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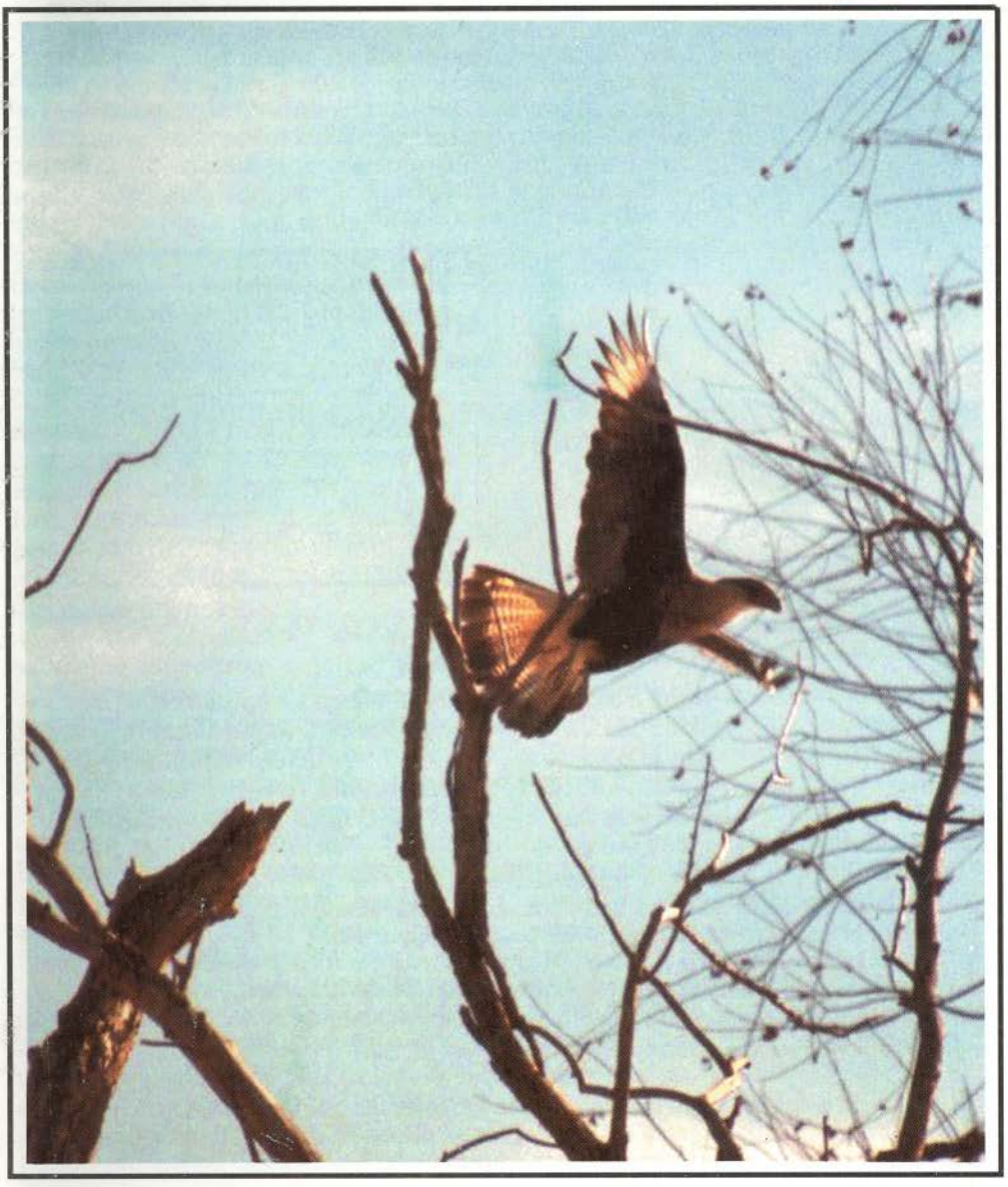
ORNITHOLOGISTS' UNION



SOUTH DAKOTA BIRD NOTES

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PRESIDENT'S PAGE

The September meeting in Pierre was the best fall meeting I have had the pleasure of attending. Few of us are aware of the significant amount of nongame avian research being conducted in South Dakota. For those unfamiliar with SDOU fall meetings, they consist of field trips in the morning, followed by paper sessions in the late morning and afternoon. SDOU is an organization of both birders and professional ornithologists. The fall meetings are a time for our professional ornithologists to show off the work they have been doing. Birders who have not been exposed to technical papers may feel that this information is out of their league. I would like to dispel this impression.

At the fall meeting, the topics presented varied from sageland birds to the use of torpor by Whip-poor-will's. Papers were presented on the use of woodlots and shelterbelts by migratory and nesting birds and the field work of the Rocky Mountain Bird Observatory in the Black Hills. No matter what part of South Dakota a birder is from, there was a paper presented that related directly to their area. Ornithologist and birder alike found themselves interested in the results. These studies answered questions such as where to find birds in South Dakota and also how birds utilize the ecosystem of our state. If you were a birder who has hesitated to attend fall meetings, thinking that they are for professionals, I would ask you to reconsider. I believe anyone interested in birding would find our fall meeting fun.

I would also like to second Dan Tallman's invitation to attend SDOU meetings. In conjunction with the North Dakota Birding Society, we have a great meeting planned for 17–18 May 2002 at the Sand Lake National Wildlife Refuge. All the meetings will be at the refuge, and a block of rooms has been reserved at the Ramkota Inn at Aberdeen (605 229-4040). I think it will be a meeting to remember. I like to think of Sand Lake as a bit of Florida in South Dakota, with many egrets and herons. Sand Lake also promises large numbers of shorebirds, something that Florida cannot boast. I hope to see you there.

CRESTED CARACARA VISITS LACREEK NATIONAL WILDLIFE REFUGE

Mike Artmann, Biological Technician
Lacreek National Wildlife Refuge

November 20th 2000 started out like many early winter mornings in southwestern South Dakota, clear and crisp. A resident of South Dakota for only a year and a half, but a Minnesotan for 15 years growing up, I have seen a healthy share of snowy, cold, wind-swept mornings. However, this particular morning would be different. I have witnessed many unique things, while working as a biological technician for the U.S. Fish and Wildlife Service, stationed at the Lacreek National Wildlife Refuge, but none as unique as the observation of a Crested Caracara that wind-swept Monday morning.

I first saw the bird about 10 a.m., as I headed north from station headquarters. Upon seeing the large, unusual bird in the grove of ash trees, I quickly slowed down and reached for the binoculars lying beside me on the truck seat. The bird sat still long enough for me to get a decent look. I remember thinking, "a Crested Caracara, you've got to be kidding!" Mildly stunned and not 100% sure that I had truly seen this bird, I quickly maneuvered the truck to a better position. Once atop a small hill, I put the 60x spotting scope on the bird. Sure enough, a Crested Caracara! After watching the bird for about 10 minutes, I went back to headquarters to share my strange discovery with other staff members. Needless to say, I received some skeptical glances and raised eyebrows. However, they soon verified the observation with their own eyes.

Crested Caracaras occur most commonly in Mexico and South America. In the U.S., they typically occur only in southern Texas, southwestern Arizona, and in south central Florida. Although individuals have been reported as far north as Ontario, Oregon, and Connecticut, these sighting are generally considered to be birds escaping captivity. An extensive effort was conducted via e-mail and telephone to determine if anyone reported a missing caracara. No reports came to light. Prior to my sighting, Crested Caracaras had never been documented in South Dakota. The nearest documented record of a Crested Caracara to South Dakota was in Wyoming, at Yellowstone National Park, in 1984. According to Terry McEneaney, ornithologist for Yellowstone Park, that individual remained at the park for four days before disappearing.

Crested Caracaras are generalists that are quite opportunistic in their choice of food. Main prey items include insects, fish, reptiles, amphibians, birds, and mammals, and all types of carrion. The caracara at the refuge, as best as we could determine, fed almost exclusively on several deer carcasses. Several days after the initial observation, I saw the bird actively walking and hopping in an area burned early in the fall, apparently looking for food items. The bird was very deliberate and cautious, looking around frequently, as it moved. Caracaras are known to search of insects by using their feet to paw through dirt or overturn cattle dung. Several crows were in the vicinity, however, I did not notice any sign of interaction, either friendly or combative, between the two species. The only other bird species I observed near the caracara was an immature Red-tailed Hawk. The hawk displaced the caracara from a perch, however, no other interaction occurred.

The bird, believed to be a juvenile based on coloration of the head and feet,

remained at the refuge for 11 days before disappearing. It is unknown whether the bird simply moved to warmer latitudes or succumbed to the cold. One thing is for sure, our southern visitor provided a glow of activity among refuge personnel, area birders, and local residents during an otherwise cold and snowy November.

BLACKBIRD CONTROL

By Jim Williams
5239 Cranberry Lane, Webster, WI 54893

(Reprinted in edited form from *Minnesota Birding*)

Over 3,000,000 blackbirds have been killed with poisoned bait in South Dakota in the last seven years. This research was done in an attempt to find a way to reduce bird depredation on sunflower crops in that state and North Dakota and Minnesota. Information for an environmental impact statement (EIS) is being gathered as part of a request for a permit to kill 2,000,000 more blackbirds.

Biologists in the U.S. Fish and Wildlife Service and in North and South Dakota state agencies question the efficacy of the effort. It has been suggested that the birds in South Dakota, targeted for poisoning in the spring, are not the birds causing the problems in the fall. Other biologists worry about the effect of the poison on non-target species of birds. An official within the U.S. Department of Agriculture, the agency responsible for the research, says it is hard to prove that removal of these birds will be a solution.

