



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE

ALAMOSA/MONTE VISTA NATIONAL WILDLIFE REFUGE
9383 El Rancho Lane
Alamosa, Colorado 81101



March 13, 1992

MEMORANDUM

TO: Stephen S. Berlinger, Refuge Manager
Alamosa/Monte Vista NWR Complex

FROM: Anne E. Morkill, Wildlife Biologist
Alamosa/Monte Vista NWR Complex

SUBJECT: 1991-92 Report on Disposal of Wintering Waterfowl throughout
the San Luis Valley

APR 3 1992

INTRODUCTION

Monte Vista National Wildlife Refuge (NWR) is a traditional wintering area for waterfowl in the San Luis Valley (SLV) of south-central Colorado. Prior to the 1970's, a large portion of the SLV's wintering duck population roosted on wetlands created by natural springs and artesian wells at widely scattered locations throughout the SLV. However, changes in irrigation methods from flooding to center pivot sprinklers greatly effected the distribution of wintering waterfowl. Both the increased sprinkler irrigation and decreased surface flow diversions from the Rio Grande River lowered the water table; consequently, artesian flows diminished or were capped which led to a decline in wetland habitat (Szymczak 1986). In addition, artesian flow during winter months was reduced significantly when the Division of Water Resources enforced provisions that limited non-irrigation season well flows. Subsequently, Monte Vista NWR became the SLV's major duck wintering area in recent decades. Regulated artesian and pumped wells were used to maintain open water areas. An average of 15,100 ducks wintered on Monte Vista NWR, representing 87% of the SLV's wintering population from 1982-90. Mallards constitute 95% of the SLV wintering population.

The SLV experience severe winters characterized by sub-zero temperatures and snowfall; therefore wintering ducks may be stressed. Research during 1986-89 winter months on Monte Vista NWR indicated the lowest mallard winter condition reported in the literature (Jeske 1991). Stressed birds are thought to be more susceptible to diseases such as avian cholera.

Avian cholera was first confirmed on Monte Vista NWR in 1967, and epizootics occurred annually, with projected losses ranging from 1,500 to 15,000 ducks during 1985-90. Various weather factors such as cold temperatures, heavy snowfall, and wind velocity were believed to be associated with cholera outbreaks. Several thousand ducks crowded onto limited open water areas, and high bird densities facilitated disease transmission.

To minimize overcrowding and cholera in wintering waterfowl, Alamosa/Monte Vista NWR initiated an experimental effort in November 1990 to disperse waterfowl throughout the SLV. Wintering areas on private land were provided under the Alamosa/Monte Vista NWR's Wildlife Extension Program, in addition to traditional wintering areas. The goal of the dispersal effort was to maintain healthy wintering waterfowl populations in the SLV. This report summarizes results from the second year of the experimental program, covering the period October 1991 - March 1992.

STRATEGIES

Monte Vista NWR

To encourage dispersal of wintering waterfowl throughout the SLV and discourage large concentrations on Monte Vista NWR, similar strategies were implemented in November 1991 as in the previous winter. All regulated artesian and pumped wells were shut off by November 1. By early November, most wetlands had permanently frozen except for a few scattered areas kept open by unregulated artesian flows.

Hunting was permitted as usual on one-third of the refuge during all three splits of the waterfowl hunting season (approximately October 5, 1991 - January 1, 1992).

Private Lands

A total of 21 landowners participated in the Wildlife Extension Program's wintering project from October 1991 through March 1992. Nine grainfield (815 acres) and 11 roost sites (77 acres) were acquired as possible wintering areas for waterfowl (Figure 1). Grain fields provided food in close proximity to winter roosts, and included hail-damaged, harvested, and standing grain. Farmers were paid to postpone plowing of hail-damaged grain or barley stubble fields until spring to allow waterfowl to feed on waste grain. These areas were also closed to trespass to minimize wildlife disturbance. The amount of feed knocked to the ground by hail was considerable, and waste grain averaged 30-50 bushels/acre. Costs per acre averaged \$13.48 for hail-damaged fields and \$3.84 for regular barley stubble. In addition, small plots of standing grain (3-6 acres) were purchased to supplement waste grain in the event that heavy snows covered the stubble. Cost per acre for standing grain averaged \$126.51.

