, Wildlife Management Areas, Tribal lands, and the Bureau of Land Management, along with local volunteers, participated in the program. Montana Audubon hired two staff to coordinate with participating biologists and volunteers, obtain necessary permits, conduct surveys, enter data, and assist with summaries and reporting. We followed USFWS protocols (http://www.fws.gov/mountain-prairie/species/birds/western_colonial/index.html) and entered data in to the WCWS database developed by USFWS.

Results

We surveyed 133 sites, of these 33 (25%) had one or more colonies of nesting waterbirds (Appendix 1). We documented breeding of ≥ 2 colonies of target species at 14 sites. Eight sites had over 200 target waterbird individuals recorded. These were Red Rock NWR, Canyon Ferry WMA, Benton Lake NWR, Bowdoin NWR, Medicine Lake NWR, Ninepipe NWR, Homestead Lake, and Freezout Lake WMA. These are roughly the same sites as identified in 2009 with >200 individuals. Exceptions include the removal of Manning Lake and addition of Homestead Lake because of movement by the Franklin's Gull colony in the area, and the addition of Ninepipe NWR and Freezout Lake WMA as sites with >200 individuals. These latter two sites likely had over 200 waterbirds in 2009 but breeding Double-crested Cormorants were not counted at those sites that year. An additional four sites, Warm Springs WMA, Wild Horse Reservoir, Fort Peck Lake, and Arod Lakes had over 200 breeding waterbirds but numbers were dominated by Ring-billed and/or California Gulls, which are non-target species. At 37 sites, we documented waterbird presence but no evidence of breeding activity.

Colony counts ranged from 1 – 4833 nesting pairs, depending on species and location (Table 1). Detailed species accounts are provided in Appendix 2. In general, birds were in relatively small colonies, with the exception of American White Pelicans and the gull species. Total number of breeding pairs was relatively similar to 2009 for most species, with possible exceptions for Caspian, Common, and Black terns.

Table 1. Summary of breeding pairs of colonial-nesting waterbirds in Montana in 2009 and 2010.

Species	2009 ^a				2010			
	Sites with confirmed breeding	Total breeding pairs	Median colony size (pairs)	Colony size range (pairs)	Sites with confirmed breeding	Total breeding pairs	Median colony size (pairs)	Colony size range (pairs)
Species of Concern								
Clark's Grebe	1	<77 ^d	n/a	n/a	2	5	3	2 - 3
American White Pelican	4	5938	1630	25 - 1907	4	4866	1290	43 - 2244
Great Blue Heron	53	719	10	4 - 50	27	333	6	1 - 62
Black-crowned Night-heron	7	93	8	1 - 36	6	123	22	2 - 36
White-faced Ibis	2	115	53	1 - 95	4	225	14	3 - 195
Franklin's Gull	4	8247	2210	16 - 2867	4	7945	1513	87 - 4833
Caspian Tern	3	31	12	1 - 18	2	12	6	1 - 11
Forster's Tern	5	66	13	2 - 30	6	68	11	4 - 22
Common Tern	2	43	22	1 - 42	2	23	12	10 - 13
Black Tern	13	95	6	2 - 15	8	73	8	4 - 19
Additional Target Species								
Double-crested Cormorant ^b	11	.	15	3 - 225	12	1064	31	5 - 371
Non-target Species^c								
Red-necked Grebe	5	.	5	1 - 5	3	.	2	1 - 3
Horned Grebe	1	.	1	n/a	0	.	.	.
Eared Grebe	9	.	4	1 - 45	7	.	4	2 - 50
Western Grebe	2	.	n/a	2 - <77 ^d	3	.	52	1 - 79
Ring-billed Gull	6	.	125	27 - 2045	6	.	118	25 - 3040
California Gull	4	.	176	6 - 683	8	.	250	18 - 3366
Ring-billed and California Gull	3	.	750	375 - 750

^aNumbers reported here differ from our 2009 report as additional data became available after the report was completed. These numbers represent a summary of current data provided in the WCWS database.

^bDouble-crested Cormorants were not a target species in 2009 but were in 2010; therefore total breeding pair estimates are not provided for 2009.

^cData was collected opportunistically for these species. Estimates of total breeding pairs are not reported as many colonies were not surveyed.

^dClark's and Western Grebes were nesting together at one sites; observers could not determine the proportion of CLGR:WEGR.

Cool, wet spring conditions led to high water levels throughout the state by mid-June and many potential or occupied nesting islands were submerged. Nestlings of the earlier island nesting species, Double-crested Cormorant, Ring-billed Gull, and California Gull, were found clustered at the exposed tops of islands or floating dead in wetlands. Relatively large numbers of adult cormorants were observed adjacent to some flooded wetlands, suggesting nest failure. Nest abandonment and subsequent re-nesting by Common Tern was documented at Freezout Lake, apparently because the original island became overgrown with tall vegetation. Emergent vegetation was also submerged in some areas and may have discouraged breeding attempts by marsh-nesting species.

