

Montana's Colonial-nesting Waterbird Survey

Final Report



Prepared for the U.S. Fish and Wildlife Service, American Bird Conservancy, and Montana Bird Conservation Partnership

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This report details the final summary of the Western Colonial Waterbird Monitoring and Inventory (WCWS) program in Montana. Montana Fish, Wildlife and Parks and Montana Audubon partnered with the U.S. Fish and Wildlife Service (USFWS) and American Bird Conservancy on this west-wide colonial-nesting waterbird program. In 2009-2010, we focused survey efforts on colonial-nesting waterbirds that were Montana Species of Concern. In 2010, we added Double-crested Cormorants to our priority list. In 2011, we focused almost exclusively on Great Blue Herons and 13 wetland sites that had large and diverse waterbird colonies. 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; Puchniak and Stewart 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. Staff from national Wildlife Refuges, Montana Fish, Wildlife and Parks, 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 for colony counts (http://www.fws.gov/mountain-prairie/species/birds/western_colonial/index.html). Whenever possible, nests were counted to estimate of the number of breeding birds. When nests could not be counted, we estimated the number of individual breeding birds through fly-out or flush counts. Data were entered in to the WCWS database developed by USFWS.

Results

We surveyed 150, 133, and 138 wetland sites in 2009, 2010, and 2011, respectively. Sites with more than one species or large numbers of colonial-nesting waterbirds (i.e., key sites) were surveyed in most years (Table 1). More dispersed sites were surveyed once during the

three year survey window (Appendix 1). Descriptions of occupied sites are forthcoming in the USFWS Colonial-nesting Waterbird Atlas being prepared by USFWS.

Median colony size ranged from 7 – 1200 over the 3 year period, depending on species (Table 2). Detailed species accounts are provided in Appendix 2. In general, birds were in relatively small colonies (median <20 pairs), with the exception of American White Pelicans and the gull species. Differences in total breeding pair estimates among years are likely an artifact of sampling and not necessarily representative of yearly population fluctuations. The considerably lower counts of American White Pelicans at Canyon Ferry WMA in 2011 compared with 2010 or 2009 (~60% decrease) may be related to a localized weather event as there appeared to be adequate habitat available to support a larger colony.

Cool, wet spring conditions and higher than average snowpack in 2010 and 2011 led to high water levels and record flooding throughout the state by mid-June. Emergent vegetation and islands were submerged. Flooding may have resulted in some changes to colony distribution, e.g., Western Grebe and Forster’s Terns moved their breeding location within Freezout WMA and Franklin’s Gulls apparently split their colony between Manning Lake and Homestead Lake. We also noted later nesting initiation by some birds and a few re-nesting attempts which were likely related to cool, wet conditions and submerged islands. However, we did not detect much colony abandonment.

Table 1. Key wetland sites for focal colonial-nesting waterbirds in Montana based on 2009-2011 surveys.

County	Sites	Focal Species Breeding
Beaverhead	Red Rock Lakes NWR	WFIB, FRGU, DCCO
Broadwater	Canyon Ferry WMA	AWPE, CATE, DCCO
Cascade	Benton Lake NWR	WFIB, FRGU, BCNH
Deer Lodge	Warm Springs WMA	BCNH, GBHE, DCCO
Lake	Ninepipes NWR	CLGR, CATE, FOTE, DCCO
Phillips	Bowdoin NWR	AWPE, WFIB, BLTE, CATE, COTE, FOTE, FRGU, BCNH, DCCO
	Flat Reservoir	DCCO, GBHE, BCNH
	Hoss Reservoir	BCNH
	Wild Horse Reservoir	BLTE, BCNH, DCCO
Roosevelt	Manning Lake	WFIB, FRGU, BCNH
Sheridan	Medicine Lake	AWPE, FOTE, BCNH, DCCO
	Homestead Lake	FOTE, FRGU (WFIB)
Teton	Arod Lakes	AWPE, COTE, DCCO
	Freezout Lake WMA	CLGR, COTE, FOTE, BCNH, DCCO
Valley	Fort Peck Lake	CATE, DCCO

CLGR = Clark’s Grebe

AWPE = American White Pelican

DCCO = Double-crested Cormorant

GBHE = Great Blue Heron

BCHN = Black-crowned Night-heron

WFIB = White-faced Ibis

FRGU = Franklin’s Gull

CATE = Caspian Tern

FOTE = Forster’s Tern

COTE = Common Tern

BLTE = Black Tern

Table 2. Summary of breeding pairs of colonial-nesting waterbirds in Montana in 2009-2011.

