ALASKA - YUKON

WATERFOWL BREEDING POPULATION SURVEY

May 16 to June 7, 2009

By

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Fairbanks¹ and Juneau², Alaska
TITLE: Waterfowl Breeding Population Survey: Alaska-Yukon (Crew Area 1)

STRATA COVERED: 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12

DATES: 16 May to 7 June 2009

DATA SUPPLIED BY: Ed Mallek¹ and Deborah J. Groves²
U.S. Fish and Wildlife Service,
Fairbanks¹ and Juneau², Alaska

ABSTRACT

Waterfowl breeding conditions within the survey area depend largely on the timing of spring phenology. Spring breakup, while initially delayed, occurred normally throughout the majority of the survey area. During the time of this survey, all areas were normal with the exception of some segments on the Yukon-Kuskokwim Delta, which were slightly late. Significant flooding occurred in the interior in typical areas in strata 5 and 6 (Innoko/Iditarod and Koyukuk/Dulbi). Overall, production is expected to be fair to good with possible lower production in the flooded areas and in areas where breakup occurred later than normal.

Total duck numbers were down from the previous 10-year mean by 20%, but were up 13% from the long-term mean (1957 – 2008). Dabbler ducks decreased from the previous 10-year mean by 21%, but were up 32% from the long-term mean. Divers and “miscellaneous” species differed by -26% and -3% from their previous 10-year means, respectively, and differed from their long-term means by -15%. Duck production is expected to be fair to good.

Goose and swan (trumpeter and tundra) production should be about average throughout the survey area.

INTRODUCTION

This year the standardized waterfowl breeding pair survey in Alaska was conducted for the 53rd consecutive year. These data collected from this survey continue to increase in value and are the basis for management decisions at the state, flyway, and continental level.

The survey was flown in the specially modified de Havilland Turbine Beaver (N754). This aircraft has been used on this survey since 1977 and provides extremely high visibility and reliability. Continued use of N754 for this survey (and others) is highly recommended.

METHODS

Survey methods followed “Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Surveys in North America” (USFWS and CWS 1987). We used two panel-mounted computers (Sony VAIO VGN-UX490N) that ran survey software developed
by John I. Hodges, USFWS-Alaska (retired). The software provided a moving map for situational awareness and recorded observations through a microphone (sound files) that were linked to coordinates from the aircraft GPS (latitude and longitude). We then used a second computer program on the ground to transcribe the linked sound files and produce a text file. The text files contained all relevant data for each observation and were used for analyses and production of stratum summaries and tables. All data and summaries were provided to the Division of Migratory Bird Management (DMBM) upon completion of the survey.

The survey design consisted of 12 strata and a total of 232 segments. The Alaska portion of the survey consisted of 214 segments each 16 miles in length and 10 segments each 8 miles in length. The Yukon portion of the survey (Old Crow Flats) consisted of 8 segments each 18 miles in length. All segments were flown in 2009 although a small portion of one segment (between McGrath and King Salmon) was skipped due to a wildfire occurring on the transect.

We incorporated visibility correction factors (VCFs) in the estimates of ducks. The VCFs were obtained from a six-year (1986-1991) helicopter/fixed-wing comparison study in Alaska (Conant et al. 1991). The VCFs were species and habitat specific: boreal forest (strata 1-7), tundra (strata 8-11), and Old Crow Flats in Canada (stratum 12). These VCFs have been used since 1992 and all data previous to 1992 have been corrected as well.

In 2002, the Waterfowl Management Branch in Alaska (following DMBM) decided to double all observations of single geese when calculating indicated total geese. The rationale for this decision was based on the premise that a single goose indicates a pair of geese with the unobserved goose on a nest. All historical data have been updated to reflect this change in analyses. Furthermore, we do not apply a VCF to Canada geese while the DMBM does apply a VCF of 2.89 for Canada geese. Finally, starting in 2002, the DMBM started deleting all flock sightings greater than 45 from the calculations of continental population indices while the results reported here include all flocked observations regardless of size.