Winter roosts included reservoirs, wetlands, and drain ditches which could be kept ice-free by warm water artesian wells. An average of \$35.58 per wetland acre was paid to landowners for maintaining open water areas and closing the areas to trespass.

Landowners were required to close both roost and grain field sites to trespass to prevent hunters from hazing the birds off wintering areas. More than 400 closure signs were provided and posted by Refuge personnel. Closures were implemented during all 3 waterfowl hunting season splits. The Rio Grande State Wildlife Area (SWA) was closed only for the third split season on December 1.

Waterfowl use of both wetlands and fields was monitored bimonthly from mid-October through mid-March by ground surveys and landowner contacts. In addition, two aerial counts were conducted in conjunction with the Colorado Division of Wildlife's (CDOW) winter waterfowl surveys in December and January.

Six additional upland sites (550 acres) were acquired under the Wildlife Extension Program primarily for migrant sandhill crane use, or as habitat for resident wildlife (Figure 1). These areas were not expected to provide wintering areas for waterfowl, and are not discussed in this report.

RESULTS

Climate

The winter of 1991-92 was the coldest on record in the San Luis Valley. Snow cover persisted on the valley floor throughout winter beginning with the first major snowstorm on October 31 which dropped 15 inches of snow. Temperatures fell to -26 F on November 3, resulting in freeze-up of wetlands. An additional 15-20 inches of snow fell in November-December. December and January were cold, foggy months, with temperatures falling below zero on all but 5 days and reaching above 32 F on only 4 days. The average temperature in January was 1.4 F, which was 14.6 below normal. As much as a foot of snow persisted on the valley floor into March, and temperatures began to moderate in late February. On March 3-4, an additional 15 inches of snow fell, and temperatures reached as high as 40 F.

Waterfowl Use of Wintering Areas

A combination of poor production and severe winter conditions resulted in fewer number of waterfowl wintering in the SLV in 1991-92. Most roost areas were completely frozen during the winter due to consistently below-zero nighttime temperatures, and food sources were buried under snow from November through February. Refuge and state personnel, waterfowl hunters, and landowners throughout the SLV noted a decline in waterfowl numbers during the same period in late December. About 20,000 ducks and 10,000 Canada geese were believed to be in the SLV in early December; however, ground and aerial counts in January revealed approximately 8,000 ducks and 3,500 geese. Waterfowl populations also declined significantly on Monte Vista NWR from 5,000 ducks and 1,000 geese to 1,500 ducks and few geese. It is believed that many waterfowl migrated out of the SLV in late December due to the severe winter conditions.

Number of ducks observed on ground and aerial counts also differed between survey methods. Large differences were evident in numbers counted on aerial surveys, ground surveys, and numbers actually thought to exist in the SLV (Appendix A). For example, about 6,700 ducks were observed during the December 16th aerial survey, whereas more than 9,000 ducks were accounted for during a limited ground count the following day. In January, only 510 geese were observed during the January 18th aerial survey, whereas more than 3,000 geese were observed during a ground count on February 7. Early morning fog and steam clouds presented difficulties in counting waterfowl numbers observed during ground surveys of acquired roosts and grain fields, with some reference to other traditional wintering areas.

Fall --

Waterfowl populations peaked in mid-october to an estimated 12,000 ducks and 1,500 geese on Monte Vista NWR, and 8,000 ducks and 1,000 geese on Alamosa NWR. By November, few waterfowl remained on Alamosa NWR due to limited open water.

However, as many as 10,000 ducks and 500 geese remained on Monte Vista NWR through november, feeding in fields with standing grain and roosting on limited open water areas.