Species	2009		2010		2011		Summary 2009-2011		
	Sites with confirmed breeding	Total breeding pairs	Sites with confirmed breeding	Total breeding pairs	Sites with confirmed breeding ^a	Total breeding pairs	Estimated number of breeding pairs in MT	Median colony size (pairs)	Colony size range (pairs)
Species of Concern									
Clark's Grebe	1	n/a ^d	2	5	1	n/a ^d	n/a	n/a	n/a
American White Pelican	4	5,938	4	4866	4	4726	4700 - 6000	785	25 - 2951
Great Blue Heron	53	719	27	333	76	1183	2000 - 2500	10	1 - 62
Black-crowned Night-heron	6	93	6	123	6	220	95 - 240	14	1 - 53
White-faced Ibis	3	115	4	225	3	95	115 - 250	10	3 - 195
Franklin's Gull	4	8,247	4	7945	4	8100	7900 - 8300	1200	16 - 4833
Caspian Tern	3	31	2	12	4	134	70 - 135	11	1 - 51
Forster's Tern	6	66	6	68	4	49	50 - 100	9	2 - 30
Common Tern	2	43	2	23	5	120	<150	10	1 - 49
Black Tern	13	95	8	73	3	38	n/a	7	2 - 20
Target Species									
Double-crested Cormorant ^b	13	.	12	1064	10	834	1000 - 1300	23	2 - 371
Non-target Species^c									
Red-necked Grebe	5	.	3	.	3	.	.	n/a	n/a
Horned Grebe	1	.	0	.	0	.	.	n/a	n/a
Eared Grebe	11	.	7	.	3	.	.	n/a	1 - 550
Western Grebe	2	.	3	.	2	.	.	43	1 - 77
Ring-billed Gull	6	.	6	.	6	.	.	550	25 - 3040
California Gull	4	.	8	.	4	.	.	201	6 - 3366
Ring-billed & California Gull	.	.	3	.	2	.	.	750	375 - 750

^aRed Rock Lake NWR did not conduct colony counts in 2011^bDouble-crested Cormorants were not a target species in 2009; therefore total breeding pair estimates are not provided.^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 ; observers could not determine the proportion of CLGR:WEGR

Survey methods employed varied by species, nesting substrate, and local conditions (Appendix 2). We typically used aerial or 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 nest counts improved accuracy. We primarily used within colony nest counts to estimate the number of marsh nesting birds; although occasionally we counted individuals instead of nests because of difficulties accessing a colony. Franklin's Gulls were the most 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. We found adult flush counts, ideally from a boat in the water, were the best method for estimating Franklin's Gull nests. This method also allowed the observer to record observations of birds nesting with the gulls, such as White-Faced Ibis and Black-crowned Night-heron.

Discussion

We believe we located and surveyed all active colonies of American White Pelican, Franklin's Gull, and White-faced Ibis in all survey years (except counts were not conducted at Red Rock Lake NWR in 2011), 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. Black Terns nest in small colonies distributed in wetland complexes across the landscape; it is likely we missed some colonies of this species, especially in 2011. Great Blue Heron colonies are dispersed primarily along river drainages in Montana. We covered a large portion of the river drainages with potential heron habitat but we certainly may have missed some colonies. We were able to document breeding by Caspian Terns at Ninepipe NWR and Fort Peck Lake in 2011; in both areas they were nesting in large Ring-billed and California gull colonies and we may have missed them in previous survey years. It is likely that experience gained by observers over the three year survey allowed us to find some of the more cryptic breeding birds in 2011.

We surveyed for all focal species at all sites and estimated number of breeding birds whenever encountered. Therefore, lack of a documented breeding attempt for our focal species means we have reasonable confidence that a focal species was not breeding at a given sites and can be treated as negative data in data analysis. This does not pertain to non-target species, as some breeding attempts may have gone undocumented by observers. Data records for non-target species need to be treated as presence only.

Future Directions

We have identified three strategies to address future information needs. First, birds that nest in loose colonies or occupy dispersed wetlands in low numbers across the state were not as well-surveyed by our methods (e.g., Black Terns). A systematic approach to monitoring marsh-nesting birds, colonial and noncolonial, would enhance our understanding of the status, distribution, and population size of some waterbirds across the state. The pending USFWS marshbird monitoring strategy may provide this framework for this need.

