

**Lesser scaup (*Aythya affinis*)  
Trapping Trial in Central Alberta,  
2005**

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## EXECUTIVE SUMMARY

I designed, built and evaluated two “bait traps”, a “loafing trap” and a “decoy trap” for lesser scaup (*Aythya affinis*) – hereafter scaup. A two-man crew could easily deploy all of these traps, and a single person could deploy the loafing trap. Two additional decoy traps were constructed, but not deployed or evaluated. These latter designs were abandoned - as experience with the bait traps indicated that they would not have been effective. In addition, Jim Potter, Paul Jones, and I also attempted to “drive” a scaup pair into a mist net on June 1, 2005.

The two bait traps were deployed on May 27, 2005. The bow trap and the decoy trap were deployed on June 12, 2005. All traps were monitored at least twice daily until June 22, 2005 (72 trapping days). Scaup were extremely “trap shy”. They did not use loafing platforms attached to the bait traps for almost two weeks after the traps were deployed. No scaup were captured during this trial. The only incidental capture in the constructed traps was a mallard (*Anas platyrhynchos*) duckling. This duckling became entrapped in a hole in the plastic snow fence, and succumbed - apparently to exposure. A savannah sparrow (*Passerculus sandwichensis*) and a sharp-tailed sparrow (*Amodramus caudacutus*) were captured during the mist-netting attempt. They were released without injury.

While I did not capture scaup during this trial, the effort has provided observations and experience that may lead to the development of effective strategies for scaup capture. Floating rope “sweeps” were somewhat effective at diverting scaup toward traps, and a tape recording of a scaup hen seemed to attract scaup pairs. I suggest that much larger traps (constructed from bird netting) may provide an effective means of capturing scaup on the breeding grounds. One or more “hazers” (using night vision goggles) and floating rope “sweeps” may enhance the efficiency of these traps. Broadcasting a hen scaup recording may also prove to be an effective means of attracting scaup pairs to these large traps.



## 1.0 STUDY RATIONALE AND OBJECTIVES

### 1.1 Study Rationale

Lesser scaup (*Aythya affinis*) numbers are currently well below the target (6.3 million) set by the North American Waterfowl Management Plan (NAMWP). While the tundra population appears to be relatively stable, scaup numbers across boreal and prairie-parkland regions continue to decline (Austin et al. 1998, Afton and Anderson 2001, Canadian Wildlife Service Waterfowl Committee 2003). The 2004 breeding scaup population in southern Alberta was lower (relative to the long term average) than any other regional population except for southern Saskatchewan (Appendix 1). Scaup populations in Stratum 26 (the Alberta stratum with the most scaup) have declined significantly across 10 year ( $\bar{x} = -37.1\%$ ) and 48 year ( $\bar{x} = -53.1\%$ ) averages (Buelna 2003).

Austin et al. (2000) provided a summary of research needs to address population declines in scaup: 1) delineation of localized declines in breeding populations, 2) assessment of productivity across habitat throughout the breeding range, 3) investigation of effects of contaminants on reproduction and survival of scaup hens, eggs and broods, and 4) examination of the effects of body condition on reproduction. Addressing research needs 2 through 4 above requires the capture of scaup hens on the breeding grounds before they initiate laying – something that has proven very difficult for previous scaup researchers. This study evaluated two automatic bait traps, one loafing trap, and one automatic decoy trap. It also included a drive-trapping attempt. The trial was a very preliminary investigation meant to familiarize ACA staff with the challenges of capturing pre-nesting scaup hens and the associated manpower requirements.

### 1.2 Objectives of this Report

This report documents the traps that were built and evaluated, and reviews problems encountered. It provides information on scaup reaction to the traps, and makes suggestions for future trapping efforts.

## 2.0 STUDY AREA

Traps were constructed on a farm (NW27-41-26-W4M) approximately two miles southwest of Morningside, Alberta. Traps were deployed on a small wetland north of Lacombe (NE9-41-26-W4M) – approximately 45 km north of Red Deer in Alberta's Central Parkland Natural Region. This wetland was chosen as a matter of convenience. It routinely supported scaup pairs, and it allowed the principle investigator to monitor traps each morning and evening. A nighttime

scaup “drive” was also conducted on a small wetland on NW33-40-26-W4M immediately northeast of Lacombe, Alberta.

One “drive trapping attempt” and two small waterfowl surveys were also made in the Buffalo Lake Moraine (BLM) east of Bashaw, Alberta. The BLM supports high wetland and breeding waterfowl densities (Allen 1989), and is an excellent candidate for future scaup research.