Grain fields acquired under the Wildlife Extension Program provided an important food source for migrant waterfowl and cranes in October. Waterfowl and cranes utilized 7 of 9 grain fields for feeding during fall migration, including Meadow Ranch, Bigelow Farms, Kirkpatrick, Ziegler, Booth, Reinhardt, and V-Heart. However, a heavy snow in late October covered the fields and use by wintering waterfowl declined. No birds were observed on the Hiner-Cooley or Crowther grain fields.

Waterfowl were widely distributed on wetland roosts during fall migration, due to available wetland habitat before freeze-up and hunting activities in the SLV. Waterfowl were observed in drain ditches on Cody and Meadow Ranch; reservoirs on Bigelow Farms, Kuntz, Kirkpatrick, Walters, and V-Heart Ranch; and springs at Meadow Ranch, Ziegler, Coleville, and Faucett. No birds were observed on the Heersink wetland or Booth reservoir during surveys.

Winter --

As previously mentioned, the SLV's wintering waterfowl population declined in late December. Few waterfowl remained on Alamosa NWR throughout the winter as all wetlands and the Rio Grande River were completely frozen. About 5,000 ducks and 1,000 geese remained on Monte Vista NWR until late December; thereafter numbers declined to about 1,500 ducks and 15 geese. These birds roosted on small artesian springs on Monte Vista NWR and at Walters, and fed mostly in refuge grain fields or a nearby livestock feeding operations.

Waterfowl use of grain fields was minimal in December-January due to heavy snows that covered fields, even though standing grain was available in some areas. Many waterfowl throughout the SLV were observed feeding in livestock feeding operations. About 400 geese fed in standing grain on Bigelow during December, but no birds were observed in January. As many as 700 geese fed at Kirkpatrick in December and January, representing the majority of geese wintering in the Hooper-Mosca area. In late December, an estimated 400 geese moved to the Meadow Ranch and fed on culled potatoes and waste grain in areas bladed free of snow. These geese may have moved from Kerr Reservoir, which typically winters several thousand geese; however, the majority of the reservoir iced over and only 30 geese remained through January. About 200 geese fed in standing oats at V-Heart in early December, but few were seen in January.

In December, about 200 ducks roosted on each wintering area at Bigelow, Kirkpatrick, and Coleville; however, few waterfowl roosted at Bigelow in January as both reservoirs almost froze completely. An estimated 4,000 ducks wintering on two Meadow Ranch wetlands fed in an adjacent buffalo feedlot. These birds may have moved from the Bigelow-Kuntz area, which wintered several thousand ducks in 1990-91. A few ducks wintered along the drain ditch at Cody. Few birds were observed at Kuntz, Booth, Heersink, Ziegler, and Faucett in December-January, perhaps because of these areas had little open water and limited food sources nearby in 1991-92. About 200 ducks and 200 geese wintered at the Rio Grande State Wildlife Area.

Spring--

Wintering waterfowl populations remained low on Alamosa and Monte Vista NWR's until mid-February, when migrant flocks of pintails and Canada geese arrived. Selected artesian wells were turned on beginning March 1, and barley was dumped in refuge grain fields to feed waterfowl and cranes. By mid-March, an estimated 10,000 ducks, 1,000 geese, and 10,000 sandhill cranes roosted and fed on Monte Vista NWR.

Numbers of early migrants also increased on other SLV wetland sites in late February. Snow cover persisted throughout the valley, and fields remained buried under snow. Sandhill cranes and geese used Booth, Bigelow, Kirkpatrick, Meadow Ranch, V-Heart, and Ziegler grain field sites. Waterfowl and cranes roosted on wetlands at Meadow Ranch and Walters, and waterfowl numbers increased at Bigelow and Kirkpatrick roosts.