Secondly, waterbird breeding numbers appear to fluctuate, sometimes widely, among years at a given site (e.g., American White Pelicans). Thus, a colonial-nesting waterbird monitoring program for select species would provide long-term trend and other information for differentiating yearly fluctuations from significant population shifts. We propose a volunteer-based program, supplemented by agency biologists (especially refuges) and additional minimal paid field support, to monitor main sites across the state on a yearly basis with the intent to conduct a more comprehensive survey to assess changes in distribution at 3 - 5 year intervals. Monitoring at our 15 key sites should

provide a reasonable estimate of breeding numbers for American White Pelicans, Black-crowned Night-herons, White-faced Ibis, Franklin's Gull, Caspian Tern, and possibly Common and Forster's terns. To include Double-crested Cormorants, which are receiving attention in some western states because of potential conflicts with fishery interests, we recommend adding Pablo NWR, Frenchmen Reservoir and Lee Metcalf NWR to the monitoring strategy.

Lastly, Great Blue Herons nest in dispersed colonies, often along river corridors, and are best monitoring by aerial surveys. We recommend conducting a statewide aerial survey for herons at 3 – 5 year intervals in conjunction with the more comprehensive waterbird monitoring described above. These surveys can be combined with Bald Eagle or other riparian-based surveys.

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Appendix II. Colonial Nesting Waterbird Species Accounts for Montana, 2009 – 2011

Target species

Clark's Grebe, CLGR

The Clark's Grebe is an uncommon breeding species in Montana. They nest in colonies on large lakes and marshes. Although colonies may contain tens or hundreds of nests, colonies in Montana are typically small (5 to 10 pairs). The nest is on a floating platform of vegetation in shallow water.

Unless the bird is well-seen it can be difficult to distinguish from the much more common Western Grebe. This was a problem in the 2009 survey in which the only site where they were found to nest had breeding CLGR that were counted together with the WEGR (nest total was 77) as not enough of the birds could be identified to species. No breeding pairs of CLGR were counted at that site (Freezout Lake) in 2010 while there were 52 pairs of WEGR. There was one site with nesting CLGR in 2010 with a total of 2 pairs. In 2011 the species was noted as present at one location but nesting was not confirmed.

American White Pelican, AWPE

There are four known breeding locations for AWPE in Montana. Three of these are major colonies and one is much smaller. Nesting was documented at all 4 sites for the AWPE in 2011. Three of these sites (the major sites) yielded a total count of 4622 nests. This compares with 5843 and 4823 nests in 2009 and 2010, respectively. At the site where fewer AWPE nest an actual nest count was not done in any of the three years. The total individuals present ranged from 85 to 207.

The AWPE typically nests in large colonies on an island or point that is relatively isolated from predators. The nests are shallow depressions scraped in the ground and lined with twigs and other debris. Where available, partial shade afforded by trees is preferred. Colony locations may vary from year to year depending on water levels and other factors. The timing of egg laying may vary among colonies, even those in close proximity. At Medicine Lake NWR during all three seasons there were two sub-colonies, one on a large island and one on a long point from which predators were excluded with an electric fence. At the time of the surveys island nesting birds had only eggs while on the point the nests had well-developed chicks, one invariably much larger than the other, in nearly every nest.

Productive nesting colony survey dates for this species have ranged from 5/22 to 6/16 during the three years of this study.

Double-crested Cormorant, DCCO

The Double-crested Cormorant is a common breeding species on lakes, ponds, marshes and rivers throughout Montana. They generally breed at three years of age and nest in large or small colonies. Nests are a platform of sticks in a tree or on the ground on an island. The DCCO often nests in colonies with gulls or herons.

Nesting was documented at a total of 14 sites for the DCCO in 2009. Eleven of these sites yielded a count of 799 nests but at three of the sites nests were not counted though active nests were seen. A total of 63 individuals were present with no indication of nesting at 14 sites in the 2009 survey.

Nesting was documented at 12 sites for the DCCO in 2010. Eleven of these sites yielded a count of 1054 nests. At one of the sites nesting was thought very likely but no DCCO were included in reported counts. At 14 sites in the 2010 survey a total of 271 individuals were present with no indication of nesting.