Survey methods employed varied by species, nesting substrate, and local conditions (Appendix 2). We typically used perimeter counts for tree-nesting species, including most Great Blue Herons colonies and the tree-nesting colony of Double-crested Cormorants at Ninepipe NWR. With large colonies in trees we found two observers comparing independent counts improved accuracy. We primarily used within colony nest counts to estimate the number of marsh nesting birds; although occasionally we counted individuals because of difficulties accessing a colony. As in 2009, Franklin's Gulls remain particularly problematic. The counting of Franklin's Gull colonies can be extremely difficult due to the dense nature of the rushes in which the nesting usually occurs and the vulnerability of the nests to disturbance or destruction by the survey crew. To avoid nest disturbance we used flush counts and post-fledging empty nest counts in 2010. The flush counts have some estimation potential, although bias is unknown. Empty nest counts proved to be a poor method because higher water levels, nest deterioration, and changes in vegetation structure in late summer caused observers to miss nests at an unknown rate. Thus, we are unsure of the accuracy of our breeding population estimates for Franklin's Gull.

Discussion and Future Plans

We recorded a lower percentage of occupied sites in 2010 than in 2009 (25% vs. 53%, respectively). The cooler and wetter than average spring conditions in 2010 likely influenced waterbird distribution, nest initiation, and nest success. Colonial-nesting waterbirds of breeding age may have foregone breeding or failed in breeding attempts prior to our survey visit in 2010 because of altered wetland condition related to high water levels. Thus, our estimate of nesting pairs may be an underestimation of the potential breeding population in Montana in 2010.

As in 2009, we believe we located all active colonies of American White Pelican, Franklin's Gull, and White-faced Ibis, although the accuracy of Franklin's Gull counts remains a challenge. Our estimates for Black-crowned Night-heron, Double-crested Cormorant, Common Tern, and possibly Forster's Tern are also probably relatively complete. Relatively large numbers of Caspian Tern were observed at Flathead and Fort Peck lakes. These may be non-breeding birds or may represent undiscovered colonies in those locations which would significantly alter our breeding population estimates for this species. Black Terns nest in small colonies distributed in wetland complexes across the landscape; it is likely we missed some colonies of this species. Great Blue Heron colonies are dispersed primarily along river drainages in Montana. We covered some portions of the state well for this species, including the lower Yellowstone River and Madison, Gallatin, and Jefferson Counties. However, there are portions of the state, including the upper Yellowstone River and portions of the Missouri River, which have not been adequately surveyed.

Our plans for 2011 are to continue surveys at the 8-20 key wetland sites that provide habitat for a majority of colonial-nesting waterbird Species of Concern in Montana. We also plan to survey Great Blue Heron colonies along those river corridors that were not surveyed in either 2009 or 2010. Additionally, we plan to assess the accuracy of fly-out and/or flush counts for Franklin's Gull to identify an accurate survey method for this species.

Acknowledgments

The U.S. Fish and Wildlife Service and Montana Fish, Wildlife and Parks provided funding.

Our appreciation is extended to all those who helped make this survey possible.

Stephanie Jones, USFWS Migratory Bird Program Coordinator, Western Regional Office, Denver, coordinated the multi-state survey effort.

Gregg Doney and Fred Tilly were the principal survey observers with Montana Audubon for western Montana counties and eastern Montana counties, respectively.

Fritz Prellwitz, BLM Biologist, Malta office, conducted surveys on BLM lands in Phillips County and provided historical site information. BLM technicians Scott Amestoy and Tanna George assisted with Phillips County surveys.

Chris Hammond and Lindsey Stutzman, MFWP, Kalispell office, conducted surveys in Flathead County.

Janene Lichtenberg, Wildlife Biologist, Confederated Salish and Kootenai Tribes, coordinated tribal permits, provided logistical support and assisted with counts in Lake County.

Vanessa Fields, USFWS Biologist, Benton Lake NWR, provided permits for lands within the Benton Lake Complex. She and Steven Dawes, Ryan Stutzman, Robert Jordan, Amy Coffman, Nancy McCue, and Susan Krage conducted surveys on the main and satellite refuges.

Fred Jakubowski, MFWP Technician, conducted surveys on Canyon Ferry WMA assisted by Kevin Heinley and Gregg Doney

Heather McWilliams, Refuge Manager, Bowdoin NWR, and assistants David Score and Leah Minnerath conducted surveys on Bowdoin Lake and provided valuable logistical support for other surveys conducted on the refuge.

Jeanne Spaur, Biologist, Fort Peck Tribes, and assistant Marley Firemoon did essential preliminary surveys on Manning Lake in Roosevelt County.

Jeff Warren, USFWS Biologist, Red Rock Lakes NWR, coordinated surveys on the Refuge, which were conducted by Gina Pasini and Kyle Cutting.

Brent Jamison, USFWS Biologist, Medicine Lake NWR, along with Kristina Hale and Tandi Perkins helped with surveys on this large refuge complex.

Gary Swant, volunteer, conducted surveys at Warm Springs WMA and coordinated access with Dave Dziak, MFWP and Jenni Harvis, ARCO.

Brent Lonner, MFWP Biologist, Freezout WMA, piloted an airboat and assisted with surveys of the main lake, along with other logistical support.

John Mulligan, US Army Core of Engineers technician, submitted information from Fort Peck Lake and the Missouri River. Project supervisor was Patricia Gilbert.

Tim Miller, USFWS National Bison Range, provided a special use permit for Ninepipe NWR.

Appreciation is extended to the managers at the National Wildlife Refuges, especially Jerry Rodreguez at Medicine Lake and Carmen Luna at Bowdon, and to Shawn Cleveland at The Nature Conservancy's Matador Ranch who provided extremely helpful advice and logistical support for surveys in and around the refuges; also to all of the land owners and managers who provided permission to access the wetlands.

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