In April of 1994, the South Dakota Department of Game, Fish, and Parks issued a permit to kill up to 250,000 blackbirds. Red-winged Blackbird was the target species. It was understood that some Common Grackles and Yellow-headed Blackbirds would die as well. The permit was issued to the U.S. Department of Agriculture-Animal and Plant Health Inspection Service (USDA, APHIS) in Bismarck, North Dakota. The purpose of the kill was to research ways to prevent blackbird predation of unharvested sunflower seeds in North Dakota and Minnesota fields. This permit covered 1994 and 1995. In August of 1995, the same applicants received another permit allowing them to kill another 250,000 blackbirds the next spring. In February of 1997, a third permit was issued, again for a quarter million blackbirds. In December of 1997, another permit was issued for poisoning of up to 500,000 blackbirds the following spring. In 1998, the applicants wanted to expand research to include fall migrant blackbirds, and so received a permit to take 500,000 more birds as they moved south from breeding grounds. In March of 1999, South Dakota officials issued another permit to APHIS, this for permission to kill up to 950,000 blackbirds that spring. In July a permit was requested and received to kill 500,000 more birds that fall. All of these permits were acted upon, according to a biologist with the South Dakota Department of Game, Fish, and Parks.

In the spring of 2000, APHIS requested from South Dakota yet another research permit, this one for a proposed kill of up to two million blackbirds. A permit from the U.S. Fish and Wildlife Service also was required at that time. The state research permit to take two million blackbirds was granted; the

USFWS permit was denied, and so the project did not go forward. (USFWS review from 1996 to December 1999 was not required because of a federal court decision exempting one governmental agency from review by another. That decision was later reversed.) That research project reappeared in Spring 2001 in a new permit application, again targeting two million blackbirds. The permit was requested by the Wildlife Services division of APHIS. If granted and acted upon, this permit would bring the number of blackbirds killed in this research effort to 5,200,000.

This latest request triggered the process that requires a federal environmental impact statement. It also has been suggested by the USFWS that a Migratory Bird Treaty Act depredation permit might be required for this project. Other USFWS permits issued for this blackbird-control effort have been for research. The initial EIS process solicits and evaluates public comments to determine the scope of issues to be addressed. The EIS process was initiated on 15 May 2001. The earliest date for a decision would be about 1 April 2002. Public comments were received during two 30-day periods, one in March and April, the second in May and June, 2001. Announcement of these requests for comments were published in the Federal Register by the administrator of APHIS.

Approximately 80 percent of sunflower production in the United States occurs in North Dakota, South Dakota, and Minnesota. Production has increased from half a million pounds in the early 1960's to about 680 million pounds, valued at $315 million, in 1999. According to the federal government, however, increasing blackbird populations and resulting damage have hampered sunflower production. Studies of Red-winged Blackbirds collected in late summer and fall showed that 93 percent of those males and 86 percent of those females had eaten sunflower seeds. These seeds made up 69 percent and 57 percent of the diets, respectively. Federal damage surveys in sunflower production areas in North Dakota, South Dakota, and Minnesota indicate that overall loss is generally one to two percent of the crop, valued in the late 1990's at about $8 million each year. Most people associated with this problem agree that if all producers received less than two percent damage, there would be little concern. But, damage is not equally distributed. It can be severe for some producers.

Scott Nelson is a farmer near Lakota, North Dakota. His 7,000 acres of cropland sit about 60 miles west of Grand Forks and 60 miles south of Canada. He is a member and past board chairman of the National Sunflower Association. "We grow sunflowers, wheat, barley, beans, canola, and corn," he said when asked about his blackbird problems. "We grow sunflowers every year. It's planted with human consumption in mind. Seeds of lesser quality are sold for bird food. We've not always had a problem with birds and sunflowers. Well, we've always had a small degree of problem. But since 1993 this area has had unprecedented rainfall. It's filled every low area, so the cattails have grown, creating prime blackbird habitat. That draws the blackbirds to this area. The water comes. The cattails return. The birds arrive. There's a problem with crop predation. Then, some growers quit sunflowers. And those growers who continue get hit even harder. In 2000, I had 100 percent damage on 500 acres of sunflowers, and 25 to 50 percent on another 1,000 acres. An acre of sunflowers should produce 1,500 pounds of seed. The average price was 12 cents per pound. That's $180 per acre. I lost $90,000 on the 500 acres plus $72,000 on the remaining acres. That's $162,000 total loss."

Nelson has cut back sunflower planting this year with just 500 acres in that crop. He says he has tried every method he could think of to keep the birds from his fields—propane cannons, owl decoys, electronic screechers, garbage bags and balloons, pyrotechnics, hazing with airplanes, shooting small caliber and high caliber rifles and shotguns over the fields. This is the common list of recommended practices.

"With hazing, you just move the birds to another field," said Nelson. "They still feed, but elsewhere. The birds become accustomed to any of these techniques. Plus, this is very time consuming. And, shooting creates big concerns because there are buildings and houses in the area. I've used products such as Avitrol (causes erratic behavior in birds consuming seed baited with the chemical; one bird reacting is supposed to frighten nearby birds to flight). I'm very uncomfortable with it. We don't like to use this if we don't have to because the birds appear to suffer. It has been effective, but last year I used it and lost entire fields anyway. Then there is the program to control cattail growth—we've done a lot of that. When you've got so much environment for cattails, it's effective to reduce that growth. Last year, though, there was no way to control cattails because the rains came in June. We got 13 to 20 inches, and we couldn't apply the control chemical in the midst of crop growth. The reason we have the cattails is excess moisture, but also the U.S. Fish and Wildlife Service bought wetland easements some years ago. Producers were paid a small amount for the easements in the 1960's, perpetual easements to not fill, drain, or burn wetlands. The easements are there to provide duck and goose nesting habitat. Some of these areas are not wetlands in a typical year. In dry years we farm across them. But not in wet years. Landowners participated in the (easement) program on a willing basis. What we have, though, is a federal agency has taken easements on land that doesn't allow me to manage and maintain that land for farming. Then we have an inordinate amount of rainfall. And to top it off, there is a bird problem supposedly managed by another government agency, and as a taxpayer I'm paying the bill for it all. I absolutely support the DRC-1339 program. A few years back there was a fall baiting program. It was beneficial. I know there was data that says it might not have been beneficial, but we as producers found it effective. Dead birds don't eat sunflowers."

A survey of sunflower growers in the Dakotas and Minnesota showed blackbird damage of more than five percent among 46 percent of respondents in North Dakota and 40 percent of the respondents in South Dakota, according to Larry Kleingartner, executive director of the Sunflower Growers Association. He made that statement a letter written in April in support of the current APHIS proposal to continue the DRC-1339 program. In Minnesota, he continued, bird damage from five to 10 percent was reported by 20 percent of respondents, while nine percent reported damage from 10 to 25 percent. "We love the birding community," Kleingartner said. "Killing blackbirds is not something we relish. We hope there's a way for the birding and farming communities to work together to solve this. Local birds are the worst of the problem. In late July and August, when petals fall from flowers and seeds are beginning to firm up, juvenile and adult birds begin to group up locally. The young birds need lots of nutrition. Sunflowers provide that. These birds are difficult to harass because the young ones won't fly far when they are scattered. They are particularly persistent. Later in the fall, when migrants come through, a producer can have 50,000 to 100,000 birds hit a

field. But those birds are easier to harass; they move quicker. The damage is done when the birds eat the seeds, pull them out of the plant head. When you check a plant head, three-quarters of the seeds might be gone, with the poorest seeds left in place."

The association, which has about 10,000 members, supports the DRC-1339 avicide (poison) program, Kleingartner said. "There are so many blackbirds it is unmanageable. We are in a wet cycle in the Upper Midwest. Goose and duck numbers have increased, and so have blackbird numbers, but there is no hunting of blackbirds as there is of ducks and geese." In a letter commenting on the current APHIS permit application, Kleingartner wrote, "It is unlikely that there are other pesticides that have been as thoroughly researched as DRC-1339. We recognize that this is an emotional issue. But farmers must be able to protect their investment in the production of crops as urban dwellers protect their largest investment (house) from rats and other undesirable species."

The blackbirds targeted in the research projects from 1994 to 1999 were killed with a poison known as DRC-1339. While it also affects other bird species, it is known to be particularly lethal for Icterids, members of the blackbird family. It kills by attacking the birds' hearts and kidneys. Death is caused by uric poisoning, usually within 72 hours. The poison is applied to rice kernels that are scattered in controlled baiting plots. One treated kernel will kill a blackbird.

"DRC-1339 is attractive as a poison because it breaks down quickly in the environment," said Dr. Dan Hubbard, professor in the Department of Wildlife and Fisheries Sciences at South Dakota State University in Brookings. "It is relatively specific to a couple of families of birds. Corvids (crows, ravens, jays, and magpies) and Icterids (blackbirds, meadowlarks, orioles, cowbirds, and Bobolinks) are the major groups this is used on. This chemical takes out the kidneys. Basically, the bird dies of renal shutdown, of uric acid poisoning. It generally takes from a few hours to a few days for the bird to die. This is determined by the sensitivity of the species to the chemical and the amount of toxin taken in. The bird dies a slow and agonizing death, that is my perception. (APHIS literature says the birds die "a quiet death within one to three days of ingestion.") Since the poison is slow acting, if a bird gets a lethal dose, it can fly quite a way before the chemical kicks in. It's difficult, therefore, to find the dead birds."

Hubbard has done research with the chemical in a study funded by the Sunflower Growers Association and the South Dakota Department of Game, Fish, and Parks. It focused on Ring-necked Pheasants, and it showed mixed responses to the product. "On other species," he said, "we did not show it was safe, we did not show it was not safe. But poison on the fields is an accident waiting to happen. Sparrows could land on that field during a storm, and boom. We don't know how this chemical affects them. They have not studied it under the right conditions."

Asked for an opinion on the sensitivity of birds in general to this poison, Dr. Pat Rettig of the Raptor Center in St. Paul said one could not make a statement about a particular species unless species-specific testing had been done.