In 2011 nesting was documented at 11 sites yielding a total of 1065 nests. At 3 additional sites a total of 86 DCCO were present and likely nesting but this was not confirmed in the reports.

Productive nesting colony survey dates for this species have ranged from 5/22 to 7/13 during the three years of this study.

Great Blue Heron, GBHE

The Great Blue Heron is a common breeding species on lakes, ponds, marshes and rivers throughout Montana. They breed as early as two years old and nest in large or small colonies. The nest is a platform of sticks, usually in a tree but may be on the ground on an island. The GBHE often nests in colonies with other herons and in Montana with cormorants and occasionally on an island with gulls.

In addition to the 2009 ground and boat surveys of GBHE, a series of known nest locations was checked by air in 2009 along the Clark Fork and Bitterroot River drainages of western Montana. An extensive aerial survey effort in southeast Montana also checked 47 sites that had GBHE nesting in the past and documented 32 active nesting sites.

Nesting was documented at a total of 56 active sites for the GBHE in 2009. Excluding 3 sites which had no nest estimate these sites yielded a total of 719 nests.

Unlike the surveys for most other species for which most of the productive sites were covered during both years, GBHE survey coverage in 2010 differed markedly from that of 2009. Most of the aerial survey sites documented for 2009 in western Montana and all of the 2009 southeast Montana sites were skipped in 2010. Instead, aerial surveys were used to document several new sites in the west and check 18 additional sites in the southeast, 14 of which were active.

Nesting was documented at 29 sites for the GBHE in 2010. Twenty-seven of these sites yielded a count of 333 nests. At one of the sites nests were not counted and a total of 4 individuals were associated with that site. At another of the sites nesting was thought very likely but no GBHE were included in reported counts.

In 2011 the emphasis in aerial surveys was on sites in the remaining drainages that had not been checked in the past two seasons. There was also a check of some Western Montana GBHE rookery sites that had been counted in 2009. An early season ground survey checked the length of the Milk River in north-central Montana. The species was also documented at the major sites which were a priority in 2011. Nesting was documented at 77 sites and 1203 nests were counted in 2011.

Timing of nesting for this species is usually early and aerial surveys are generally done in April and May before the leaves hide the tree nests. At this time the GBHE are usually occupying the rookeries and have eggs in the nest. Productive nesting colony survey dates for this species have ranged from 4/1 to 7/24 during the three years of this study.

During the three years of this survey a total of 132 sites were documented with GBHE nesting during at least one of the years.

Black-crowned Night Heron, BCNH

The Black-crowned Night Heron in Montana nests in colonies of from 5 to 50 breeding pairs in a variety of locations. The nest, a platform of sticks or reeds, may be on the ground, in the protection of a reed bed or in a group of trees. A protected location such as an island is preferred. Eggs usually number 3 to 8. The Black-crowned Night Heron is most active at dusk and during the night. They feed on a wide variety of small aquatic life forms.

Nesting was documented at 7 sites for the BCNH in 2009 yielding a total of 93 nests. A total of 11 individuals were present with no indication of nesting at 6 sites in the 2009 survey.

In 2010 nesting was documented at 6 sites for the BCNH in 2010 yielding a total of 123 nests. The increase was entirely due to one site which was covered more thoroughly in 2010. At 5 additional sites in the 2010 survey a total of 9 individuals were present with no indication of nesting.

In 2011 nesting was documented at 6 sites yielding a total of 220 nests. This increase may have been the result of a greater degree of concentration at the better nesting colony locations caused by unusually high water levels. A total of 18 individuals were present with no indication of nesting at 3 sites in the 2011 survey.

Productive nesting colony survey dates for this species have ranged from 5/29 to 7/27 during the three years of this study.

White-faced Ibis, WFIB

The White-faced Ibis is an uncommon breeding species in Montana and sites are generally east of the Rocky Mountain Front. The WFIB typically nests in marsh habitat and colony size in Montana has ranged from 5 to 195 breeding pairs. The nests may be in low trees, aquatic vegetation or on the ground. The nest consists of a deeply cupped platform of coarse vegetation and sticks. They were found nesting within or near large FRGU colonies in rushes at 4 locations during this study.

Four sites had breeding WFIB in 2009 but one (Red Rock Lakes NWR, the most important site with 95 nests counted) had a reduced count due to an incomplete survey caused by weather conditions. Another had no count but nesting was very likely. The three counts yielded a total count of 115 nests.