WEATHER AND HABITAT CONDITIONS

Good conditions were present throughout Alaska in 2009, though spring was slightly late in some coastal areas. Spring arrived later than average on the Copper River Delta (stratum 7) and in some areas of the outer coast of the Yukon-Kuskokwim Delta (stratum 9). Spring breakup in interior Alaska and south central Alaska (strata 1-6) started slowly but was normal by the time breeding pair survey occurred. There was extensive flooding within the Innoko River drainage (stratum 5) and in parts of the Koyukuk River drainage (stratum 6). The flooding in these areas may cause reduced production. Bristol Bay (stratum 8), Seward Peninsula (stratum 10), and Kotzebue Sound (stratum 11) seemed to have normal breakup timing and conditions. The Old Crow Flats (stratum 12) was average and slightly further along in breakup compared to more recent years.

BREEDING POPULATION ESTIMATES

Caution should be used when interpreting the graphs that include data previous to 1977. The specially modified turbine beaver (N754) has been used on this survey from 1977 to present.
This aircraft has increased visibility when compared to aircraft used prior to 1977 on this survey. This suggests that any long-term declines may be more significant than depicted on the graphs and any long-term increases may be less significant than depicted on the graphs (depending on the span of years in question). Likewise, long-term averages that include pre-1977 could be somewhat misleading. Historical data from this survey (1957-1994) have been analyzed and are available in a report (Hodges et al 1996).

**Ducks**

Estimates of ducks are provided in Tables 1, 2 and 9-20 and Figures 1-3.

Dabbling populations decreased from last year by 12%, were 21% below the previous 10-year mean, and were up 32% from the long-term mean (1957-2008). The northern pintail population was 15% below the previous 10-year mean and 1% above the long-term mean. The northern pintail has traditionally been the most numerous dabbling in Alaska and in recent years the Alaska population has accounted for a significant portion of the Pacific Flyway total for that species. Results from this survey (2009, which does not include the Arctic Coastal Plain of Alaska) accounted for approximately 29% of the continental pintail population. American wigeon were down 19% from the previous 10-year mean and were up 44% from the long-term mean. The American green-winged teal population was down 20% from the previous 10-year mean, and up 65% from the long-term mean. Mallard and northern shoveler populations were down 27 and 26% from their previous 10-year means, respectively, and were up 32 and 1% from their long-term means.

Scaup, which account for the vast majority of divers observed on this survey, were down 20% from the previous 10-year mean, and down 11% from the long-term mean. The canvasback population was down 64% and 55% from the previous 10-year mean and long-term mean, respectively. Ring-necked duck and goldeneye populations were both down 56% from their previous 10-year means, and were up 24% and down 55% from their long-term means, respectively. The bufflehead population was up 22% and 32% from the previous 10-year mean and long-term mean, respectively. The long-tailed duck population was down 29% from the previous 10-year mean and was also down 52% from the long-term mean. Eider and scoter populations were down 1% and up 5%, respectively, from their previous 10-year means and were down 45 and 2% from their long-term means. Mergansers were down 9% from the previous 10-year mean, but were up 82% from the long-term mean.

**Geese**

Figure 3 includes the trend of all geese recorded on 5 segments of this survey within the coastal zone of the Yukon-Kuskokwim Delta (actual geese seen on transect only). Data from 1964 was excluded because of extreme weather conditions experienced that year. Two lines were fit to these data (1957-1984 and 1985-2009) due to restricted harvest regulations that were first applied in 1984 (and in subsequent years) based on the Yukon-Kuskokwim Delta Goose Management Plan. The general upward trend since 1984 suggests a response in goose populations (primarily white-fronted geese and cackling Canada geese) to the management plan.
Swans

Estimates of swans are provided in Tables 3, 9-20 and Figure 3.

Trumpeter Swans – Trumpeter swan observations from this survey in boreal forest strata (1-4, 6, and 7) estimate the population at 15,400 adults and sub-adults, which is 15% below the previous 10-year mean, but is 66% above the long-term mean (1964 – 2008). Overall, good production is expected this year for trumpeter swans in Alaska.

Tundra Swans – The population index from tundra strata (8-11), not including the Arctic Coastal Plain of Alaska, was 111,100, which is 22% below the previous 10-year mean, and 13% above the long-term mean. The breeding index (singles and pairs) was 90,200, which is 10% above the previous 10-year mean. Overall, good production is expected this year for tundra swans in western Alaska.