EVALUATION

Avian Cholera

To evaluate the effect of the dispersal on wintering waterfowl throughout the SLV, waterfowl mortality was monitored weekly. Monte Vista NWR and extension areas where wintering waterfowl concentrated were checked for sick or dead waterfowl, particularly Monte Vista NWR, Walters, and Meadow Ranch. Avian cholera was confirmed by Madison Wildlife Health Lab personnel in 2 of 7 mallard carcasses found on Monte Vista NWR. Throughout the winter months, evidence of 91 mallard carcasses were found on Monte Vista NWR and Walters. Given an average scavenger removal rate of 70% (1988-90 field trials), at least 300 mallards died from cholera or other causes. This represented about 20% of the wintering population on Monte Vista NWR and Walters. Scavenging was intense and often only sets of wings were found, despite frequent searches. Of the 3,000-4,000 mallards wintering at Meadow Ranch, no carcasses were found. Since Meadow Ranch is a relatively new winter roost area for the SLV it will be interesting to monitor cholera on the area in future years (Schnaderbeck, pers. comm.).

Bald Eagles

Bald eagles play an important role as scavengers of sick and dead waterfowl, and in effect help control potential disease transmission from dead to live birds in a wetland. Nineteen eagles were counted on Monte Vista NWR during the Mid-winter Bald Eagle Survey conducted January 10, compared to 18 eagles in 1990-91. Eagle numbers declined on Monte Vista NWR during the past two winters compared to an average 38 eagles counted in 1985-90, probably as a result of lower waterfowl concentrations. In 1990-91, despite fewer eagles on Monte Vista NWR, 94 bald eagles were counted throughout the SLV, which was above the previous 11-year average of 70 eagles. Eagles apparently dispersed throughout the SLV relative to the distribution of wintering waterfowl in 1990-91; for example, 41 eagles were counted on the Rio Grande River in 1991, compared to only 0-5 eagles in 1985-89 (CDOW report). However, only 53 eagles were counted throughout the SLV in 1992. Mild winter conditions prevailed elsewhere in the western region, and many eagles may have wintered in other areas outside of the SLV where food was more available (Kenvin, pers. comm.).

Trapping

To evaluate the effect of dispersal on the physiological condition of wintering waterfowl, we attempted to trap mallards on Monte Vista NWR and extension areas in January-February. Body weight and wing length were measured and used to determine a condition index for each bird (estimated body fat/estimated fat-free body mass, Ringelman and Szymczak 1985). Condition indices were compared to similar data obtained on Monte Vista NWR in 1986-89 (Jeske 1991).

A cannon net trap site at each of 3 locations (Monte Vista NWR {Unit 20}, Walters, and Meadow Ranch) was baited several days in advance with barley and corn. Inadequate numbers of ducks used bait sites at Monte Vista NWR and Walters to warrant a shot, and attempts were discontinued at Meadow Ranch. L-shaped swim-in traps were also used at Monte Vista NWR (Well 51), Walters, and Meadow Ranch, where a total of 23 mallards were captured (Well 51 - 1 male, 1 female; Walters - 19 males, 2 females) in February. Trapping efforts were discontinued in mid-February due to poor success and arrival of migrants.

In summary, average body weight was 1256 g for males and 1035 g for females. In comparison, average body weight for adult male and female mallards trapped in 1986-89 were 1054 g and 931 g, respectively (Jeske 1991). Body condition indices for all 1992 trapped mallards exceeded 17.0, which categorizes them in "good" condition (>14.0, Jeske 1991). In comparison, mean condition indices for adult male and female mallards trapped in 1986-89 were 13.5 and 14.4, respectively (Jeske 1991). However, caution must be used in interpreting the 1992 data because of the small sample size. Also, body weight was measured immediately upon handling, and most were wet and had full crops. Most birds had prominent keels, despite heavy body weights.

SUMMARY AND RECOMMENDATIONS

1. Twenty percent of the SLV's wintering mallard population remained on Monte Vista NWR in 1991-92, compared to 48% in 1990-91 and an average 87% in previous years. However, poor production and severe winter conditions contributed to a lower wintering waterfowl population in 1991-92. Extremely severe temperatures and persistent snow cover limited food and roost availability. Waterfowl numbers declined in late December, indicating a late migration out of the SLV in response to severe wintering conditions.