Four sites again had breeding WFIB in 2010 and yielded a total estimate of 225 nests with Red Rock Lakes doing a full survey and recording 195 nesting pairs.

In 2011 Red Rock Lakes had not reported results at the time of this report and the total at the other three sites was 95.

Productive nesting colony survey dates for this species have ranged from 6/15 to 7/14 during the three years of this study.

Franklin's Gull, FRGU

The Franklin's Gull nests in very large colonies in prairie marshes in scattered locations east of the Rocky Mountains in Montana. Colony size is often several thousand breeding pairs. The nest, composed of a floating platform of reeds, is most often in dense reeds or rushes in 2 to 3 feet of water. Nests may be on the ground in some locations or in shallower water. The nest is well-maintained and the coarse vegetation is lined with softer material. Eggs usually number two or three. The Franklin's Gull feeds on insects and other small prey and will scavenge as well.

Nesting was documented at 4 sites, comprising all known nesting colonies in the state, for the FRGU in 2009. These yielded a count of 8247 nests.

Nesting was again documented at 4 sites for the FRGU in 2010. These sites yielded a count of 7945 nests. One of the three major sites shifted about ten miles to an alternate location in 2010 but the nest total was about the same.

While the nest total 2009 and 2010 was fairly close there was an offsetting drop and increase of around 50% in two of the major sites. This may have been caused as much by count inaccuracy as by any fluctuations in the actual number of nests. The counting of FRGU colonies is extremely difficult in most cases due to the dense nature of the rushes in which the nesting usually occurs and the water depth. The nests are very vulnerable to disturbance by a survey crew within the colony. To avoid nest destruction or abandonment flush counts and post fledging empty nest counts were used in this study but they were all susceptible to problems that resulted in low confidence in count accuracy. Post season nest counts have mostly failed due to changes in water level and rapid nest deterioration. In locations where nests remain intact longer, a sufficient percentage of the colony area must be sampled in order to obtain a reasonably accurate total nest estimate.

The most workable method, used in most FRGU surveys in the three years of this study, involved using a canoe or row boat along the edge of the colony and periodically flushing the birds by making some noise. It is helpful to stand up and assess nest density in the areas that can be seen from the colony edge. It also helps to stop periodically and remain still for 20 or 30 minutes to allow the birds to settle back down on nests. Carefully evaluating the volume, direction and distance of gull calls is also helpful. It is necessary to stay out of the inlets in the rush bed that allow closer viewing of the colony if there are chicks present as they can be scared into the water by too close an approach. It is not clear whether or not they get back into the nests in such cases though they are highly buoyant and have no problem in swimming. Though certainly subject to considerable inaccuracy, the method produces a rough estimate with a minimum of disturbance to the birds. It also allows estimation of other species such as WFIB, BCNH, EAGR and FOTE that often nest with the FRGU. A single person can do the survey with this method and this tends to minimize impact.

In 2011 the four major sites were surveyed yielding a total estimate of 8100 nests. Two of these sites, Medicine Lake NWR and nearby Manning Lake, have been alternately used in the past so we generally have had 3 major sites for the species in Montana. However, in 2011 both of these sites were occupied by large nesting colonies making four major sites. Site totals ranged from 1200 to 3280 nests.

Productive nesting colony survey dates for this species have ranged from 6/14 to 7/8 for actively nesting colonies and 8/6 to 8/24 for post-fledging empty nest surveys during the three years of this study.

Caspian Tern, CATE

The Caspian Tern is an uncommon but widespread nesting species in Montana. They nest on rivers and large lakes in distinct colonies or in mixed colonies with gull and other tern species. In Montana colony size is typically less than 50 breeding pairs. Nests are typically on sand and gravel, or sometimes on vegetation. Eggs number from one to three. The Caspian Tern feeds mainly on fish and is known to fly up to 60 km from the breeding colony to catch fish.

Nesting was documented at 3 sites for the CATE in 2009. These sites yielded a total count of 31 nests. A total of 25 individuals were present with no indication of nesting at 4 other sites in the 2009 survey.

Two sites had nesting CATE in the 2010 survey. These yielded a total of 12 nests. A total of 220 individuals were present with no indication of nesting at 4 other sites in the 2010 survey. This included 200 individuals gathered at a gull colony on a Ft. Peck Lake island on 7/6/2010 that apparently were not nesting. Rising water during the nesting season was a problem there and they were likely flooded out of nests earlier.