Cranes

Estimates for sandhill cranes are available in Tables 4, 9-20 and Figure 4.

The sandhill crane index for Alaska in 2009 was 57,600, which is 30% above the previous 10-year mean, and 41% above the long-term mean.

Loons

Estimates for loons are available in Tables 5-7 and Figure 4.

The 2009 red-throated loon index for the Alaska portion of this survey (excludes Old Crow Flats) was 14,100, up 29% from the previous 10-year mean.

The 2009 Pacific loon index for Alaska was 49,300, down 7% from the previous 10-year mean.

The 2009 common loon index for Alaska was 8,000, down 21% from the previous 10-year mean.

CONCLUSION

Most waterfowl species experienced a decrease in 2009 when compared to previous ten-year means. However, total duck numbers were 13% above the long-term mean. Overall waterfowl production within the survey area is expected to be fair to good.

TELEMETRY

A Telonics telemetry receiver-scanner is incorporated in the panel of the survey aircraft. This year we scanned for sandhill cranes (our only request) and did not positively locate any transmitted cranes.
ACKNOWLEDGMENTS

We thank John Pribbenow, Daryl Carson, John Alley, John Anderson and other OAS personnel for providing a fast yet thorough annual inspection to the aircraft prior to the survey. We also thank Doug Alcorn, Russ Oates, Eric Taylor, and Kevin Fox for their needed support. Special thanks to Mike Spindler, Bo Sloan, Bill Schaff, Gene Peltola, and Lee Anne Ayres for providing housing, vehicles, or other logistical support.

LITERATURE CITED


Table 1. Alaska-Yukon. Ten year trend in adjusted waterfowl breeding population estimates by species, 2000 - 2009 (estimates in thousands).

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Table 2. Status of Alaska-Yukon waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and strata in 2009, with comparisons to 2008, the previous 10-year mean, and the long-term mean.

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<th>10-Year Mean</th>
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<th>Mean</th>
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* 1-7 Interior Alaska Taiga; 8-11 Coastal Alaska Tundra; 12 Old Crow Flats, Yukon Territory, Canada
Table 3. Alaska. Ten year trend in tundra swan breeding population observations, 2000 - 2009 (estimates in thousands).

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Note: There are additional tundra swans nesting in Alaska outside of these strata. Actual swans observed are expanded for area only.

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Note: There are additional sandhill cranes nesting in Alaska – Yukon outside of these strata. Actual sandhill cranes observed are expanded for area only.
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Note: There are additional red-throated loons nesting in Alaska - Yukon outside of these strata. Actual red-throated loons observed are expanded for area only.

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Note: There are additional Pacific loons nesting in Alaska - Yukon outside of these strata. Actual Pacific loons observed are expanded for area only.

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Note: There are additional common loons nesting in Alaska - Yukon outside of these strata. Actual common loons observed are expanded for area only.

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Note: Stratum 7 has 8 mile segments; stratum 12 has 18 mile segments.
### TABLE 9.

**WATERFOWL BREEDING POPULATION SURVEY**  
**STRATUM: 1**  
**KENAI-SUSITNA**

**DATES:** 5 / 16 / 2009  
**THRU:** 5 / 16 / 2009

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\[ P = \text{POPULATION INDEX} \]
\[ A = \text{SQUARE MILES IN THE STRATUM} \]
\[ T = \text{INDICATED TOTAL BIRDS} \]
\[ S = \text{SQUARE MILES IN THE SAMPLE} \]
\[ V = \text{VISIBILITY RATIO} \]
\[ F = \frac{A \times (T/S)}{V} \]

\[ a \] Drakes not doubled in arriving at indicated total birds (T).
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**Computation of the Population Index**

\[
P = \text{Population Index} \\
A = \text{Square Miles in the Stratum} \\
T = \text{Indicated Total Birds} \\
S = \text{Square Miles in the Sample} \\
V = \text{Visibility Ratio} \\
P = A \times \left(\frac{T}{S}\right) \times V
\]

Drakes not doubled in arriving at indicated total birds (T).
### TABLE 11.