Duck numbers stabilized in December in 1990-91 and declined in 1991-92 on Monte Vista NWR. In the future, selected artesian wells should be allowed to flow once wintering populations stabilize, to rotate open water areas and further reduce overcrowding of those birds remaining on the refuge. Alamosa NWR could also winter substantial numbers of waterfowl if the Mumm Well were approved for artesian flow during winter months.

2. Cholera losses were significantly lower in 1990-91 and 1991-92 on Monte Vista NWR and Extension areas than in previous years, despite below-normal temperatures and persistent snow cover. Wintering waterfowl populations were less concentrated on fewer wetlands on Monte Vista NWR, thereby

minimizing cholera incidence. It should be noted that diagnosed mortality in 1991-92 could not be completely attributable to cholera. Aspergillosis was confirmed by Madison Wildlife Health Lab in one mallard carcass found on Monte Vista NWR, and many carcasses may have merely been predated.

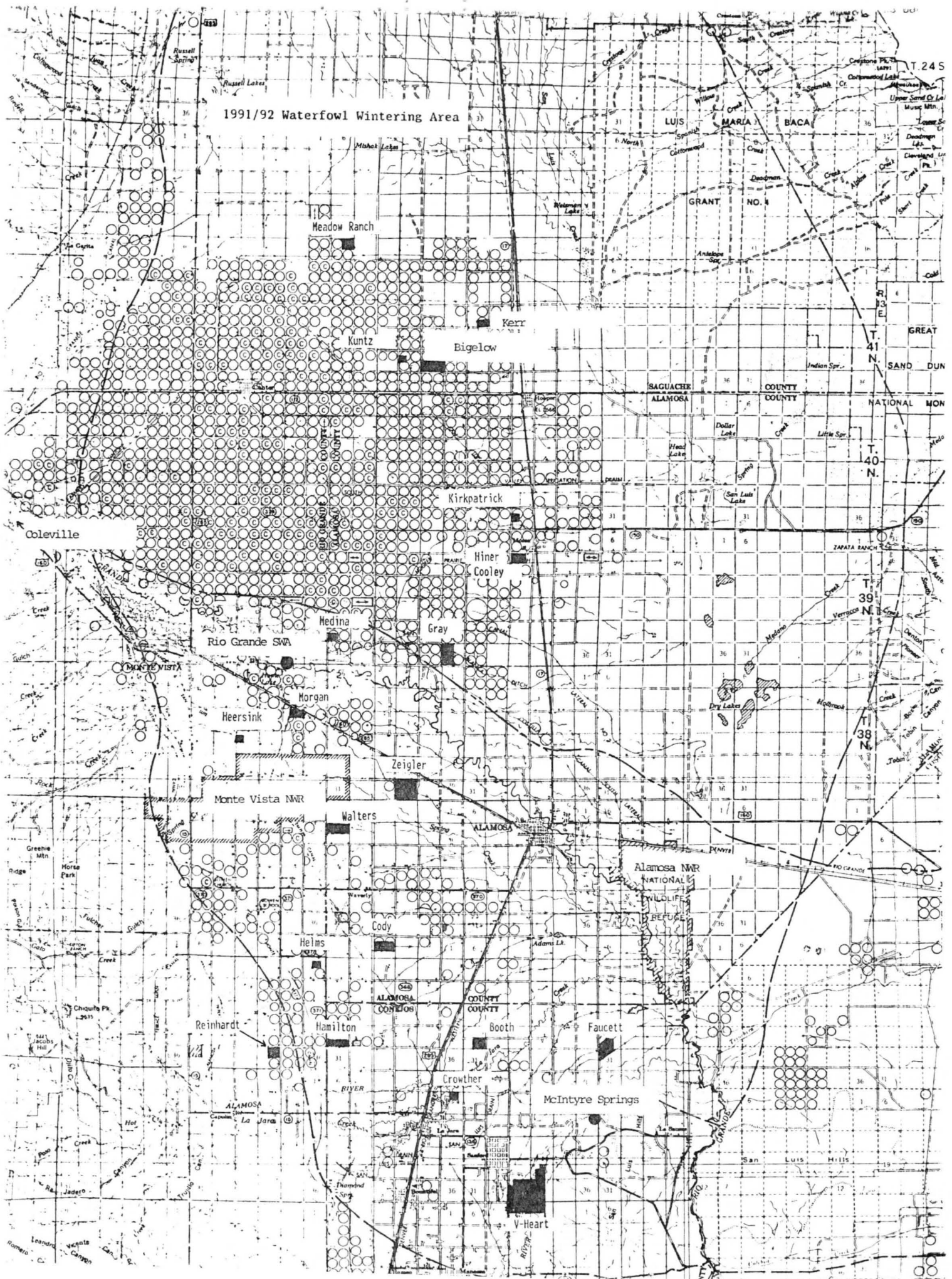
3. Winter body condition may influence reproductive success of resident mallards in the SLV (Jeske 1991). Adult males are the last to bale out when winter conditions become severe; therefore, if wintering populations become increasingly skewed to males, then females and young are moving south (Szymczak, pers. comm.). Observations of wintering mallards and trapping results in 1991-92 indicated a higher proportion of males, so perhaps the birds that migrated in late December may have been mostly females and young seeking more available resources.
4. The number of wintering bald eagles declined on Monte Vista NWR in 1990-91 and 1991-92 compared to previous years. In 1990-91, bald eagles dispersed throughout the SLV in response to the distribution of waterfowl. In 1991-92, fewer eagles wintered in the SLV, perhaps due to severe weather conditions and lower waterfowl population. A Section 7 evaluation of the effect of waterfowl dispersal on bald eagles was submitted to the Division of Fish and Wildlife Enhancement in November 1991, but no response has been received to date.