In 2011 a total of 67 nesting pairs was recorded at 4 sites. This included 51 nests at a colony that included large numbers of CAGU and RBGU on an island in Ft. Peck Lake. At the other extreme, a single pair nested with an island CAGU/RBGU colony in Bowdoin NWR.

Productive nesting colony survey dates for this species have ranged from 5/22 to 6/26 during the three years of this study.

Forster's Tern, FOTE

The Forster's Tern nests in marshes in scattered locations east of the Rocky Mountains in Montana. Colony size is typically less than 50 breeding pairs. The nest site can vary from an unlined scrape in mud or sand to a floating mat of vegetation or the top of a muskrat house. Eggs usually number three or more. The Forster's Tern feeds mainly on fish and insects in the marsh.

Nesting was documented at 6 sites for the FOTE in 2009. Five of these sites yielded a count of 66 nests. At one of the sites nests were not counted while nesting was considered very likely. A total of 63 individuals were present with no indication of nesting at 7 other sites in the 2009 survey.

Nesting was documented at 6 sites for the FOTE in 2010. These sites yielded a count of 68 nests. At 12 sites in the 2010 survey a total of 64 individuals were present with no indication of nesting.

Nesting was documented at 4 sites in 2011 yielding a total of 49 nests while 8 individuals at 4 sites were present with no indication of nesting.

Productive nesting colony survey dates for this species have ranged from 6/4 to 7/22 during the three years of this study.

Common Tern, COTE

The Common Tern nests on lakes in scattered locations east of the Rocky Mountains in Montana. In Montana colony size is typically less than 50 breeding pairs. Nests are typically on sand and gravel, or sometimes on vegetation. Eggs usually number from two to four. The Common Tern feeds mainly on fish in lakes and large rivers.

Nesting was documented at 2 sites for the COTE in 2009. One of these sites yielded a count of 42 nests while at the other 2 individuals were present but no nest count was made. A total of 69 individuals were present with no indication of nesting at 11 other sites in the 2009 survey.

Two sites had nesting COTE in the 2010 survey. These yielded a total of 23 nests. A total of 95 individuals were present with no indication of nesting at 6 other sites in the 2010 survey.

The cool spring in 2009 and 2010 coupled with generally high water levels in 2010 could have delayed nesting in this species or resulted in nest failures.

Weather through most of June was cool and wet with flooding in 2011 but nesting of this species showed a big increase over the past two seasons. A total of 130 nests was documented at 5 sites while 29 individuals were present with no indication of nesting at 5 other sites in the 2011 survey. The largest colony documented in 2011 (45 nests) was adjacent to a RBGU colony on a large island in a headwaters impoundment at the Katy Lake site in Medicine Lake NWR. The close proximity to this gull species was unusual and caused the observer to limit disturbance of the adult terns as gull predation on the chicks was clearly a constant threat.

Productive nesting colony survey dates for this species have ranged from 5/22 to 6/26 during the three years of this study.

Black Tern, BLTE

The Black Tern is an uncommon but widespread nesting species in Montana. They nest in freshwater marshes, usually in colonies of from 5 to 50 pairs. The nest, typically with 2 to 4 eggs, is either on floating marsh vegetation or on the ground at the water's edge. They feed on fish and insects at or near the surface and catch insects in flight.

Nesting was documented at 13 sites for the BLTE in 2009 yielding a total count of 95 nests. A total of 33 individuals were present with no indication of nesting at 10 sites in the 2009 survey.

Just 8 sites had nesting BLTE in the 2010 survey yielding a total of 72 nests. A total of 123 individuals were present with no indication of nesting at 8 sites in the 2010 survey. This included a July 1st gathering of 100 non-breeding BLTE at Smith Lake in the NW part of the state where a nesting colony of 9 was located in 2009.

Nesting was recorded at just 3 sites in 2011. The low number of sites was due to this year's emphasis on major water bird sites while most BLTE sites have been widely dispersed with only the single species. A total of 38 nesting pairs was recorded.

Productive nesting colony survey dates for this species have ranged from 6/10 to 7/7 during the three years of this study.

