

Conservation Biology Research Grants Program  
Division of Ecological Services  
Minnesota Department of Natural Resources

**A SURVEY OF THE  
AMERICAN BITTERN AT SELECTED  
WETLANDS IN WASHINGTON COUNTY**

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*10/88*

## ABSTRACT

A survey of American Bitterns at selected wetlands in Washington County was conducted from 6/7/88 to 6/27/88. Two field researchers listened for bitterns, played taped vocalizations to elicit a response from any birds which might be present, and "chained" a few areas. These observations were made at various times of the day. A network of people who regularly bird Washington County was organized to report any American Bittern observations.

In addition, total bird species counts were taken at twenty sites in Washington County.

The network of birders produced one report of an American Bittern. There were a few other miscellaneous reports.

The search for American Bitterns in Washington County was fruitless. However, the taped vocalization did cause a bittern in another county to fly above the cattails. The chaining technique seems to have limited value.

Literature describing American Bittern habitat and habitat size indicated most of the areas surveyed could be suitable bittern habitat. It was noted that some of the best looking habitat seemed to lack a good supply of bittern food.

## INTRODUCTION

Having birded in Minnesota for the past 26 years, it has been my impression during the past decade that the number of American Bitterns seen and/or heard has been declining. Whenever I asked other birders about their impressions of the status of the American Bittern in Minnesota, they too felt that they were observing fewer of these birds in the last several years. The Checklist of Endangered and Threatened Animal and Plant Species of Minnesota (1986) seems to confirm this decline in the number of American Bitterns by listing the species under the category "Special Concern".

A literature search for work done on American Bitterns revealed a paucity of information on the American Bittern. For example, a review of all the issues of The Loon, the journal of The Minnesota Ornithologists Union, and its predecessor, The Flicker, back to the December 1939 issue, revealed not one article on the American Bittern. A computer search of scientific journals revealed a few articles in which American Bitterns were mentioned, but the American Bittern was never the subject of an in depth study. The articles of Fink (1971), Kushlan (1976), and Littlefield (1971) are typical of the brevity of the work done on American Bitterns. Even the recent work of Hanowski and Niemi (1986) did not focus solely on American Bitterns.

All the above led me to want to do a study of the abundance and distribution of American Bitterns in a county near the Twin Cities. Washington County was selected because it has a number of wetlands,

particularly in its northern half, which would appear to be suitable American Bittern habitat, and as the Twin City metropolitan area expands much of the new growth seems to be moving into Washington County. Because it is very difficult, if not impossible, to prevent such a growth pattern, it would be beneficial to be able to point out to developers and those charged with the welfare of Minnesota flora and fauna the areas which do provide suitable habitat for unique and possibly threatened species, such as the American Bittern.

As discussions concerning a study of the abundance and distribution of American Bitterns in Washington County were held with personnel of the Nongame Wildlife Department of the Minnesota Department of Natural Resources, it was decided that it would be helpful to do total bird species counts at a variety of sites. These counts were to be used by those doing the Washington County Biological Survey.

This project was supported by a grant from the Minnesota Nongame Wildlife Program which is funded by the Minnesota Nongame Wildlife Tax Checkoff.

#### **METHODS AND MATERIALS**

We, my field assistant, David Mack, and I, knew our main field work would be undertaken in June, but it was hoped that we could begin preliminary field work in May. That work was to find sites where American Bitterns might nest during June. In order to locate such

sites, a network of ten people who regularly bird Washington County was established. Each of the ten agreed in late April to contact me as soon as they heard or saw an American Bittern in Washington County.

If any bitterns were reported, the plan was to confirm their presence by listening for their vocalizations. After their presence was confirmed, we planned to check their response to a tape-recorded playback of bittern calls. The tape was obtained from the Cornell Laboratory of Ornithology at Ithaca, New York. Then, whether or not a bittern responded to the taped calls, and on a different day than the tape-recorded playback was used, we planned to "chain" the area. The "chaining" was to be done using a 100' foot 1/4" nylon rope on which were hung 15, evenly spaced, three foot pieces of light weight chains.