5. Several wetland and grain field sites obtained under the Wildlife Extension Program provided alternative wintering sites for substantial numbers of waterfowl, particularly Bigelow-Kuntz (1990-91), Meadow Ranch (1991-92), and Walters (both winters). These sites consisted of both wetland roosts and food sources in close proximity. In 1990-91, birds wintering at Bigelow, Kuntz, and Kerr frequently moved between roosts. Similarly, birds wintering on Monte Vista NWR and Walters often moved between these sites. These birds were therefore able to find alternative, secure areas if disturbed. Grain fields and wetland roosts in close proximity should be secured in the future for dispersed wintering sites, including both Alamosa and Monte Vista NWR, and traditional wintering sites (such as McIntyre Springs).
6. Several drain ditches secured under the Wildlife Extension Program did not winter substantial numbers of waterfowl. Few ducks wintered on Cody 1991-92, and few birds wintered on several drain ditches obtained in 1990-91. However, a substantial number of ducks wintered along a drain ditch near LaJara (Crowther, see Appendix A), and about 200 mallards wintered along drain ditches at both Coleville (1991-92) and Meadow Ranch (1990-91 and 1991-92). In the future, selected drain ditches in close proximity to food sources should be considered as wintering areas for waterfowl.
7. Several fields with abundant grain were not utilized by wintering waterfowl in 1990-91 and 1991-92. Waterfowl tend to establish rigid flight patterns to particular feeding areas; and if a field is undetected early and other food sources are available, certain fields may not be utilized. Disturbance by hunters in some fields in 1990-91 likely discouraged use by waterfowl, but all fields were closed to hunting in 1991-92. However, all fields were covered with at least a foot of snow

from November 1991 through February 1992, so it was difficult to evaluate the potential use by waterfowl. Efforts should continue in the future to close alternative wintering areas to trespass and hunting to encourage use by wintering waterfowl. Also note that many fields were not used by wintering waterfowl did provide important feeding areas for migrant waterfowl and cranes.