"Our role in APHIS-Wildlife Services is the management of damage when wildlife and people come into conflict," said Rick Wadleigh, national coordinator for the agency, who works in Lakewood, Colorado. "Our mandate is from Congress. The mandate includes birds. We study the best methods of doing this work, and conduct campaigns for destruction and control of animals causing

problems." He explained that Wildlife Services has been working on the sunflower issue for about 30 years, "trying to manage in conjunction with fish and wildlife (USFWS) and the states. We are studying new ideas. One idea began the research program on use of DRC-1339. We have been running studies on that for the past several years, trying to determine if this will help us." Now, he said, an EIS has been requested to assess progress and options, including a possible operational program for DRC-1339. He said the agency probably would pull back from work in Minnesota because producers here say the blackbird problem is not large enough to merit the program. "We will refine the scope of the project to include only North and South Dakota," Wadleigh said. Alternatives will range from an "intense" spring and fall avicide program to nothing more than advice to growers on what they might do.

"Right now, we do not have a preferred alternative," Wadleigh said. "We are going to evaluate this. Perhaps we will have a preference this fall, after we see the studies, but not right now. We will have results of some additional studies this fall. Opponents of this program have asked for these studies." The earlier kills were considered research. "Unfortunately," he said, "to do the research, we have to take what might seem to be an operational number of birds. One of the things that we are finding is that this work is being held to a different standard. In all of the work done, not just in this area, but in anything with wildlife, we've never been able to show cause-and-effect relationship in actuality. We have our own logic and science and art of wildlife management which says it should work this way, but unfortunately, we don't have proof. We have been asked to show proof, but that's hard to do. We are in the EIS process now because there is scientific controversy about this."

MORE ON DAMAGE CONTROL

"Not all sunflower farmers have blackbird problems, and some have tolerable problems," said Phil Mastrangelo, state director, U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services (USDA/APHIS/WS), in Bismarck, North Dakota. He defined a serious problem as loss of over five percent of the crop. "Generally, sunflowers planted in the prairie pothole region are those most susceptible to damage. Can you argue, don't plant sunflowers there? Well, yes, but it's a crop the producers can make money on."

He explained that use of the toxicant DRC-1339 is part of the overall preferred alternative. "That alternative would utilize all of the tools we have," he said, including frightening devices, chemical repellents, and cattail or habitat management. The cattails we target are in wetlands choked with cattails. We apply a herbicide to 70 percent of the cattails. This makes the wetland less attractive as a roost area for blackbirds. It's better for ducks then. Marsh Wrens? It may have a negative impact. Obviously, with any kind of habitat management, some birds benefit, others do not. Then again, we are only targeting 70 percent of the cattails, and not every wetland that has cattails in it."

The damage to other birds varies with the control method. In the experimental programs that Wildlife Service has run, 40 to 60 bird species have found the rice bait samples attractive. "That is something we will look at as we work on the environmental impact statement. For the proposed use of this toxicant in the spring, we want to make sure we are minimizing harm to non-blackbirds,"

Mastrangelo said. "The hot bait is mixed with non-toxicant bait. Perhaps four percent of the total bait is poisoned. This particular product, DRC-1339, there's lots of research on it. Blackbirds are much more susceptible to this toxicant than are non-blackbirds. One or two grains of treated rice will kill a blackbird. It takes more to kill other species. If the bait is not consumed, it is not taken up (from the bait plot). It is left in place. It breaks down within three days when exposed to ultraviolet light, and if it gets a little moisture it becomes inactive." Asked if the present request is for an operational control program or a research program, Mastrangelo said, "We are still trying to decide. It's premature to label the program one way or the other."

RESEARCH FOR SOLUTIONS

Dr. George Linz is the director of blackbird-sunflower studies at the Great Plains Field Station National Wildlife Research Center in Bismarck. His work is for USDA/APHIS/WS. His articles on blackbird control and related subjects have been published often in industry and academic journals. "A series of studies was carried out by North Dakota State University and the U.S. Fish and Wildlife Service," he said. "They looked at how much damage to sunflower crops, where it was happening, what species of birds were causing the problem. They looked at many non-lethal techniques for keeping the birds from the field—lure crops on refuge land, propane cannons, high-powered rifles and shotguns fired over the field, other scare devices like eye-spot balloons. All of these proved to be non-cost effective."

Dr. Linz took the project in 1987, and began to look at the use of glysophate herbicide. This is the chemical sprayed on cattails to kill those plants. The glysophate effort became operational (an implemented program) in 1991.

"We found that when you open up the marshes you reduce the number of blackbirds," he said. "We continue to do research on this today, on non-target species, on water quality. The habitat people in fish and wildlife (USFWS) are supportive as long as no more than 70 percent of the vegetation is taken. There is concern about habitat loss. I believe that non-target birds are well studied here, too. On Marsh Wrens, if you take 70 percent of cattails out, that definitely reduces the number of Marsh Wrens in that wetland. The thing we have going for us is there are a lot of Marsh Wrens out there, and lots of wetlands. They find other places to nest. Black Terns, on the other hand, nest on dead vegetation platforms. Opening wetlands, of course, improves the habitat for waterfowl. The glysophate treatment will decrease number of Sora rails for a year or two in the treated wetland."

"In the early 1990's we looked at using an avicide known as DRC-1339," Dr Linz said. "It was developed by USFWS in the '60's to control European Starlings in feedlots. It is perhaps the most studied vertebrate pesticide in the world because it has been around so long. It is highly toxic to the family Icteridae (blackbirds, meadowlarks, cowbirds). It does not seem to affect hawks. This was determined in a series of experiments; there are papers published on this. Hawks are considered non-sensitive to this chemical, but in addition, there is little avicide left in the blackbird shortly after consumption. One good thing about this chemical is that the blackbird will excrete 90 percent of the chemical within 30 minutes of ingestion, but the damage to the bird is done by that time. (A technical note drafted by WS in 1999 says 90 percent of the chemical is excreted

within two hours.) Some non-target birds are sensitive to DRC-1339. If owls were to take hundreds of dead starlings or blackbirds they would not get enough avicide to affect them. But if the owl takes the poison directly it could be killed. I think it would take a larger dose to kill an owl than to kill a blackbird, though. In 1994, we began looking at using DRC-1339 to treat rice for use in the spring in east central South Dakota. We believed the birds staging there during migration were the ones doing the sunflower damage in the fall. We did a series of trials. We put the treated bait out in the afternoon to catch the blackbirds coming to roost in the evening. Sometimes we used decoy blackbirds in cages to bring the birds to the treated plots."

Non-target birds do come to the treated plots, Dr Linz said. He named meadowlarks and Tree Sparrows. The latter, susceptible to the poison, came if the plot was near a brush line. Bait plots were moved 100 yards or more from brush lines, Dr. Linz said. He added that non-target numbers were low. "Our frustration was the level of our research. We never took enough birds out of the population to measure any change in the blackbird population," he said. "The most we ever took (before 1999) was 500,000 birds in one year. We were dealing with 12 million blackbirds moving through South Dakota. We didn't take enough. We could not measure any change."

Dr. Linz said there presently is an impasse between the two agencies, APHIS-Wildlife Services and USFWS. "We would like to continue to take large numbers of birds. Right now, fish and wildlife (USFWS) is in a holding pattern. They have to issue permits if the baiting program is to go forward (to become operational). I don't think there will be a permit for more research." No one wants to annihilate blackbirds, "except maybe for a handful of growers. He said that the population of either blackbirds or cattails will "come back quickly when you stop management programs with either avicide or herbicide." He described management technique as give and take. "You hope you are gaining more than you are losing," he said. "It is a balancing act that we continue to work on."

Dr. Linz said he would like to move research efforts toward a repellent product, something to spray on fields, not toxic to the consumer of seed, but something that repels the birds. "As a researcher, even if administrators went ahead with the avicide program, I would be working for a non-lethal repellent approach," he said.

THE MIGRATION QUESTION

One of the questions yet to be answered is where the blackbirds go in the spring when they leave South Dakota. Are the blackbirds gathering in migration flocks there the same birds that cause the damage in the fall? Dr. Jeffrey Homan, research biologist with USDA in Bismarck, is trying to find the answer. He spent the early part of this summer in Canada, collecting blackbirds he hoped had been marked in South Dakota during migration. His efforts were duplicated by collection teams in Minnesota, North and South Dakota, and Montana.

"In late March and early April, Red-winged Blackbirds move along flyways, congregating in staging areas," Dr. Homan said. "They stay a few days or longer in these places. We are working with birds from east central South Dakota. They bunch up, mainly because there are lots of wetlands and cattails. We had one roosting aggregation of over 100,000 birds. Once a roost got above 25,000 birds, we would call up the crop dusters. We use a mixture of liquid floor wax and

small particles of fluorescent organic pigment invisible to the naked eye. The color becomes visible when you hold it under black light. Just around dark, when the birds come to roost, the pilot would fly over the wetland. The birds flush, and the plane lays out the pigment vapor. The birds fly through the vapor and become marked. We estimated we marked a little less than 500,000 birds. In the early morning, we would shoot a small sample, 50 birds or so, and check to see what percentage was marked."

The plan was to collect marked birds on breeding territories about two months later to learn where these birds nest. Different color pigments were used, marking early birds one color, mid-point birds another color, and so on, dividing the timing of migration into color schemes.

"We want to know where the birds arriving early went, and where birds arriving later went," Dr. Homan said. "Our early-marked birds probably will be the ones we see from our collections in South Dakota and North Dakota. As we get into later series of colors, they are likely to be the birds we collected in Canada."

Collecting by shotgun and keeping wings only for lab examination, Dr. Homan's team took about 1,500 birds. The total sample will be about 3,000 birds, he said. "We would be happy to find pigment markings on two percent of the birds collected. Lots of basic ecological information is needed if these populations are to be managed," he said. "If you could target the right population of birds you probably could reduce the number of those birds, I think. But the birds are not doing widespread damage. It's localized damage, and that makes it more difficult to work on."

Dr. Homan also works on the cattail management program. He says it holds much promise as a non-lethal means of control. "The farmer does not have the choice of not planting near cattail habitat," he said. "If you say that, you have never been in east central North Dakota. Cattail reduction has been going strong for five or six years, and there still seems to be significant demand for reduction in the marketplace. That is the ultimate test, the marketplace."