The above procedures were to be a test of our techniques. First, it would test the responsiveness of American Bitterns to tape-recorded playbacks of their species vocalizations. Secondly, it would test the hypothesis that American Bitterns can be flushed by the "chaining" technique.

After the testing of the techniques, we planned to make a search for American Bitterns in certain wetlands of northern Washington County. Three such sites were suggested by John Almendinger of the DNR, who was quite familiar with Washington County because of a botanical survey he did in the summer of 1987. These sites were 1) the marshes on the Kelley Farm, the proposed site of Big Marine/Maple Island Regional Park Reserve, 2) Corries Swamp, and 3) a seep in Marine on St. Croix.

Our first day of field work, June 3, 1988, consisted of John Almendinger taking us to the above three sites to show us the best access

points and to obtain permission to be on the Kelley Farm and to cross private property to get to Corries Swamp.

When we approached any potential American Bittern habitat we first quietly listened for any bittern vocalizations. Then we would walk into or along the habitat and play the tape-recorded vocalizations. The vocalizations were played every 100' to 200'. A variety of playback techniques were used, varying the number of vocalizations played without interruption and the length of time between vocalizations.

In addition to the search for American Bitterns, we conducted a total count of all bird species seen and/or heard at twenty sites in Washington County. This was to assist the DNR, Bon Eliason in particular, with the Washington County Biological Survey. Initially these were three minute counts, but at site #13 we had a total of nine species after three minutes, then we counted an additional ten species in the next 10-12 minutes. Thereafter, we extended some of the counts beyond three minutes. Because of a lack of heard or seen bitterns in Washington County, one morning was spent at Carlos Avery in Anoka County. American Bitterns had been reported from there and the tape-recorded playback was played to check the responsiveness of the bitterns which were presumed to be there.

## RESULTS

The reports from the network of ten Washington County birders were minimal. By May 23 I had not received one report of an American Bittern

in Washington County from them so I called each of them to see whether they had seen or heard any bitterns. Each one indicated that they had not seen or heard one American Bittern. There had been one sighting on May 7 by two Concordia College students in Wm. O'Brien State Park. These people were not part of my network.

In early June I was informed of an American Bittern sighting at the Belwin Outdoor Education Center. In a later phone conversation with Dr. Duane Warner, he told me he had never seen or heard an American Bittern at Belwin and he considered it very poor habitat for American Bitterns.

The only report from the network of Washington County birders was a June 1 sighting of an American Bittern flying over the pond at the Cottage Grove Ravine Regional Park. A visit to the site revealed no suitable bittern habitat and there was no response to the taped playback of bittern vocalizations. It was assumed that the reported bird was just passing by or might have been feeding at the site.

After this study was concluded there was a report that American Bittern vocalizations had been heard at Egg Lake in Hugo. Unfortunately I was unable to check the Egg Lake site.

TABLE 1 lists the sites where we searched for American Bitterns between June 7 and June 27. At no Washington County site did we see or hear an American Bittern.

**TABLE 1**  
**American Bittern Survey Sites**

<u>Date</u>	<u>Site Visited</u>
6/7/88	Kelley Farm, southern part of marsh - east of #15 and areas west of #15
6/8/88	Kelley Farm, northern part of marsh - east of #15
6/9/88	a) Seep in Marine of St. Croix b) Small wet area along Old Marine Trail, about 150 east of Parade Avenue c) Marshy shoreline of the northern half of Big Marine Lake
6/11/88	The north end and east side of the pond in Cottage Grove Ravine Regional Park
6/13/88	a) Corries Swamp b) Marshes along #4 between #61 and #55 c) Marsh on #55 just south of #4
6/15/88	Same as 6/7/88, but late afternoon and evening
6/16/88	All the marshy shoreline of Big Marine Lake (evening)
6/20/88	Same as 6-8-88, but late afternoon and evening
6/21/88	Wm. O'Brien State Park
6/22/88	Carlos Avery
6/24/88	a) Scandia marsh on Ostrum Avenue just south of Oakhill Road b) Marsh near #35 and #97 c) Marshes on the north side of the middle portion of Forest Lake
6/27/88	a) Marsh at the east junction of #7 and #55 b) Marsh along #8, about one mile south of #7

Because of no bittern observations in Washington County we went to Carlos Avery on June 22. Prior to this visit I phoned the Carlos Avery headquarters and was told they were reasonably sure American Bitterns were present in at least some of the marshes. At the marsh just south of Pool #10 an American Bittern flew from right to left about 200-250' in front of us while we were playing the taped vocalizations. This was at 6:50 a.m. It landed 250-300' from us, but never responded vocally.