LITERATURE CITED

- Jeske, C. W. 1991. Condition, survival, and management of mallards wintering in the San Luis Valley, Colorado. Ph. D. Dissertation, Colorado State Univ., Fort Collins. 150pp.
- Ringelman, J.K., and M.R. Szymczak. 1985. A physiological condition index for wintering mallards. J. Wildl. Manage. 49(3):564-568.
- Szymczak, M.R. 1986. Characteristics of duck populations in the intermountain parks of Colorado. Colo. Div. Wildl. Tech. Publ. No. 35.

1991/92 Waterfowl Wintering Area



APPENDIX A

STATE OF NEW MEXICO
DIVISION OF WILDLIFE
Department of Natural Resources

Date: December 18, 1991

TO: Jim Olterman

FROM: *Dave*
Dave Kenvin

RE: Mid-December SLV Waterfowl Counts

We flew the SLV waterfowl counts on December 16, 1991. Total count time was 3.75 hours plus 2.5 ferry time. Skies were mostly clear with some early fog, temperature was 0 and about a foot of snow covered the valley floor. There was very little open water and feeding areas limited by the snow cover. Observers were Morekill, Kenvin, and Frothingham.

| Area | Geese | Duck |
|------------------------------------|-------|------|
| Russel Lakes (mostly frozen) | 50 | 3 |
| Mishak Lakes (frozen) | 0 | 0 |
| Hopper Area (ponds and fields) | 875 | 219 |
| San Luis Lake (frozen) | 0 | 0 |
| Head Lake (frozen) | 0 | 0 |
| BLM Blanca Ponds | 34 | 14 |
| Smith Res. (frozen) | 500 | 300 |
| Culebra Creek | 0 | 118 |
| Sanchez Res. (frozen) | 0 | 0 |
| Conejos River and McIntyre Springs | 230 | 132 |
| Monte Vista NWR (ground count) | 1500 | 5000 |
| Ponds east of MVNWR | 358 | 70 |
| Alamosa NWR | 50 | 13 |
| Rio Grande | | |
| State line to LaSauces | 0 | 1 |
| LaSauces to Alamosa NWR | 8 | 0 |
| Alamosa to RG County line | 0 | 0 |
| Rio Grande SWA | 200 | 200 |
| Highway 285 to Del Norte | 30 | 6 |
| Del Norte to South Fork | 0 | 135 |
| NW of Mosca (ground count) | 0 | 500 |
| Totals | 3827 | 6711 |

cc: Towry Wright
 Apker BLM Alamosa
 Motz USFWS MV
 Wait
 Conrad
 Weldon
 Rauch

11/14/91

Memorandum

To: The files

From: SLV Private Lands Coordinator, Rick Schnaderbeck

Subject: Documentation of Wintering Waterfowl

A ground survey of wintering waterfowl was conducted on Dec. 17, 1991 to document waterfowl use of areas which were not adequately represented in the results of the aerial survey conducted on Dec. 16, 1991. I believe the birds were missed by the aerial survey due to a localized heavy fog/steam blanketing waterfowl roost areas. (During the ground survey the fog/steam was so thick that I usually heard birds before I could see them at distances of usually less than 50 yards.) The survey was done by walking and flushing waterfowl off of areas where landowners reported large concentrations of ducks. A crude video was also taken to help estimate the numbers of birds using the areas. In an effort to catch birds on the roost areas before they dispersed to feeding areas, the survey was conducted between 7:15 and 10:00 am and consequently limited to a few key areas in the center and northern part of the Valley.

| | | | |
|-----------------|---|----------------|--------------|
| Walters | apprx 1 mi. SE of MV NWR. | 4,000 mallards | 50 C. geese |
| Heersink | apprx 1 mi N of MV NWR. | 100 mallards | -- |
| Bassi | 1 mi. N of Rio Grande River on road 3E. | 550 mallards | -- |
| Holland | 1 mi. S of 112 and <u>apprx</u> 3 mi E of county line road. | 150 mallards | 350 C. geese |
| Kuntz | E of Center | 20 mallards | -- |
| Bigelow | 1 mi E of Kuntz | 50 mallards | 450 C. geese |
| Simpson | 1 mi N of Bigelow | 75 mallards | -- |
| ? | narrow pond 1 mi N of Simpson | 40 mallards | -- |
| Tonso | discharge ditch 1 mi N of Kuntz | 50 mallards | -- |
| MeadowRanch Co. | line rd north of 112 | 4,000 mallards | -- |
| Kirkpatrick | 2mi W and 1.5 mi N of Mosca | 500 mallards | -- |
| Total | | 9,335 mallards | 850 C. geese |