USFWS CONCERNS

Much of the stated opposition to the DRC-1339 program, the use of the avicide to kill blackbirds, comes from staff members in the U.S. Fish and Wildlife Service and state wildlife agencies in North and South Dakota. USFWS recently re-entered the permit picture because of a court decision. In 1996, a court case challenged whether USFWS needed to give Migratory Bird Treaty Act permits to other federal agencies for projects involving protected birds if the work being done was within the usual bounds and responsibilities of the agency involved. The court ruled such permits were not required. In December 1999, there was another court case. A wildlife group challenged Wildlife Services on permits. The 1996 decision was reversed in an out-of-court settlement. APHIS agreed it would get Migratory Bird Treaty Act permits from USFWS for all activities impacting these birds, according to Larry Gamble, contaminant coordinator in ecological services in the USFWS office in Denver. That meant that between 1996 and 1999 APHIS did not have to come to USFWS for research permits to conduct studies. It did have to receive required state permits during that period.

In Spring 2000, APHIS came to USFWS for a permit to take the two million birds. The request was denied. In a letter, Terry Terrell, deputy regional director

of USFWS, Mountain-Prairie Region, Denver, wrote, "Although potential impacts to non-target birds is our primary concern, we also want to ensure that if spring baiting is used as a long-term control strategy there is a demonstration that this method is effective for reducing damage to sunflowers." This request was resubmitted to USFWS by APHIS in Spring 2001. It is the proposal for which the EIS has been requested.

The EIS would be the critical document in terms of the decision to issue the permit. USFWS staff at field and regional levels and migratory bird coordinators would be involved in the review.

"One factor to be considered would be efficacy," Gamble said. "Does this proposal work to achieve the purposes APHIS says are necessary to help the farmers? Would this program reduce the local nesting population of red-wings in North Dakota? Will reduction of the nesters then reduce the predation to sunflowers? There is something called compensatory population mechanism. This means if you remove some elements of the population, the larger population will respond. You are not going to have a habitat void in the area these blackbirds now use. Survival of nestlings and fledglings would likely increase if competition for food is lessened. There is an ongoing baiting program to reduce redwings in Louisiana and Texas to protect rice crops. Wildlife Services is managing this program. They say they believe this program is working in Louisiana and Texas, therefore it would work in North Dakota. We are not buying the concept that it would work in North Dakota and South Dakota if it is working in Louisiana and Texas. We were a bit frustrated to hear that. The biology of wintering birds and spring migrating birds is different."

Red-winged Blackbirds have a valid ecological role in wetland ecosystems, Gamble said. One thing his agency has asked for is a sense of the impact this removal might have. "I haven't seen any data that clearly answers that question," he said. "It is one of the things we ask that they address in the EIS. The anticipation is that there are so many red-wings that you would not see change (to the detriment of the birds, even if two million more birds are taken). We have asked this question: Is that valid?"

Specific concerns about the most recent APHIS permit application were listed in a letter written in April by John Blankenship, USFWS deputy regional director in Denver. He wrote that the EIS should discuss, among other things, the number of blackbirds to be killed annually, other species of blackbirds to be targeted for control, the cost benefits to producers who actually experience excessive damage, and concerns Canadian officials might have, since "based on dispersal studies, the majority of target male Red-winged Blackbirds breed in Canada, and are not the 'problem birds' breeding in the Dakotas." Blankenship also wrote that the USFWS "believes that a depredation permit under the Migratory Bird Treaty Act will probably be necessary before the proposed activities could proceed."

MINNESOTA DNR RESPONSE

"If they are going to be out there killing millions of birds I think they should be held to very high standards of documentation to justify and describe what they are doing, and to explore the consequences of what they are doing," said Bonita Eliason, natural heritage nongame research program supervisor in the Minnesota Department of Natural Resources.

Ms. Eliason prepared the Minnesota response to the EIS scoping document, submitted by letter on June 20. In it, the DNR asked for data to support the contention by APHIS that Red-winged Blackbird populations are increasing. It asked for specific information on blackbird problems in Minnesota. Regarding the extent of the problem, it suggested that information APHIS provided, describing the problem in four counties of two states, North Dakota and South Dakota, "is unlikely to be representative." The DNR sayed more information is needed to justify lethal control, and that "such control should not be done in Minnesota based only on North Dakota and South Dakota data. The Minnesota letter asked for justification of the effect lethal control will have on non-target organisms, particularly on declining, threatened, and endangered species. "The EIS should clearly outline how bird species that have overlapping food and habitat preferences with Red-winged Blackbirds, such as Bobolinks, will be protected from ingesting DRC-1339-treated rice."

Concerning use of glyphosate herbicide on cattail stands, the Minnesota DNR asked for information on how cattail stands are targeted. It suggests a site-specific review to determine possible adverse effects of this herbicide treatment on non-target organisms. The effect of cattail control on plant communities and rare species should be addressed in the EIS. It also asked for information on the impact of glyphosate on insect populations.

'A VERY LOCAL PROBLEM'

Proof is needed to show the suggested link between spring concentrations of birds in South Dakota and fall predation of sunflower crops in North Dakota, according to Kevin Johnson, an environmental contaminant biologist with USFWS in Bismarck. "Years ago, Wildlife Services marked male blackbirds as they came through in the spring," Johnson said. "Collecting the marked birds in the summer, they found that the majority of these birds were going to Canada and were not the problem birds in North Dakota. Fish and Wildlife said, 'You are not killing the right birds. No wonder you can't measure the affect.' We asked Wildlife Services to determine if females flocking in South Dakota in the spring also are going to Canada." That is the study for which Dr. Homan and others were collecting bird samples early this summer. "There are too many questions and not enough answers. The problem is that Wildlife Services has a scatter-gun approach to a very local problem. They have stated that blackbird damage occurs in predictable locations. If that is true, let's go to the place where the problem is," said Johnson.

The Red-winged Blackbird is possibly the most numerous North American species, and the number of birds is not at issue here, Johnson said. The issue is the arbitrary approach being taken, killing wildlife to produce crops, and the question is, is this effective? "We need a means to measure effectiveness," he said. "If previous data suggests this is not effective, why are we doing it?"

Non-target birds also are an issue. USFWS has asked for more studies on this. "We are not comfortable with the non-target aspect of this," Johnson said. "From studies done in both fall and spring, we were told non-targets don't visit bait sites. We have found this is not true. Subsequent studies also have shown that non-target species did eat the treated rice. Now we are told these birds are not dying from this, because no dead non-target birds are found. This is the migration period. The birds are coming in, picking up food, and they are gone. It

takes three days for the bird to die. We are sympathetic, and we do understand the [producers'] problem, but a scatter-gun approach hoping to reduce damage for a few producers is not going to work. The saying that a dead blackbird is not going to eat sunflowers is true only if that bird was going to eat sunflowers."

Mike McEnroe, supervisory wildlife biologist in the USFWS Refuge Division in Birmarck, said his agency objected in 1999 when Dr. Linz proposed "a massive kill" of two million birds. "Our concern was that Wildlife Services did not have the data to support the program," McEnroe said.

In South Dakota, Scott Larson, a biologist with the USFWS Ecological Services field office in Pierre, expressed concerns about the program to track birds by marking and collecting them. He spoke of studies done in 1982 and 1983. "These were done on the mid-continent population of blackbirds, grackles, and other Icterids, coming north, marked when on roost. They marked upwards of two million birds in those years, then collected samples from several locations. What we learned (and these were APHIS studies, not Fish and Wildlife studies) was that nearly 70 percent of the birds marked in the spring were going to Canada to nest. We know that most of the sunflower depredation is done by birds breeding in the area where the plants are grown. If in the spring we take out those birds that nest in Canada, we would not expect to influence depredation in the fall. Information indicates that we could kill all the birds we wanted at these roosts in the spring, and we would not help farmers. We brought this information to Wildlife Services about a year ago. They agreed to do more studies." Larson said it is not known if roosting-nesting area movements are regular and annual. Researchers suspect that this is the case, but they do not know.

SOUTH DAKOTA POSITION

Three issues have been raised by the South Dakota Game, Fish, and Parks Department (SDGFP) in a letter filed in response to the federal regulatory announcement about the EIS. "First, we want actual documentation that this control method will reduce damage," said Eileen Dowd-Stukel, non-game biologist with the department in Pierre. "We had been assured from the start that APHIS would not use this as an operational tool unless it could prove that use of the avicide DRC-1339 would reduce (blackbird) damage. Our second main point, a concern from start, is about potential impact to non-target species. U.S. Fish and Wildlife contracted with a researcher at Colorado State University to review studies on which they (APHIS) have based their claims. The work was on the impact to non-targets, the LD50's (lethal dose at which 50 percent of the test sample dies) for various bird species. The review pointed out problems with these studies. We have asked APHIS to consider these seriously. We are concerned about grassland sparrows that might visit these (bait) plots and pick up sub-lethal doses. There has been a lot of work on what it takes to kill birds, but not much on sub-lethal doses and the impact of this on things like breeding success. Our third concern is about the approach to cattail destruction, removing cattails to eliminate roosts for blackbirds. We have lots of other species that would be impacted by this removal." South Dakota has been the site of much of the research done on DRC-1339, and the SDFGP has given APHIS every permit it asked for, she said. "They keep coming back for more and more. We have asked questions about this seemingly endless research. My feeling is that the thinking behind the studies makes sense, but I think the studies are basically im-

possible. They are trying to make conclusions on studies impossible to carry out. I would not fault the researchers. I think they have an almost impossible task. Is there a solution to blackbird predation? Yes, but it is not doable: Don't grow sunflowers next to blackbird roosts. Cattail control is a method of reducing roosts, to try to discourage the birds. But how do you discourage people from growing a profitable crop on their own land?"

STUDY REVIEWING RESEARCH

The research review study mentioned by Ms. Dowd-Stukel was highly critical of some of the work done by APHIS and WS. The review was done by Dr. Elisabeth Harrahy, a post-doctoral fellow at the Colorado Cooperative Fish and Wildlife Research Unit, an operation staffed, supported, and coordinated by the Colorado Division of Wildlife, the U.S. Geological Survey (Biological Resources Div), Colorado State University (CSU), and the Wildlife Management Institute. The unit is located at CSU.