After checking farther north along the above mentioned marsh, we returned around 7:45 a.m. to the area where we'd seen the bittern. Once again, while playing the tape, an American Bittern flew about 200-225' in front of us and landed about 250' from us. Again, the bird did not respond vocally.

TABLE 2 lists the 20 sites where total bird species counts were taken and the number of species seen and/or heard at each site. There were 84 species observed at these twenty sites. In addition, ten other species were observed in Washington County during the time of the study, bringing the county total to 94 for this period. The unique sighting during this time was three Cattle Egrets on the Kelley Farm on June 8. One was seen at the same site on June 20.

TABLE 2			
<u>Washington County Point Counts</u>			
<u>DATE</u>	<u>SITE</u>	<u># of SPECIES</u>	<u>ADDITIONAL SPECIES</u>
6/7/88	#1, Kelley Farm	16	1(6-15)
6/7/88	#2, Kelley Farm	13	1(6-15)
6/7/88	#3, Kelley Farm	12	2(6-15)
6/7/88	#4, Kelley Farm	10	3(6-15)
6/7/88	#5, Kelley Farm	12	1(6-15)
6/7/88	#6, Kelley Farm	16	4(6-15)
6/7/88	#7, Kelley Farm	7	3(6-15)
6/7/88	#8, Kelley Farm	12	3(6-15)
6/8/88	#9, Kelley Farm	13	6(6-20)
6/8/88	#10, Kelley Farm	16	4(6-20)
6/8/88	#11, Kelley Farm	13	5(6-20)
6/8/88	#12, Kelley Farm	7	3(6-20)
6/9/88	#13, Marine on St. Croix Seep	19	
6/9/88	#14, Old Marine Trail	9	
6/9/88	#15, Big Marine Trail	32	1(6-16)
6/11/88	#16, Cottage Grove Ravine Regional Park	30	
6/13/88	#17, Corries Swamp	14	
6/21/88	#18, Wm. O'Brien State Park	53	
6/24/88	#19, Scandia Marsh	15	
6/27/88	#20, East Junction of #7 and #55	20	

## DISCUSSION

Probably the most important question concerning the data is, does the finding of no American Bitterns between June 7 and June 27 while searching various wetlands, playing the recorded vocalizations of American Bitterns, and chaining a few areas indicate there were no American Bitterns in the searched areas? Obviously such a lack of results does not prove there were no bitterns present, but I believe it indicates that very likely few, or possibly no, bitterns were present. One bit of circumstantial evidence to support the above contention is that on the one occasion when we used the taped vocalizations of American Bitterns in an area where they are usually found, the Carlos Avery Wildlife Management Area, an American Bittern did fly in front of us. It actually did so on two occasions. The inference we made was that when the bittern heard the taped vocalizations it flew above the cattails to get a view of the "intruder"; however, upon seeing us it dropped back into the marsh.

A related question which could be asked is, how well do American Bitterns respond to taped vocalizations? Two separate bits of information indicate that they respond quite well. First, Bosanka (1988) said his experience was that they responded almost immediately and "just went wild" when they heard the taped vocalizations. He indicated they readily came into view when he played a tape. Secondly, when we went to Carlos Avery, a place known to have bitterns, and played the tape we twice had a bittern fly into view.

I felt certain the bittern we saw could hear the tape because I could hear it from at least 250'. The bittern was seen from between 200-300'. In addition, I presume a bittern can hear much better than I can.