Most of the mallards on the Walters area were probably counted by the aerial survey while they were feeding on the MV NWR but it should be noted that apprx 500 of the Walters mallards have been feeding to the SW on private land and were most likely missed by the aerial survey. I also received a report from a hunter of "a good 3,000 ducks feeding on private land near the Rio Grande SWA" and suspect these birds were roosting on the large artesian well present on the SWA. I did not conduct a ground survey the SWA because I did not know the exact location of the well but suspect a fair number of ducks were most likely roosting on the SWA. I also observed apprx 250 C. geese flying over Mosca from the SE going NW. There must be roost area SE of Mosca that we are not aware of.

Manager 4/28/14

SROS

Ref Asst File

Pos

Biologist

JAN 27 1992

^{Funk}
DRAFT

TO: Howard Funk

DATE: January 18, 1992

FROM: Jim Olterman *JO*

RE: Mid-winter S.L.V. Waterfowl count

On January 16, 1992 I flew the S.L.V. waterfowl count with Joe Frothingham and Rick Schniderbeck (USFUS). Skies were clear and the ground was snow covered.

| <u>AREA</u> | <u>GEESE</u> | <u>DUCKS</u> |
|----------------------------------|--------------|--------------|
| Russell Lakes (Frozen) | | 40 |
| Pond at M.V. Airport | | 85 |
| Goetz Well | | 100 |
| Monte Vista Sewer Ponds | | 30 |
| Pond S. of Russell Lakes | | 40 |
| Meadow Ranch | 175 | 2500 |
| Ke W Ponds | | 50 |
| Tonso Drain | | 60 |
| Kuntz Ponds | | 0 |
| Bigelow Ponds | | 220 |
| Young's Alligator Farm | | 300 |
| Kirkpatrick Pond | 300 | 145 |
| Culebra Cr. | | 190 |
| Conejos River-McIntire Spgs. | 20 | 10 |
| Sanford Drain Ditch (Croutheers) | | 650 |
| Flucky Springs | | 320 |
| Monte Vista Refuge | 15 | 1700 |
| Walters Pond | | 500 |
| Rio Grande River (M -So. Fork) | | <u>300</u> |
| TOTALS | 510 | 7240 |

It is evident that we missed a number of birds, especially geese. Due to heavy fog we had to start the count at about 11:00 A.M. and I believe many birds were feeding in fields. We may try a concentrated ground count later.

JO/dmb

cc: Towry
Donoho
Apker, Wright, Akert, Ranch, Wait
Weldon, ~~Alamosa N.M.~~, BLM-Alamosa

Feb 7, 1992

Memorandum

To: Dave Kenvin CDOW

From: Rick Schnaderbeck FWS

Subject: Results of Feb 7, 1992 Waterfowl Ground Count

| Location | Mallards | Geese |
|-------------------------------|----------|-------|
| Bassi artesian and ditch | 450 | 0 |
| Monte Vista Sewer Ponds | 35 | 0 |
| Monte Vista Potato Warehouse | 40 | 0 |
| Weaver artesian and ditch | 75 | 10 |
| Cody ditch | 0 | 0 |
| Flecky Springs | 830 | 0 |
| V-heart | 150 | 20 |
| 2mi SSE of V-heart | 200 | 450 |
| 2mi ESE of V-heart | 0 | 300 |
| Crowther ditch W of Sanford | 1300 | 0 |
| LaJara Creek 3mi NE of LaJara | 0 | 700 |

Totals

3080

1480

Mosca-Hager-Center areas

3300

~~1200~~

Smith Reservoir

600

1080

590

6980

3150