### **3.0 TRAPPING LESSER SCAUP**

#### **3.1 Automatic Bait Traps**

Two automatic bait traps (plates 1 and 2) were constructed and deployed on May 27, 2005. Each of these traps was equipped with two loafing platforms. Outside dimensions of the first trap (plate 1) were 1.3m X 2.7m. A plywood “bottom” (1.3m X 1.6m) positioned 0.5m below the water surface was baited with pre-soaked rolled barley. Oblique (60 degrees above horizontal) plastic snow fence “flaps” (maximum opening width 10 cm) led into each end of this trap.

Outside measurements of the second trap (plate 2) were 1.6m X 2.9m. A plastic snow fence “bottom” (1.3m X 1.6m) positioned 0.5m below the water surface was slit in two parallel lines to produce two one-way “flap openings”. Styrofoam blocks (2 cm thick) under each loafing platform kept the traps afloat. Traps were held in fixed positions in 1.0 to 1.2m of water by diagonally placed steel t-posts. Bait (pre-soaked rolled barley) was spread on the loafing platforms and over the surface of the water inside each trap. It fell onto the plywood floor of the first trap, and onto the wetland substrates below the second trap. These traps were re-baited as required, and monitored twice daily until they were removed from the wetland (June 22, 2005).

Muskrats, mallards, Canada geese and American coots were attracted to these traps. They used the loafing platforms within a week of trap deployment, and consumed bait from the platforms. Scaup avoided these traps for roughly 2 weeks. The first scaup observed using a loafing platform on either of these traps

Plate 1. Oblique entry bait trap evaluated for capturing lesser scaup in central Alberta, 2005.



Plate 2. Horizontal entry bait trap evaluated for capturing lesser scaup in central Alberta, 2005.



was a scaup hen that used a platform on the “plywood bottom trap” on June 12, 2005.

By June 16<sup>th</sup>, 2005 a scaup pair was routinely using the loafing platform of this trap. However, scaup did not seem to use the bait (didn't forage around the trap), and they never entered the trap. It is possible that a wider opening might have facilitated scaup capture. However, the apparent failure of the scaup to utilize the bait suggests bait traps are unlikely to produce acceptable catch rates at this time of year.

The only bird captured in the bait traps was a mallard duckling captured likely on the night of June 2, 2005. This duckling was found entangled in the snow fence flap of the “plywood bottom” trap and dead (apparently of exposure) on the morning of June 3, 2005.

### **3.2 Automatic Decoy Traps**

A double decoy trap (plate 3) was built, but never deployed. This trap used a plastic decoy in one chamber and a mirror (Savard 1985) in the other chamber. It was not deployed because it had a loafing platform on each end and scaup were avoiding these platforms on the bait traps. This trap was abandoned in favor of a three-sided trap without a loafing platform (plate 4). This triangular trap measured 3m on each side. One side was a “spring loaded door” designed to close (hinge upward) when ducks activated a treadle between this “door” and the decoy in the opposite corner of the trap. The door side of this trap was supported by two metal t-posts. The decoy corner floated on a block of Styrofoam. This trap was deployed on June 12<sup>th</sup>, 2005. Ten meter long “floating rope wings” extended outward from each side of the “door” in an effort to “funnel” scaup toward the door side of the trap.

While scaup appeared to be mildly attracted to the decoy, they were never observed entering the trap, and the treadle was never activated. When scaup between the rope leads were quietly hazed toward the trap, they followed the rope leads to within 2 to 3 m of the trap but then “jumped” the rope. Heavy rain on June 16-17, 2005 raised the water level in the wetland, and submerged this trap. All traps were removed from the wetland when the first scaup brood was observed (June 22, 2005).

Plate 3. Double decoy trap - evaluated for capturing lesser scaup in central Alberta, 2005.



Plate 4. Three-sided decoy trap evaluated for capturing lesser scaup in central Alberta, 2005.



Plate 5. Loafing bow trap evaluated for capturing lesser scaup in central Alberta, 2005.



### 3.3 Loafing Trap

A floating bow-net trap (Salyer 1962) or “loafing trap” (plate 5) was also constructed and deployed on June 12<sup>th</sup>, 2005. No ducks were ever observed loafing on any part of this trap, and it was never sprung. It was removed from the wetland on June 22, 2005.

### 3.4 Drive Trapping

On June 1, 2005 three investigators surveyed wetlands east of Bashaw for “drive trapping opportunities”. They located two ponds that were connected by a narrow channel and supported a pair of scaup. Investigators approached the channel quietly – hoping to erect the mist net without flushing the scaup. This was not possible. The birds flushed and landed on another pond nearby. The mist net was erected in a matter of about 10 minutes in the channel area between the two ponds. Researchers returned 40 minutes later and found that the scaup had returned. Two men approached the pond quietly on foot (and largely out of sight) in an effort to haze the scaup toward the channel and the mist net. The birds initially swam toward the net, but refused to leave the central portion of the pond. When one man closed to within 50m of the pond and showed himself the pair flushed away from the net.