Larry Gamble, with ecological services in the USFWS Denver office, said review of toxicity data APHIS had provided for non-target species found what he called "important data gaps." Dr. Harrahy was assigned to examine literature on the effects of DRC-1339 on non-target bird species.

"Overall, the amount of reliable information available on the effects of DRC-1339 on non-target birds is small," Dr. Harrahy wrote in her report. "Despite greater than 30 years of study, one cannot justifiably say that the effects of DRC-1339 on non-target birds have been thoroughly assessed. ...data generated in most of the laboratory experiments should be considered preliminary or range-finding, rather than definitive," she wrote, "because of the poor experimental designs used to generate them. Fifty percent of all the experiments (laboratory, field, and outdoor pen) included in this review has experimental design rates of 'poor' or 'useless.'" Dr. Harrahy suggested additional studies be done for non-target bird species. She also said that because DRC-1339 is a relatively slow-acting poison, and because carcass searches generally were conducted only within bait sites and target species roosts, "finding even a few dead non-target birds may indicate substantial mortality."

The analysis in Dr. Harrahy's report was critically flawed, its main conclusions untenable, wrote Mark Tobin, program manager for Wildlife Services, Fort Collins, Colorado, in a letter to Larry Gamble after review of the Harrahy study. "This selective review omits or fails to seriously discuss several important studies bearing on the effect of DRC-1339 to non-target birds," he wrote. "Also absent from the report is an in-depth analysis or discussion of acute dietary toxicity tests with caged birds exposed to formulated baits, standardized diets, or poisoned carcasses. ... Finally, the review makes no mention of the fact that DRC-1339 has met all the registration requirements of the Environmental Protection Agency." He concluded his letter by saying the Harrahy report is "superficial and incomplete to the point of lacking credibility. ...DRC-1339 has been used operationally in the U.S. since 1967 without any evidence of major non-target kills." He mentioned that acute toxicity tests for Tree Sparrows, meadowlarks, Horned Larks, and Dark-eyed Juncos, and dietary tests for Savannah and Tree sparrows, meadowlarks, Canada and Snow geese, and Northern Cardinals recently were completed. In a telephone conversation he said results of these tests are not yet available. These studies were done at the request of USFWS, ac-

cording to Gamble.

NORTH DAKOTA POSITION

In North Dakota, the idea of continued research has equally little appeal. "The department supports efforts to reduce damage to sunflowers and/or help producers offset damage," wrote Michael McKenna, chief of the conservation and communications division of the North Dakota Game and Fish Department, in response to the call for EIS comment. He continued: "We have been frustrated by Wildlife Services' lack of direction and failure to complete thorough analyses and develop conclusions of ongoing programs prior to initiating new studies." Concern over the take of non-target species during the blackbird research program was expressed by McKenna in a letter dated Jan. 31, 2000, to Mastrangelo, the Wildlife Services state director in North Dakota.

CANADIAN POSITION

Canadian wildlife officials have not taken a position for or against the blackbird research and its associated kills, according to Steve Wendt, migratory bird chief for Canada Wildlife Services (CWS), the federal wildlife agency. "Perhaps this is important enough for dialogue across the border, however." His agency believes the provinces involved should be consulted. Some of the blackbirds moving out of spring roosts in South Dakota nest in Manitoba, Saskatchewan, and Alberta. "There are species other than blackbirds involved in this proposed control," he said. "While we haven't analyzed the risk to those species, we feel that issue should be better explored. We should not have a control program involving species not causing damage."

CWS also has offered to coordinate bringing the issue to the United States/Mexico/Canada Trilateral Committee for Wildlife and Ecosystem Conservation and Management. The function of this group is coordination of issues and actions among wildlife agencies in the three countries. Mexico would be involved because most Yellow-headed and some Red-winged blackbirds winter in that country.

A POLITICAL ISSUE?

Norman Johnson retired 14 years ago from the USFWS. He worked there when the current Wildlife Services agency, now part of USDA, was a division of USFWS. He was western regional manager of USFWS at that time. "We began working on bird problems in the 1950's, blackbirds and starlings in corn in South Dakota," he said from his northern Wisconsin home. "At that time, we were using mainly scaring devices. There wasn't much attempt at population control. What was done was mainly with European Starlings. I worked with sunflowers and blackbirds in my later years with the agency. We were doing work in North Dakota at that time, using hazing techniques and lure crops. We used those also to attempt to reduce waterfowl depredation. This had a limited effect. You could reduce damage in some fields, but I can't say that any of those methods solved the problems in general. Can this problem be solved? It's very questionable. Most of the wildlife depredation problems that you can solve effectively are specific problems in specific areas. Overall, it is very difficult. Maybe you don't want an overall population reduction of birds. That's kind of a political issue, I guess."

As mentioned before, a decision on the permit request will be made some-

time next spring. And this fall and winter we will feed sunflower seeds to blackbirds visiting our yards.

Postscript: On 13 Nov 2001, the USFWS denied USDA's application, "The U.S. Fish and Wildlife Service today denied an application for a scientific collecting permit, submitted by USDA under the Migratory Bird Treaty Act (MBTA), to kill an unprecedented 2 million blackbirds as part of an experiment to reduce damage to commercially grown sunflowers, a favorite blackbird food during late-summer and fall." <http://www.r6.fws.gov/pressrel/00-10.htm>

GENERAL NOTES

NORTHERN CARDINAL AT RAPID CITY. From 10 June through 5 August 2001, a male Northern Cardinal frequented the Red Dale Drive neighborhood at Rapid City, SD. During this period I heard the bird many times, frequently more than once a day. Also, on four occasions (29 June, 1, 6, and 12 July) I had visual confirmation, so as to note the overall red body, crest, and the distinctive black marking around the beak. Additionally, on 19 July, my neighbor Roland Gray saw the cardinal perched on his garden fence at close range. Never was there evidence that a female cardinal was present.

During this time the bird occasionally sang its characteristic song (two distinctly separate notes followed by the series of quickly repeated notes) from my apple tree, but more often I heard the bird singing from nearby neighborhood trees.

The Birds of South Dakota (1991) lists only two records of the cardinal at Rapid City, 7-14 June 1967 and late December 1954 through 2 May 1955. As occurrence of the species in Rapid City is so exceptional, I was privileged to have the bird present near my home. It was easy for me to be alert for the song as I was familiar with the species during my youth in northwestern Illinois, and almost daily I see and/or hear cardinals at my winter quarters in Arizona's Sonora Desert. *L. M. Baylor, Rapid City, SD 57702.*

SMALL RESEARCH GRANTS AVAILABLE FROM SDOU

The Nathaniel R. Whitney, Jr. Memorial Research Grants are administered by the South Dakota Ornithologists' Union. They may be awarded to qualified graduate or upper division (Jr. or Sr.) students majoring in ornithology, avian ecology, avian wildlife management, or an appropriately related scientific discipline at a college or university in South Dakota. Whitney research grants may also be awarded to other ornithologically or scientifically qualified individuals, including amateur ornithologists. These grants will range from $250 to $500. Two to four grants may be awarded for this application cycle.

The SDOU invites applications for these grants. The deadline for application is 1 March 2002, and applicants will be notified by 1 May 2002 of the results of their application.

The process of application is as follows:

The application must include:

- The applicant's name, address, social security number, and information about the applicant's background and qualifications for doing the research.
- A statement of the purpose(s) and objective(s) of the research project and the methods, techniques (including any analytical techniques that may be used), and materials needed for the project.
- A statement of the amount of funding requested and the specific use of the funds in the project.
- The applicant's assurance that the grant will be used solely and specifically for the designated research project.
- The applicant's assurance that results of the research will be presented at an SDOU paper session at a fall meeting or an acceptable article to be published in SOUTH DAKOTA BIRD NOTES or in a major ornithological or related scientific journal, within three years of the research.

Other requirements:

- The application should be no longer than three typed pages.
- The applicant must arrange for two individuals to send letters of recommendation directly to the SDOU committee. The letter of recommendation should include an appraisal of the applicant's personal qualities and qualifications for pursuing the proposed research. The letter should indicate the significance of the proposed research for the advancement of knowledge about the birds of South Dakota.
- Three copies of each application and each letter must be sent to:

  Robb Schenck , 422 N. Linwood Ct., Sioux Falls, SD 57103
  Phone: 605-332-4442, or email at rschenck@dakota.net

  Successful applicants will receive a check for the grant's authorized amount from the SDOU treasurer on or before 10 May.

SEASONAL REPORTS

The 2001 Summer Season
1 June 2001 to 31 Jul 2001

Compiler: Robert F. Schenck
422 N Linwood Court
Sioux Falls, SD 57103

Preliminary reports from the National Weather Service indicate temperatures 0.6 degrees cooler than normal for June, with July having an unbelievable average of more than 19 degrees above normal. June precipitation was near normal, with July receiving 0.86 inches precipitation more than normal. This report includes 107 confirmed breeding records. The average for the previous five years is 100. Amazingly, 262 species were reported, which compares to the five-year average of 239. The large number of species reported due in large part to the extensive avian research currently being conducted within the state. I would offer special thanks to those who braved the July heat to produce these records. In general this report was compiled by the following method. All confirmed breeding records submitted are included. Those breeding records representing a first for the county, according to *The South Dakota Breeding Bird Atlas* and the 1995-00 Summer Season Reports of *Bird Notes,* are highlighted. Observations of birds within established breeding ranges, as defined by *The Birds of South Dakota*, were omitted. Records outside the normal breeding range are included. Sightings that would have been included in the last edition of *The Birds of South Dakota* are highlighted.

Pied-billed Grebe Confirmed Breeding: **01 Jul Clark (FL) BFH**; 07 Jul Moody, 13 Jul McPherson, 14 Jul Brown, **21 Jul Miner**, 28 Jul McCook (PY) JSP

Red-necked Grebe Confirmed Breeding: 14 Jun McPherson RBA; 22 Jun Roberts (Buffalo Lake) (PY) WS; 26 Jul Day (PY) DRS ... also reported from Marshall and McPherson co.