Non-target Species

Horned Grebe, HOGGR

The Horned Grebe is an uncommon breeding species in the wetlands of Montana. They are usually solitary nesters on ponds and marshes. The nest is on a floating platform of vegetation. HOGGR nests are often found in or near rush beds along the shore of a pond.

The HOGGR was not a target species for the 2009 survey. Nesting was documented at just one site in 2009 and one nest was counted. One individual was present with no indication of nesting at one other site in the 2009 survey.

Nesting was not documented at any sites for the HOGGR in 2010. At one site in the 2010 survey 5 individuals were present with no indication of nesting. The HOGGR was not a species of special concern for purposes of the 2010 survey but it appears to occur infrequently in the state.

Again in 2011 nesting was not documented and the species was not encountered at all during the surveys.

Red-necked Grebe, RNGR

The Red-necked Grebe is an uncommon breeding species on lakes and ponds across northern Montana. They nest in colonies or single pairs on shallow lakes and marshes (rarely less than 10 acres). They are at least two years of age before breeding and groups of non-breeders are found within the species nesting range during the spring and summer. The nest is on a floating platform of vegetation. RNGR colonies are often found in or near dense rush, cattail or sedge beds along the shore of a lake but the locations often change from year to year.

Nesting was documented at 5 sites for the RNGR in 2009 and the total estimate of nests was 20. A single individual was present with no indication of nesting at one other site in the 2009 survey.

Nesting was documented at 3 sites for the RNGR in 2010 and a total of 6 nests were estimated. At five additional sites in the 2010 survey a total of 18 individuals were present with no indication of nesting.

In 2011 Nesting was documented at 3 sites yielding a total of 14 nests. No other individuals were encountered in the 2011 surveys.

Productive nesting colony survey dates for this species have ranged from 6/12 to 7/18 (post fledging) during the three years of this study.

Eared Grebe, EAGR

The Eared Grebe is a very common breeding species on sheltered shallow areas of lakes, ponds and marshes throughout Montana. They breed as early as one year old and nest in large or small colonies. The nest is on a floating platform of vegetation. EAGR colonies are often found in or near dense rush, cattail or sedge beds along the shore but the locations often change from year to year. Nests of this species are difficult to find without undue disturbance if they are in dense cover as they often are. In most cases EAGR sighted would be counted as individuals and lumped in the "not nesting" category or ignored if only a partial count of the individuals could be made at the site in the time available.

The EAGR was not a target species for the 2009 survey so this common species was ignored at many sites. Nesting was documented at 9 sites for the EAGR in 2009. Eight of these sites yielded an estimate of 36 nests but at one of the sites nests were not counted and a total of 90 individuals were associated with this site. A total of 583 individuals were present with no indication of nesting at 10 additional sites in the 2009 survey.

Nesting was documented at 7 sites for the EAGR in 2010. Five of these sites yielded a count of 83 nests but at two of the sites nests were not counted and a total of 208 individuals were associated with those sites. At 14 additional sites in the 2010 survey a total of 365 individuals were present with no indication of nesting. This species was again not a high priority in 2010 and survey effort for the EAGR often depended on time being available.

In 2011 nesting was documented at 3 sites yielding a total of 590 nesting pairs. There were an additional 404 individuals counted at 5 sites for which nesting could not be confirmed. Several colonies were documented at Bowdoin NWR where they were flushed from FRGU colonies and estimated based on the number of adults. In another case there, the EAGR colony was in plain view in sparse rushes on the edge of a FRGU colony. Two other EAGR colonies were estimated on Bowdoin in the Dry Lake area which was full for the first time in years as the single species in dense rush beds. At another site an EAGR colony was nesting in the open on floating matted dead cattail stems in just a few inches of water.

Like many of the water bird species, the EAGR nests over a wide range of dates. The earliest nesting revealed in this three year survey was the sighting of four pairs of EAGR and one young of the year on 6/5/2009 at Wards Reservoir in Valley County. The latest was the discovery of three active nests with warm eggs on 7/21/2010 at Bowdoin NWR, Phillips County.

Western Grebe, WEGR

The Western Grebe is a common breeding species in the wetlands of Montana. They nest in colonies on large lakes and marshes. The nest is on a floating platform of vegetation in shallow water. WEGR colonies are often found in dense rush beds along the shore of a large lake but the locations often change from year to year making colonies difficult to find.