Inspection of the net revealed that a Savannah sparrow (*Passerculus sandwichensis*) had become entangled in it. While this sparrow was being freed from the net, a sharp-tailed sparrow (*Amodramus caudacutus*) became entangled. Both sparrows were released without injury.

The behavior of this scaup pair during this very preliminary attempt suggests that scaup could be captured in this (or a related) fashion. However, the mist net used in this attempt should be replaced with a net less likely to entrap passerines. The bird netting used to prevent garden damage would be an excellent substitute.

On the night of June 11<sup>th</sup>, 2005 a single observer in chest waders walked the shores of a small wetland near Lacombe where scaup were routinely observed. The observer was able to approach loafing ducks to within 20m before they began swimming away. Ducks believed to be scaup (positive identification was not possible) swam quietly away from the observer, but were content to remain within 50m of him. This suggests that scaup could be more effectively hazed at night than during the day.

### **3.5 Trapping Summary**

Five trapping techniques were evaluated for their ability to capture lesser scaup in central Alberta (Table 1). Traps were utilized for 1 day up to 27 days and produced poor results. No lesser scaup were captured during this trail. Only three incidental species were captured (table 1). The mist netting attempt, though unsuccessful did appear to be the technique evaluated with the most promise. Greater success with this technique may be possible, particularly if trappers can become more accustomed to scaup behaviour and refine their ability to “drive” scaup to strategically placed mist nests.

Table 1 Trap type and success rates for lesser scaup trapping trial in central Alberta, 2005.

Trap Type	Date Deployed	Date Removed	# of Trap Days	Capture Success Rate
Oblique Entry Bait Trap	May 27, 2005	June 22, 2005	27	None
Horizontal Entry Bait Trap	May 27, 2005	June 22, 2005	27	1 Mallard
Three Sided Decoy Trap	June 12, 2005	June 22, 2005	10	None
Floating Bow-net Trap	June 12, 2005	June 22, 2005	10	None
Mist Net Drive Trap	June 1, 2005	June 1, 2005	1	Savannah Sparrow Sharp-tailed Sparrow

### 3.6 Anecdotal Observations

A short scaup pair survey (Appendix 1) and a short scaup brood survey (Appendix 2) were each conducted to estimate the phenology of scaup nesting, to provide a crude estimate of scaup recruitment, and to assess the suitability of the study area for future scaup research. Each of these surveys was conducted along Highway 53 from Bashaw for a distance of 15 miles east of there. This is roughly the eastern half of transect #5 of the pair/brood surveys conducted by the NAWMP from 1989 to 2003. The pair survey was conducted on July 5, 2005. The brood survey was conducted on August 8, 2005. A second brood survey was attempted on August 23, 2005 but it was rained out.

The indicated pair number (7) from the pair survey is probably a minimum estimate, as this survey was conducted quite late. The total number of scaup drakes observed (30) suggests (based on a male: female ratio of 2.5:1) that there may have easily been 12 scaup pairs using the surveyed area. Assuming a pair population of 7-12, the observed brood count (4) is not all that bad. However, the fact that two of the four broods were unattended is a cause for concern. This indicates that scaup hens may not be providing quality brood care in this landscape. Likewise, the behavior of the scaup hen that allowed a bufflehead duckling to follow her, and the very erratic behavior of the hen with a newly hatched brood suggest that scaup hens are not exhibiting normal parenting behavior in this landscape.



## 4.0 FUTURE CONSIDERATIONS

Where the capture of pre-nesting hens is essential, drive trapping may be a more efficient capture technique than either bait or decoy traps. I was not able to evaluate drive trapping in this study. However, the very preliminary assessments of both daytime and nighttime driving (and the observation that scaup movements can be influenced by “floating rope sweeps”) suggest that this method holds promise. The use of strategically placed loafing platforms, floating rope funnels, and long lengths of bird netting (Kaiser et. al. 1995) may prove to be effective. However, a crew of at least two people will be required for this technique.

The Canadian Wildlife Service (CWS) traps and leg bands large numbers of ducks in the BLM annually. Attaching nasal saddles to female scaup captured by CWS crews may be an alternative to the pre-nesting capture of scaup hens. Scaup are highly philopatric. Consequently, if large numbers of female scaup can be marked with nasal saddles in one year, a substantial portion of these marked females could be followed through the nesting period in subsequent years.

Depending on the question addressed, the capture of scaup hens by Weller traps just prior to hatch may be an acceptable alternative to pre-nesting capture. However, there may be “handling effects” associated with this approach.