Eared Grebe Confirmed Breeding: 08 Jul Sully (FL) JCS; **13 Jul McPherson**, 14 Jul Brown (PY) JSP, RFS ... also reported from Harding, Meade and Perkins co.

Western Grebe Confirmed Breeding: 03 Jun Sully (ON) KM; 13 Jul McPherson (PY) JSP, RFS; 18 Jul Brown (FL) JCS ... also reported from Charles Mix, Harding, Hughes, Meade, Perkins and Sully co.

Clark's Grebe Reported from Brown, Charles Mix, Day, Harding and McPherson co.

American White Pelican Reported from Bon Homme, Charles Mix, Clark, Day, Hughes, Hyde, Jones, Marshall, McCook, Moody, Pennington and Sully co.

Double-crested Cormorant Confirmed Breeding: 20 Jun Hughes (CF) JCS; 13 Jul McPherson, 21 Jul Miner, 28 Jul McCook (ON) JSP ... also reported from Harding, Meade and Pennington co.

Least Bittern Reported from Brookings, Brown, Clark, Lincoln and Yankton co.

Great Blue Heron Confirmed Breeding: 01 Jun Hyde (ON) NS; 10 Jul Meade (PY-6) EEM; 28 Jul McCook (ON) JSP

Great Egret Confirmed Breeding: 13 Jul McPherson (ON) JSP

Snowy Egret Reported from Brown, Codington and McPherson co.

Little Blue Heron Confirmed Breeding: 03 Jul (ON-14) DAT

Tricolored Heron Confirmed Breeding: 03 Jul Brown (ON) DAT

Cattle Egret Reported from Douglas, Hyde, Lincoln and Lyman co.

Green Heron Confirmed Breeding: 15 Jul Mina Lake (PY) JCS

Yellow-crowned Night-heron Only Report: 28 Jun Brown DAT

White-faced Ibis reported from Hyde Co.

Turkey Vulture Reported from Bon Homme, Brookings, Charles Mix, Hughes, Lincoln, Minnehaha, Union and Yankton co.

Greater White-fronted Goose Only Report: **14 Jul Brown (1) JSP, RFS**

Snow Goose Only Report: all period Clay DS

Canada Goose Confirmed Breeding: 05 Jun Pennington (PY) JLB; **09 Jun Lincoln**, 23 Jun McCook (PY) JSP; 02 Jul Minnehaha (FL) MKZ

Wood Duck Confirmed Breeding: 09 Jun Lincoln (PY) JSP; 10 Jun Meade (PY) EEM; 25 Jun Pennington (PY-2), 29 Jun Meade (FL) JLB

Gadwall Confirmed Breeding: 01 Jun Hyde (FL) NS; 05 Jun Pennington (PY) JLB; 31 Jul Minnehaha (FL) MKZ

American Widgeon Confirmed Breeding: 30 Jun Pennington (FY) JLB ... also reported from Harding, Hyde, McCook, McPherson, Meade, Perkins, Stanley, Sully and Yankton co.

Mallard Confirmed Breeding: 05 Jun Pennington, 02 Jul Jackson (PY) JLB; 21 Jul Miner (PY) JSP; 21 Jun Hyde (ON) NS

Blue-winged Teal Confirmed Breeding: 29 Jun Meade, 05 Jul Pennington (FL) JLB; 14 Jul Brown, 21 Jul Miner (PY) JSP; 31 Jul Hyde (FL) NS

Cinnamon Teal Only Report: 06 Jun Meade JLB

Northern Pintail Confirmed Breeding: **23 Jun McCook**, 13 Jul McPherson (PY) **JSP**; 27 Jun Meade (PY) AKB; 29 Jun Meade (FL) JLB

Green-winged Teal reported from Hughes, Meade and Stanley co.

Ringed-necked Duck reported from Marshall and McPherson co.

Lesser Scaup reported from Charles Mix, Harding, Hughes, McCook, Meade, and Sully co.

Bufflehead Confirmed Breeding: 09 Jul Roberts Bruce Harris ... also reported from Brown, McPherson and Sully co.

Hooded Merganser reported from Bon Homme and Brown co.

Common Merganser Confirmed Breeding: 05 Jul Pennington (Canyon Lake) (FL-12 downy young) JLB ... also reported late **01 Jun Stanley KM**

Red-breasted Merganser Late Spring: **01 Jun Brown JCS; 03 Jun Stanley RDO & KM**

Ruddy Duck Confirmed Breeding: 14 Jul Brown, 21 Jul Miner (PY) JSP ... also reported from Bon Homme and Yankton co.

Osprey Confirmed Breeding: 07 Jul Pactola Dam TWB; 26 Jun (NY), 23 Jul Pactola Reservoir (nest with 3 young) JLB; 23 Jul Custer (Stockade Lake) (NY); 29 Jul Lawrence (Pilot Knob, near Trout Haven HW385) (NY) JLB

Bald Eagle Confirmed Breeding: 10 Jul Roberts (NY-2), Marshall (NY) WS; 11 Jun Roberts (ON) JSP ... also reported from Day Co..

Northern Harrier Confirmed Breeding: 29 Jun Harding (CF) REP; **31 Jul Fall River (FL-4) RAP**

Sharp-shinned Hawk Only Report: 07 Jun Pennington RAP

Cooper's Hawk Confirmed Breeding: 07 Jun Meade (CF) REP

Northern Goshawk All Reports: Black Hills NB; Black Hills RBA; 24 Jun Custer RAP

Broad-winged Hawk Confirmed Breeding: **24 Jun Meade (CF) REP** ... also reported 23 Jun Roberts RDO; Black Hills NB; Black Hills RBA

Swainson's Hawk Confirmed Breeding: 22 Jun Fall River (one on nest) RAP ... also reported 01 Jul Stanley (**200+**) RDO, Doug Backlund

Merlin Confirmed Breeding: 20 Jul Meade (FY-3) REP

Peregrine Falcon Late Spring: **03 Jun Brown DAT**

Ringed-necked Pheasant Confirmed Breeding: Jul Hyde (**FL**) **NS**; 12 Jul Clark, 13 Jul McPherson (PY) JSP; 07 Jul Sully (PY) KH; 30 Jul Minnehaha (FL) MKZ

Sharp-tailed Grouse Confirmed Breeding: **17 Jun Sully (PY) KM; 21 Jun Hyde (ON) NS**

Wild Turkey Confirmed Breeding: 14 Jul Pennington (FL) AKB
American Coot Confirmed Breeding: 07 Jul Moody, 13 Jul McPherson, 21 Jul Miner, 28 McCook (PY) JSP
Semipalmated Plover Late Spring: 02 Jun Charles Mix RM ... Early Fall: 22 Jul Union BFH; 29 Jul Meade APB
Piping Plover Confirmed Breeding: 22 Jul Union (PY-3) BFH ... also reported 03, 24 Jun, 07 Jul Sully KM; 09 Jun Yankton SVS; 24 Jun Sully RDO
Killdeer Confirmed Breeding: 22 Jun Meade (ON) APB; 25 Jun Meade (PY) REP; 29 Jun Meade (FL) JLB
Greater Yellowlegs Early Fall: 27 Jun Meade AKB; 02 Jul Meade JLB; 13 Jul McPherson JSP
Lesser Yellowlegs Late Spring: 15 Jun Charles Mix RM ... Early Fall: Jun Meade AKB; 02 Jul Meade JLB; 07 Jul Moody JSP
Solitary Sandpiper Early Fall: 05 Jul Meade (3) JLB; 07 Jul Stanley RDO; 14 Jul Brown JSP
Upland Sandpiper Confirmed Breeding: 03 Jun Sully (NE) KH; 27 Jun Meade (FL) AKB; 29 Jun Meade (DD), 05 Jul Pennington (FL) JLB
Long-billed Curlew Confirmed Breeding: 29 Jun Harding (PY) REP
Ruddy Turnstone Only Report: 02 Jun Day (14+) JSP
Semipalmated Sandpiper Late Spring: 02 Jun Day JSP; 06 Jun Meade JLB ... Early Fall: 14 Jul Brown JSP; 15 Jul Hughes RDO & KM
Least Sandpiper Early Fall: **05 Jul Meade (2) JLB**; 12 Jul Clark JSP; 13 Jul Day WS
White-rumped Sandpiper Late Spring: 02 Jun Day JSP; 06 Jun Meade JLB; 06 Jun Hughes RDO ... Early Fall: **14 Jul Brown JSP**
Baird's Sandpiper Late Spring: 06 Jun Hughes RDO ... Early Fall: 06 Jul Meade (3) JLB; 15 Jul Hughes KM; 21 Jul Miner JSP
Pectoral Sandpiper Early Fall: 13 Jul McPherson; 30 Jul Hughes RDO
Dunlin Late Spring: 02 Jun Day JSP
Stilt Sandpiper Early Fall: 13 Jul McPherson JSP, RFS; 22 Jul Union BFH; 25 Jul Hughes RDO
Long-billed Dowitcher Early Fall: 20 Jul Charles Mix RM; 22 Jul Hyde (6) NS; 30 Jul Hughes RDO
Wilson's Phalarope Confirmed Breeding: 29 Jun Meade (PY) JLB
Red-necked Phalarope Early Fall: 14 Jul Brown (1) JSP, RFS
Franklin's Gull Reported from Hyde, Jones, Meade, Miner and Sully co.
Ring-billed Gull Reported from Day, Marshall, McCook, McPherson and Perkins co.
California Gull Reported from McPherson (7), Meade, Perkins, Stanley and Sully co.
Caspian Tern All Reports: 02 Jun Day (2) JSP; 08 Jun Yankton SVS; 30 Jun, 26 Jul Day DRS; 22 Jul Union BFH
Common Tern All Reports: 03 Jun Sully KM; 03 Jun Yankton SVS; 07 Jun Sully RDO
Forster's Tern Reported: 29 Jun Meade (1) JLB
Least Tern All Reports: 07 Jun Bon Homme, 09 Jun Yankton SVS; 19 Jun Sully RDO; 30 Jun Clay (2) JSP, RFS; 07 Jul Sully (Little Bend) KM; 22 Jul Union (pr) BFH
Mourning Dove Confirmed Breeding: 01 Jun Hyde (PY) NS; 02 Jun Stanley (FL) RDO; 02 Jun Stanley (NY) KM; 01 Jul Pennington (FY) TBW; 11 Jul Fall River (NE-2) RAP
Yellow-billed Cuckoo Confirmed Breeding: **22-27 Jun (NE-3) (predated on 29 Jun check) Clay DS; 10 Jul (NE-1, NY-2) - 13 Jul (NE-1, NY-1) (predated on 17 Jul check) Clay DS**
Eastern Screech-Owl Confirmed Breeding: 21 Jun Brookings (PY-4) KIE
Burrowing Owl Reported from Hughes, McPherson, Meade, Pennington, Perkins and Stanley co.
Short-eared Owl Reported from Harding and Lyman co.
Common Poorwill Reported from Harding, Meade and Stanley co.