If there were no American Bitterns in the areas we searched then one wonders, why not? Some of the areas we searched may have been too small for American Bittern territories. Brown and Dinsmore (1986) indicated that no American Bitterns were found in their study areas in Iowa unless the marsh was at least 11 or more hectares in size. Bent (1926) does not list a territory size, but says he found five nests (I presume active) in one day in an area "less than a quarter of a mile square." An area a quarter of a mile square would be one sixteenth of a square mile of land, also called a section, which is 640 acres. The one sixteenth of that would be 40 acres which would be roughly 16 hectares. That five bittern territories could exist in that small an area was corroborated by Bosanko (1988) who told me he'd had as many as five or six bitterns respond and come into view in past years when he played American Bittern vocalizations. This would indicate that most of the sites we checked were certainly large enough to be American Bittern habitats.

The marshes we searched on the Kelley Farm appeared to be good American Bittern habitats. The predominant vegetation was cattails and the area had plenty of water. However, one thing I noticed was that American Bittern food did not seem to be plentiful. We saw a few garter snakes and in three weeks we saw only one frog. So one wonders, has something affected the American Bittern food supply on the Kelley Farm?

In fairness it should be pointed out that many frogs were heard in the marshy area in Wm. O'Brien State Park, but no bitterns were observed there either.

One might ask, if a bittern was seen in O'Brien State Park, on May 7 why were none observed during the June 21 visit? One possible inference is that the bird seen in early May might have been a migrant which had made a temporary feeding and/or resting stop in the park before proceeding to its final destination for summer breeding.

The chaining technique was used only a few times and it was never used in an area known to have an American Bittern present. From the little we used the technique, I infer that it would work in sedge meadows. However, I am quite sure it would not work in cattail marshes. First, the vegetation is usually too high and sturdy. Secondly, in most cattail marshes the combination of deep water and soft substrate would prevent researchers from walking through the area, let alone try the chaining techniques.

Doing the total bird species counts at various sites proved to be a very interesting part of this project. In some cases we'd see and/or hear 12-15 species in three minutes. However, one morning after counting nine species in three minutes we observed another 10 species by continuing the count for another 10-12 minutes. This would indicate that, at least in some cases, a three minute count will not provide a complete list of the bird species present.

One thing the counts do not indicate is which species were most numerous in a given area. In some marshes and sedge meadows Sedge Wrens

were numerous. In other marshes Swamp Sparrows were predominant. In nearly all marshes, Green-backed Herons were very conspicuous and plentiful.

The importance of wetlands surrounded by wooded areas was illustrated in O'Brien State Park. A walk around the marshy area next to the Primitive Campground yielded a total of 53 species. Five of those species had young at the time and a sixth was seen carrying food.

I believe this project, and the lack of work done on American Bitterns, indicates that this species should be studied in depth. That idea is strengthened by the fact that most Minnesota birders feel that American Bittern numbers seem to be declining.

#### PROBLEMS FOR FURTHER STUDY

If future work is to be done on American Bitterns, some of the following questions and suggestions could become part of such future field research.

1. What is the best time of the year to do studies on American Bitterns? David Bosanko, resident manager at Cedar Creek Natural History Area, thought May might be best. However, Butcher (1988) indicated they do nest in Minnesota in June.
2. Any future study should make use of a larger network of field observers. They also could cover more than one county.
3. Any study similar to this one should begin in an area where Bitterns are known to be present, and researchers should check;
  - a) American Bittern response to taped vocalizations.
  - b) Their response to tapes at many different hours of the day.

- c) Their response to various methods of playing the vocalizations.
- 1) one play - pause - one play, etc.
  - 2) two plays - pause - two plays, etc.
  - 3) ten or more repeated plays.
4. What is the territory size of a breeding pair of American Bitterns?
  5. Could radio telemetry be used to study American Bitterns?
  6. Should a long-term study be started to determine American Bittern population density in specific areas? This could help determine whether American Bittern populations are actually declining.
  7. If American Bittern populations are declining, what are the causes?

**Points to consider when doing future total species counts:**

1. Compare total counts of three, five, and ten minutes in each area.
2. Write habitat descriptions of the site of each total count.
3. Do total counts of all birds (six Blue Jays, four American Crows, etc.) at the count sites.

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