Two of the leading hypotheses to explain reduced scaup recruitment involve contaminants. It may be possible to identify contaminants that are affecting scaup by studying other water birds. Horned grebes use aquatic habitats and foraging strategies similar to those of scaup. Consequently, these grebes may be exposed to the same staging and breeding ground contaminants as scaup. In addition, horned grebes build over-water nests that are relatively easy to locate. This means that it may be possible to monitor the contaminants that scaup are encountering by examining the eggs of horned grebes (or possibly the eggs of other diving ducks – e.g. buffleheads or ruddy ducks).

## 5.0 LITERATURE CITED

- Afton, A.D., and M.G. Anderson. 2001. Declining Scaup populations: a retrospective analysis of long-term population and harvest survey data. *Journal of Wildlife Management* 65(4): 781-796.
- Allen, J.R. 1989 Pair and brood surveys on the NAWMP Alberta First Step Project – Buffalo Lake Moraine. Alberta Fish and Wildlife Division. Unpublished Report. 46 pp.
- Austin, J.E., Custer, C.M., and A.D. Afton. 1998. Lesser scaup (*Aythya affinis*). In: A. Poole and F. Gill eds. *Birds of North America*. No. 338. Philadelphia.
- \_\_\_\_\_, A.D. Afton, M.G. Anderson, R.G. Clark, C.M. Custer, J.S. Lawrence, J. B. Pollard, and J.K. Ringelman. 2000. Declining Scaup populations: issues, hypotheses, and research needs. *Wildlife Society Bulletin* 28(1): 254-263.
- Buelna, E. 2003. Waterfowl breeding population and habitat survey for southern and central Alberta May 2003. United States Fish and Wildlife Service.
- Canadian Wildlife Service Waterfowl Committee. 2003. Population status of migratory game birds in Canada: November 2003. CWS Migratory Birds Regulatory Report Number 10.
- Kaiser, G. W., A.E. Derosher, S. Crawford, M.J. Gill, and I.A. Manley. 1995. A capture method for marbled murrelets in coastal inlets. *Journal of Field Ornithology* 66:321-456.
- Salyer, J.W. 1962. A bow-net trap for ducks. *Journal of Wildlife Management* 26: 219-221.
- Savard, J.L. 1985. Use of a mirror trap to capture territorial waterfowl. *Journal of Field Ornithology* 56:177-178.

## 6.0 APPENDICES

### 6.1. Appendix 1 2004 Scaup Populations for North America

<u>Area*</u>	<u>Rel. to LTA**</u>	<u>p value</u>
Eastern Survey Area	Similar	1.0
Southern Alberta	-66%	< 0.001
Southern Saskatchewan	-56%	< 0.001
Southern Manitoba	-77%	< 0.001
Montana & W. Dakotas	-50%	≤ 0.009
Eastern Dakotas	169%	< 0.002
N. Saskatchewan, N. Man. & W. Ontario	Similar	≥ 0.219
N. Alberta, NE BC. & NWT	-39%	< 0.001
Alaska, Yukon & Old Crow Flats	Similar	≥ 0.121

\* from "Waterfowl Population Status, 2004" – USFW

\*\* These percentages express the current population relative to the long term average. As examples: -66% indicates a population that is 66% lower than (34% of) the long-term average population; 169% indicates a population that is 69% higher than the long-term average population.

**6.2. Appendix 2 Scaup Pair Survey within Central Alberta, 2005**

Pond #	L D	F D	Pairs	Groups	LH	Ind. Pairs
191		2				
190		3				
157		3				
129	1					
120			1, but h left after drake			1
89			1			1
79	1		1			1
69	1					
53	1,1,1		1,1			2
23			1			1
22			1	9		1
Total	6	8	7	9		7

\* In addition to the above "On Transect", a single pair and a group of 28 drakes were observed "Off Transect" on pond 182. All members of this group were feeding intensely and in a very concentrated group. They were observed leaving the area as a flock at approximately 10:30.

- This survey was conducted from 8:15 to 10:15., on July 5, 2005 Wind and cloud codes were both 0.

**6.3. Appendix 3 Scaup Brood Survey in central Alberta, 2005**

Pond #	Observation	Comments	Indicated broods
191	6Ib	No hen at 8:35, and still no hen at 14:00	1
157	H+1Ic		1
120	1IIa	Hen wasn't present at 9:20 or at 10:20. A dead (for at least 7 d) scaup hen was found in the road ditch nearby.	1
85	A pair	A loose scaup pair without ducklings	0
79	H+1IIa	A scaup hen was being followed by a bufflehead duckling	0
69	H+7Ia	The hen was extremely excited, and flapping her wings erratically even though we were in a truck 80m distant	1
Total			4

- This survey was conducted from 8:30 to 10:20, August 8, 2005. Wind and cloud codes were both 0.