**WATERFOWL BREEDING POPULATION SURVEY**  
**STRATUM: 3**  
**TANANA-KUSKOKWIM**  

**DATES:** 5 / 18 / 2009 THRU 5 / 27 / 2009

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\[ P = \frac{A \times (T/S)}{V} \]

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*a* Drakes not doubled in arriving at indicated total birds (T).
### TABLE 12.

**WATERFOWL BREEDING POPULATION SURVEY**

**STRATUM: 4**

**YUKON FLATS**

**DATES:** 5 / 22 / 2009 THRU 5 / 22 / 2009

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|                      | 135.000                      |

* Drakes not doubled in arriving at indicated total birds (T).
TABLE 13. WATERFOWL BREEDING POPULATION SURVEY STRATUM: 5 INNOKO


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Drakes not doubled in arriving at indicated total birds (T).
### TABLE 14.

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**KOYUKUK**  
**DATES:**  5 / 24 / 2009  THRU  5 / 24 / 2009

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\[ P = (T/S)^2 \times V \]

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A Drakes not doubled in arriving at indicated total birds (T).
### Table 15.

**WATERFOWL BREEDING POPULATION SURVEY**

**STRATUM: 7**

**COPPER DELTA**

**DATES: 5 / 16 / 2009 THRU 5 / 16 / 2009**

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\* Drakes not doubled in arriving at indicated total birds (T).
### Table 16.

**WATERFOWL BREEDING POPULATION SURVEY**  
**STRATUM: 8**  
**BRISTOL BAY**

**DATES:** 5 / 27 / 2009  
**THRU 5 / 29 / 2009**

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**COMPUTATION OF THE POPULATION INDEX**

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a Drakes not doubled in arriving at indicated total birds (T).
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**Computation of the Population Index**

\[ P = \frac{A \times (T/S) \times V}{F \times (x2)} \]

- **A**: Number of observed ponds (x2)
- **F**: Pond index
- **S**: Square miles in the stratum
- **T**: Indicated total birds
- **V**: Visibility ratio
- **P**: Expansion factor

*a* Drakes not doubled in arriving at indicated total birds (T).
## TABLE 18.

### WATERFOWL BREEDING POPULATION SURVEY

**STRATUM: 10**  
**SEWARD PENINSULA**


---

### COMPUTATION OF THE POPULATION INDEX

- **P = POPULATION INDEX**
- **A = SQUARE MILES IN THE STRATUM**
- **T = INDICATED TOTAL BIRDS**
- **S = SQUARE MILES IN THE SAMPLE**
- **V = VISIBILITY RATIO**
- **P = A * (T/S) * V**

Drakes not doubled in arriving at indicated total birds (T).

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a Drakes not doubled in arriving at indicated total birds (T).
## TABLE 19.

**WATERFOWL BREEDING POPULATION SURVEY**

**STRATUM: 11**

**KOTZEBU SOUND**


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### COMPUTATION OF THE POPULATION INDEX

- $P = \text{POPULATION INDEX}$
- $A = \text{SQUARE MILES IN THE STRATUM}$
- $T = \text{INDICATED TOTAL BIRDS}$
- $S = \text{SQUARE MILES IN THE SAMPLE}$
- $V = \text{VISIBILITY RATIO}$
- $P = A \times (T/S) \times V$

Drakes not doubled in arriving at indicated total birds (T).
TABLE 20.
WATERFOWL BREEDING POPULATION SURVEY  STRATUM: 12  OLD CROW FLATS


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<td>(V)</td>
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a  Drakes not doubled in arriving at indicated total birds (T).
Figure 1. Trends in dabbling ducks from the Alaska-Yukon Waterfowl Breeding Population Survey.
Figure 2. Trends in diver ducks from the Alaska-Yukon Waterfowl Breeding Population Survey.
Figure 3. Trends in diver ducks, coastal geese, and swans from the Alaska-Yukon Waterfowl Breeding Population Survey.
Figure 4. Trends in sandhill cranes and loons from the Alaska-Yukon Waterfowl Breeding Population Survey.