Unless the bird is well-seen it can be difficult to distinguish from the much less common Clark's Grebe. This posed a problem at one site in the 2009 survey at one colony where both Clark's and Western Grebes appeared to be nesting in close proximity and that site (with 77 nests) is documented under the heading of "CLGR or WEGR" in the table of water bird survey totals.

Nesting was documented at just one other site for the WEGR in 2009 where 2 nests were found. A total of 68 individuals were present with no confirmed nesting at 10 sites in the 2009 survey. The WEGR was not a target species in the 2009 survey and the species was generally only documented in conjunction with surveys for other species.

Nesting was documented at 4 sites for the WEGR in 2010 yielding a total of 139 nests. At 12 additional sites in the 2010 survey a total of 87 individuals were present with no confirmation of nesting.

In 2011 nesting was documented at 2 sites yielding a total of 140 nests. At 5 additional sites a total of 32 individuals were present with no confirmation of nesting. This was not a high priority species and no extensive searches for nests were made unless there was evidence of a colony.

Productive nesting colony survey dates for this species have ranged from 6/14 to 7/18 during the three years of this study.

Ring-billed Gull, RBGU

The Ring-billed Gull is a common breeding species throughout Montana usually nesting on an island in a large colony and often with the California Gull and sometimes other species. Nests are a shallow cup of vegetation on the ground.

Nesting was documented at a total of 8 sites for the RBGU in 2009. Two of these sites yielded a count of 3871 nests. At four of the sites nests were not counted and a total of 696 individuals were associated with those sites. At another 2 of the sites nesting was confirmed but no RBGU were included in reported counts.

Nesting was documented at 6 sites for the RBGU in 2010. Five of these sites yielded a count of 3809 nests. At one of the sites nests were not counted and a total of 50 individuals were associated with that site.

In 2011 nesting was documented at 6 sites yielding a total of 4961 nests. Varying water levels from year to year at the various sites have led to great variability in the nesting sites used and totals recorded in surveys. For example, a colony of 1300 RBGU nested on large York Island in Fort Peck Lake in 2011 with the lake at full pool. In 2009 and 2010 this island was not used because it was attached to the mainland by dry land and the only gull colonies were on various smaller islands with smaller site totals documented. On Wild Horse Lake in Phillips County late spring flooding in 2011 disrupted nesting on the two gull islands and only 30 RBGU nests were counted, while in 2010 there were 350 nests of RBGU and CAGU. High water on Lake Bowdoin resulted in much smaller islands and a drop in RBGU counts from 2045 and 3040 in 2009 and 2010 to 680 in 2011. Another site not surveyed this year was likely used instead.

Productive nesting colony survey dates for this species have ranged from 5/29 to 7/6 during the three years of this study.

California Gull, CAGU

The California Gull is a common breeding species throughout Montana usually nesting on an island in a large colony and often with the Ring-billed Gull and sometimes other species. Nests are a shallow cup of vegetation on the ground.

Nesting was documented at a total of 9 sites for the CAGU in 2009. Four of these sites yielded an estimate of 1271 nests. One of the four sites had only a partial count and two of three colonies present were not counted. At 5 of the sites nesting was confirmed but no CAGU counts were conducted.

Nesting was documented at 8 sites for the CAGU in 2010. Seven of these sites yielded an estimate of 4741 nests. At one of the sites nesting was confirmed but nests were not counted and a total of 450 individuals were associated with this site.

In 2011 nesting was documented at 4 sites for the CAGU yielding a total of 1784 nests. The largest site total (720) was at Ft. Peck Lake at the single large colony and the smallest was at Bowdoin NWR where high water dropped the total from 913 and 375 in 2009 and 2010, respectively, to just 50 in 2011.

The largest nest total by far during the three years for this species came from Canyon Ferry WMA in 2010 at 3366 nests estimated. Unfortunately the CAGU was not counted there in 2009 or 2011. The next highest site total came from Ft. Peck Lake in 2011 at 720.

Productive nesting colony survey dates for this species have ranged from 5/26 to 7/6 during the three years of this study.

Ring-billed or California Gull

In 2010 this category was used in situations where gull estimates were done from a distance and it was impossible to determine the colony species composition more accurately.

Nesting was documented at 3 sites for the RB or CAGU category in 2010 yielding an estimate of 1875 nests. At 8 sites in the 2010 survey 313 individuals were present with no indication of nesting.

In 2011 this combined category for unknown large gulls had counts at 2 sites totaling 1110 nests.