Whip-poor-will Reported from Lincoln, all period in Charles Mix and Yankton co.
Ruby-throated Hummingbird All Reports: all Period Minnehaha Judge Severtson; all period Charles Mix RM; 02 Jun Roberts JSP; 05, 06 Jun Brown JCS; 06 Jun Yankton SVS; 04-13 Jun Brookings KIE; 04 Jun Edmunds JDW; 08 Jun Brown DAT
Lewis' Woodpecker All Reports: Black Hills RBA; 01 Jun Custer (Wind Cave National Park) (1) JLB
Red-naped Sapsucker Confirmed Breeding: 28 Jun Lawrence (NY) REP
Downy Woodpecker Confirmed Breeding: 30 Jul Pennington (CF) TBW
Hairy Woodpecker Confirmed Breeding: **10 Jun Hyde (CF) NS;** 29 Jun Pennington (FY) TBW; 23 Jun Custer (NY) RAP
Three-toed Woodpecker All Reports: Black Hills RBA; Black Hills NB
Black-backed Woodpecker All Reports: Black Hills RBA; Black Hills NB; 16, 17 Jun Custer & Pennington (Jasper Fire Area) (5) RAP
Northern Flicker Confirmed Breeding: 04 Jul Pennington (FY) TBW; 07 Jul Moody (FL) JSP
Olive-sided Flycatcher Late Spring: 01 Jun Lawrence RBA; **02 Jun Stanley RDO**
Eastern Wood-Pewee Reported: 02 Jun Stanley RDO & KM
Yellow-bellied Flycatcher Only Report: **01, 04 Jun Brown DAT**
Alder Flycatcher Only Report: **01 Jun Brown DAT**
Least Flycatcher Reported: 10 Jun Harding (1) DCG
Dusky Flycatcher Confirmed Breeding: **02 Jul (NB), 07 Jul (NE), (CF) Meade REP**
Cordilleran Flycatcher Confirmed Breeding: 24 Jun, 04 Jul Meade (NB) REP; 27 Jun Meade (ON) AKB; 27 Jun Meade (NE) JLB
Say's Phoebe Confirmed Breeding: 25 Jun Meade (CF) REP
Western Kingbird Confirmed Breeding: 02 Jul Pennington (ON) JLB; 08 Jul Brown (FY) JCS; 08 Jul Lyman (FY) DAT; 17 Jul Stanley (FY) KH
Eastern Kingbird Confirmed Breeding: 16 Jun Sully (NE) KM; 20 Jun Oahe Dam (CF) JCS; 20 Jul Charles Mix (FY) RM; 21 Jul Miner (CF) JSP
Loggerhead Shrike Confirmed Breeding: 25 Jun Meade (FY) REP
Warbling Vireo Confirmed Breeding: **27 Jun Day (NY) WS;** 27 Jun (NY), 02 Jul (NE), 07 Jul (NY) Meade REP
Red-eyed Vireo Confirmed Breeding: 29 Jul Meade (FY) REP
Pinyon Jay Confirmed Breeding: 16 Jul Meade (FY) APB
Clark's Nutcracker All Reports: 06 Jun, 26 Jul Custer (Crazy Horse) KH; 14 Jul Custer (Sylvan Lake) REP
Black-billed Magpie Confirmed Breeding: **17 Jun Sully (NE) KM**
American Crow Confirmed Breeding: **15 Jul Pennington (FY) TBW**
Horned Lark Confirmed Breeding: **30 Jul Brookings (CF) JCS;** 05 Jul Meade (FL) JLB
Tree Swallow Confirmed Breeding: 01 Jun Pennington (ON) TBW; 27 Jun Meade (ON) AKB; 01 Jul Pennington (ON) JLB
Violet-green Swallow Confirmed Breeding: 14 Jul Pennington (NY) REP
Cliff Swallow Confirmed Breeding: 02 Jul Jackson (ON) JLB; 04 Jul Hyde (NY) NS
Barn Swallow Confirmed Breeding: 02 Jul Jackson (NY) JLB; 04 Jul Hyde (NY) NS; 28 Jul Day (NY) WS
Black-capped Chickadee Confirmed Breeding: Brookings (PY) KIE; 24 Jun Custer (NY) KH; 04 Jul Pennington (FY-10) TBW; 20 Jul Minnehaha (FL) MKZ
Red-breasted Nuthatch Confirmed Breeding: 27 Jun Pennington (FY) TBW ... also reported from Brown and Day Co.
White-breasted Nuthatch Confirmed Breeding: 10 Jun Meade (CF) APB; 03 Jul Pennington (FY) TBW; 21 Jul Charles Mix (FY) RM; 28 Jun Lake (FL) JSP
Pygmy Nuthatch Confirmed Breeding: **01 Jul (FY) (3 first brood) 07 Jul (FY) (4 second brood) Pennington TBW**
Rock Wren Reported: 02 Jun Stanley KM; 22 Jun Stanley RDO

House Wren Confirmed Breeding: 16 Jul Minnehaha (DD) MKZ; 04 Jul Hyde (CF) NS; 27 Jul Day (NE) WS
Sedge Wren Reported: 13, 20 Jul Stanley KM; 22 Jul Stanley RDO
American Dipper All Reports: Jun Hanna Campground RBA; 17 Jun Rapid Creek RBA
Eastern Bluebird Confirmed Breeding: 01 Jun Pennington (ON) TBW; 04 Jul Hughes (FY) KM
Mountain Bluebird Confirmed Breeding: 01 Jun Pennington (ON) TBW
Veery Reported: 03 Jun Brown DAT
Swainson's Thrush Reported: 01 Jun Stanley KM; 09 Jun Hughes RDO
Wood Thrush Confirmed Breeding: 24 Jun (NE-3) - 30 Jun (two thrush eggs, one cowbird egg) - 11 Jul (2-thrush yg. Fledged) Clay DS
American Robin Confirmed Breeding: 10 Jun Lawrence (CF), 01 Jul Minnehaha (FL) MKZ; 02 Jul Jackson (CF), 01 Jul (CF), 08 Jul (FY) Pennington JLB; 21 Jul Miner (FL) JSP; 22 Jul Pennington (FY) TBW
Gray Catbird Confirmed Breeding: 26 Jul Minnehaha (FL) MKZ; 30 Jul Brookings (CF) JCS
Northern Mockingbird All Reports: 01-17 Jun Custer RBA; 26 Jun Hughes RDO
Sage Thrasher Only Report: 09 Jun Fall River (7 miles W of Edgemont) RDO & KM
Brown Thrasher Confirmed Breeding: 08 Jul Sully (FY) KH; 25 Jul Minnehaha (FL) MKZ
Sprague's Pipit All Reports: 29 Jun Harding (~7 miles N of Harding, SD) (4 male singing) REP; 29 Jun (1), 29 Jul (5) Perkins DCG
Cedar Waxwing Confirmed Breeding: 20 Jun Oahe Dam (CN) JCS
Blue-winged Warbler Only Report: **09 Jun Lincoln JSP, RFS**
Golden-winged Warbler All Reports: **26, 29 Jul Meade JLB, REP**
Tennessee Warbler All Reports: 02 Jun Roberts, 08 Jun Lake JSP
Virginia's Warbler All Reports: Black Hills RBA; 10 Jun Custer RDO & KM; Custer NB; 16 Jun Custer (Elk Mountain) (5) RAP
Northern Parula All Reports: **28 Jun Lawrence REP; 09 Jun Lawrence Michael Retter**
Yellow Warbler Confirmed Breeding: **02 Jul Hyde (FY) NS** ... also reported 01 Jun Custer (Wind Cave National Park) JLB
Chestnut-sided Warbler All Reports: **03 Jun Edmunds JDW; 19 Jun (1 female), 27 Jun (2 males), 03 Jul (2 males), 18 Jul (2 males) Meade REP; 29 Jul Meade JLB**
Yellow-rumped Warbler Confirmed Breeding: 26 Jun Lawrence (NB), 07 Jul Meade (CF) REP; 15 Jul Pennington (ON) TBW
Blackburnian Warbler Late Spring: **03 Jun Lake JSP**
Blackpoll Warbler Late Spring: 04 Jun Edmunds JDW
Black-and-white Warbler Late Spring: 09 Jun Bennett RDO; **Jun Hyde (1) NS**
American Redstart Reported: 01 Jun Hughes RDO; 02 Jun Roberts, **30 Jun Union JSP**; 05 Jun Brown, 20 Jun Hughes JCS; 24 Jun Hughes KM
Ovenbird Confirmed Breeding: 26 Jun Meade (CF) AKB; 20 Jul Harding (FL) KM
Mourning Warbler Late Spring: 03 Jun Brown DAT; **04 Jun Brown JCS**
MacGillivray's Warbler Confirmed Breeding: **02 Jul Meade (CF) REP**
Common Yellowthroat Confirmed Breeding: 30 Jun Meade (CF) JLB
Canada Warbler Late Spring: **02 Jun Brown DAT**
Yellow-breasted Chat Confirmed Breeding: **20 Jun Oahe Dam (CF) JCS; 17 Jul Stanley (CF) KM** ... also reported **01 Jun Custer (Wind Cave National Park) JLB; 20 Jun Hughes JCS; 4 Jul Hughes KM**
Scarlet Tanager Confirmed Breeding: **15 Jul Pennington (ON) TBW**
Western Tanager Confirmed Breeding: 27 Jun Meade (CN) AKB; 27 Jun Meade (CF) JLB
Spotted Towhee Confirmed Breeding: 05 Jul Pennington (CF) JLB; 29 Jul Pennington (FY) TBW ... also reported from Charles Mix, Custer, Harding, Hughes, Jackson,

Meade, Pennington and Stanley co.

Eastern Towhee Reported from Hughes, Lincoln, Minnehaha and Union co.

Chipping Sparrow Confirmed Breeding: **02 Jun Stanley (CF) RDO**; 27 Jun (CF), 03 Jul (FY) Meade REP; 30 Jul Brookings (CF) JCS

Brewer's Sparrow Confirmed Breeding: **02 Jul Meade (CF) JLB**

Field Sparrow Confirmed Breeding: 30 Jun Meade (FY) JLB

Vesper Sparrow Confirmed Breeding: 04 Jun Fall River (NE-4) RAP; 29 Jun Harding (CF) REP

Lark Sparrow Confirmed Breeding: 05 Jul Meade (FY) APB; 08 Jul Meade (FL) REP ... also reported from Charles Mix, Lincoln, Union and Yankton co.

Lark Bunting Reported from Custer, Harding, Pennington, Meade, Perkins, Stanley and Tripp co.

Grasshopper Sparrow Confirmed Breeding: 02 Jul Pennington (CF) JLB; 13 Jul McPherson (CF) JSP

Nelson's Sharp-tailed Sparrow Only Report: **14 Jul Brown (2) JSP, RFS**

Song Sparrow Confirmed Breeding: 13 Jun Lawrence (NY), **21 Jun Fall River (NY) RAP**

Dark-eyed Junco Confirmed Breeding: 20 Jun Pennington (FY) TBW; 18 Jul Meade (FY) REP

Northern Cardinal Confirmed Breeding: 09 Jul Minnehaha (FY) MKZ; **21 Jul Charles Mix (FY) RM;** 30 Jul Brookings (CF) JCS ... also reported 04 Jul Pennington (Chapel Valley, Rapid City) JLB

Rose-breasted Grosbeak Confirmed Breeding: 22 Jun Charles Mix (FY) RM

Black-headed Grosbeak Confirmed Breeding: 20 Jun Oahe Dam (CF) JCS; 20 Jul Meade (PY-4) EEM; 22 Jul Pennington (FY) TBW; 22 Jul Meade (FY) REP ... also reported from Charles Mix, Hughes and Sully co.

Blue Grosbeak Confirmed Breeding: **14 Jun (NB) - 18 Jun (NE-3) - 28 Jun (NE-4) - (predated on 02 Jul) Union DS; 17 Jul Stanley (CF) KH**

Lazuli Bunting Confirmed Breeding: 19 Jun Meade (NB) REP

Red-winged Blackbird Confirmed Breeding: 01 Jun Hyde (NE) NS; 30 Jun Meade (FY) JLB; 21 Jul Miner (CF) JSP

Eastern Meadowlark Only Report: **02 Jun Tripp RDO**

Western Meadowlark Confirmed Breeding: 05 Jun Pennington (CF) JLB; 27 Jun Meade (CF) AKB; 29 Jun Meade (CF) JLB; 14 Jul Brown (CF) JSP; **24 Jul Codington (CF) JCS**

Yellow-headed Blackbird Confirmed Breeding: **21 Jul Miner (CF) JSP**

Common Grackle Confirmed Breeding: 05 Jun Pennington (CF), 30 Jun Meade (FY) JLB; 07 Jun Hyde (FL) NS; 23 Jun Charles Mix (FY) RM

Great-Tailed Grackle Only Report: **09 Jun Lincoln JSP, RFS**

Brewer's Blackbird Confirmed Breeding: 24 Jun Meade (NE) REP

Brown-headed Cowbird Confirmed Breeding: 18 Jun Minnehaha (FL) (fledged by Song Sparrow) MKZ

Orchard Oriole Confirmed Breeding: **02 Jun Stanley (NB) RDO & KM; 17 Jun Sully (NE) KM**; 01 Jul Hyde (CF) NS; **16 Jul Charles Mix (FL) RM**

Baltimore Oriole Confirmed Breeding: **01 Jun Hughes (NB) RDO**; 02 Jul Charles Mix (FL) RM; 09 Jul Minnehaha (FL) MKZ ... also reported from Brown, Day, Hyde, Marshall, Meade, Moody, Stanley and Union co.

Bullock's Oriole Confirmed Breeding: **27 Jun Lawrence (NY) REP** ... also reported from Meade Co..

Cassin's Finch All Reports: Black Hills RBA; Black Hills NB

House Finch Confirmed Breeding: 04 Jul Hyde (FY) NS; 21 Jul Charles Mix (FY) RM

Red Crossbill Confirmed Breeding: 15 Jul Pennington (FY) (many broods hatched previous to this date) TBW

White-winged Crossbill Only Report: **02 Jul Pennington Michael Retter**

Pine Siskin Confirmed Breeding: 14 Jun Pennington (FY) TBW ... also reported 01, 29 Jul Charles Mix RM
American Goldfinch Confirmed breeding: 13 Jul Fall River (NE-3 + 2 Cowbird)
Evening Grosbeak All Reports: 22 Jun, 03, 29 Jul Meade REP
House Sparrow Confirmed Breeding: 22 Jul Hyde (FY) NS

Reports Requiring Acceptance By The Rare Bird Records Committee

Rough-legged Hawk Confirmed Breeding: 11 Jun Butte HW212 east of Nevell (2 nest, 4 PY) EEM
Short-billed Dowitcher 22 Jul Hyde (10+) NS
Eurasian Collared Dove 07 Jul Pennington JLB and Todd Jensen; 15 Jul Stanley KM; 16 Jun Clay Jay Carlisle
Barn Owl 09, 29 Jul Meade AKB
Chuck-will's-widow 01, 19 Jun Stanley KM
Rufous Hummingbird 11, 31 Jul Custer KH
Cassin's Kingbird 06 Jun Custer (1) RAP; 09 Jun Bennett KM; Custer NB; 11 Jun Custer Nicholas Block
White-eyed Vireo One singing male for much of June and into July. Jay Carlisle, Emily Stoddard, Eric Liknes
Blue-headed Vireo 07 Jul Moody JSP
Blue-gray Gnatcatcher 17 Jun Hyde (Rezac Lake) (1) NS
Kentucky Warbler 20 Jun Clay Eric Liknes, Dale Gentry
Henslow's Sparrow 13 Jun McPherson (T128N, R73W, S18, W1/2) Larry Igl

Species Observed But Not Included In This Report

American Bittern, Black-crowned Night-Heron, Northern Shoveler, Canvasback, Redhead, Red-tailed Hawk, Ferruginous Hawk, Golden Eagle, American Kestrel, Prairie Falcon, Gray Partridge, Ruffed Grouse, Greater Prairie-Chicken, Northern Bobwhite, Virginia Rail, Sora, American Avocet, Willet, Spotted Sandpiper, Marbled Godwit, Common Snipe, Black Tern, Rock Dove, Black-billed Cuckoo, Common Nighthawk, Great Horned Owl, Chimney Swift, White-throated Swift, Belted Kingfisher, Red-headed Woodpecker, Red-bellied Woodpecker, Western Wood-Pewee, Willow Flycatcher, Eastern Phoebe, Great Crested Flycatcher, Bell's Vireo, Yellow-throated Vireo, Plumbeous Vireo, Gray Jay, Blue Jay, Purple Martin, Northern Rough-winged Swallow, Bank Swallow, Brown Creeper, Canyon Wren, Marsh Wren, Golden-crowned Kinglet, Ruby-crowned Kinglet, Townsend's Solitaire, European Starling, Savannah Sparrow, Baird's Sparrow, Clay-colored Sparrow, Swamp Sparrow, Chestnut-collared Longspur, Indigo Bunting, Dickcissel, Bobolink

Species Expected But Not Reported

Horned Grebe (3), Trumpeter Swan (2), Sage Grouse, Sanderling (3), American Woodcock, Long-eared Owl (3), Northern Saw-Whet Owl (2), Pileated Woodpecker (2), Yellow-bellied Sapsucker, Cerulean Warbler (2), Le Conte's Sparrow, McCown's Longspur (6), Lesser Goldfinch

Contributing Observers

JLB	Jocelyn Lee Baker	BFH	Bill Huser
APB	Addison & Patricia Ball	RM	Ron Mabie
AKB	Anna K. Ball	CEM	Charlie Miller
NB	Nicholas Block	EEM	Ernest E. Miller
RNB	Robert & Nancy Buckman	KM	Kenny Miller
DCG	Dave & Carolyn Griffiths	RDO	Ricky D. Olson
KH	Kevin, Kris, & Lewis Hachmeister	JSP	Jeffrey S. Palmer
		RBA	Rare Bird Alert
KIE	Kieckhefer Family	RAP	Richard A. Peterson

REP	Randy E. Podoll
RFS	Robert F. Schenck
SS	Sherry Scherer
NS	Nancy Showalter
SVS	Steve Van Sickle
DRS	Dennis R. Skadsen
DS	David Swanson
JCS	Jerry Stanford
DAT	Dan Tallman
TWB	Tom & Brenda Warren
WS	Waubay NWR Staff
JDW	J. David Williams
MKZ	Mick Zerr

Breeding Status Abbreviations

CN Carrying nesting materials
NB Nest Building
PE Physiological evidence
DD Distraction display
PY Flightless precocial young
FL Recently fledged young
ON Occupied nest
CF Adult carrying food
FY Adult feeding fledged young
FS Adult carrying fecal sac
NE Nest with eggs
NY Nest with young

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Lancaster, CA 93534-5821

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