

**REPORT
of 1994**

**WOOD TURTLE (*Clemmys insculpta*) SURVEY
ON THE LOWER CANNON RIVER**

for

**Minnesota Department of Natural Resources
Nongame Program**

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February 1, 1994

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INTRODUCTION

An intensive Wood Turtle survey of the lower Cannon River in Goodhue County, Minnesota was conducted during May and June of 1994. Only three *Clemmys insculpta* were found with an investment of 94 field hours. High water due to heavy June rains inundated several nesting areas along the river. Results of this survey may be related to inappropriate weather conditions and poor timing, but populations of Wood Turtles from the Cannon River watershed could be in peril.

Since Michael Ewert completed his assessment of distribution and abundance of the Wood Turtle (*Clemmys insculpta*) in Minnesota in 1985 (Ewert, 1985) and I reported on a Wood Turtle nesting survey along the lower Cannon River (Oldfield, 1988), there has not been follow-up to evaluate the status of this Minnesota threatened species from [redacted] to the highway bridge in Goodhue County. A meeting in Red Wing (Buech, Brooks Erpelding, Nelson, and Oldfield) on March 1, 1994 identified goals for a short term intensive field study of Wood Turtles in the lower Cannon River watershed. The results of this survey would hopefully provide information for making sound management policies in the future concerning this species.

The goals of the Wood Turtle survey for 1994 on the Cannon River was to:

- 1) Locate suitable nesting habitat (plane, canoe or foot) between [redacted] and Highway [redacted]
- 2) Locate evidence of active nest sites (turtles laying eggs, gravid females, destroyed nests)
- 3) Map the above (1 & 2)
- 4) Check fate of nests if possible
- 5) Map additional suitable habitat upstream of Welch if time permits
- 6) Prepare Final Report of findings, including maps and data.

- 7) Report any evidence of collecting or other threats to population
- 8) Communicate with Nongame Office during the field season

METHODS

Experience has shown that *Clemmys insculpta* on the Cannon River is very elusive and difficult to approach on foot. In addition, the steep banks and heavy vegetation along the river make turtle observation and identification from shore troublesome with the exception of large Spiny Softshells. So, in combination with foot travel along the banks of the Cannon, a single-seat kayak was used extensively on the river to enhance searching and accessibility to potential nesting sites (PNS). A 20 power spotting scope was used from land and kayak to aid in identification of distant turtles before they dropped from basking sites into the river. Observation of turtles in the water is not possible due to heavy sediment suspension. All river trips began near the bridge over the Cannon River in [redacted] and ended at the highway [redacted] bridge. All sand or gravel banks and bars in this stretch of the river were extensively explored on foot for signs of turtle activity. Survey procedures similar to Buech (1991) when applicable were employed. Weather conditions and habitat suitability were noted during field surveys.

The planning stages included a reconnaissance by plane of the river valley to help identify turtle use areas. Due to scheduling problems this portion of the survey was abandoned. A survey by air would be most useful in early spring before vegetation impedes observation.

Six species of turtles are found in the Cannon River valley in Goodhue county. These six species are the Snapping Turtle (*Chelydra serpentina*), Spiny Softshell (*Apalone spinifera*), Common Map Turtle (*Graptemys geographica*), Painted Turtle (*Chrysemys picta*), Blanding's Turtle (*Emydoidea blandingii*) and Wood Turtle (*Clemmys insculpta*). The Common Map Turtle is the only sympatric turtle species that is easily confused with the Wood Turtle from a distance. Adult female Common Map Turtles and adult Wood Turtles are similar in size and shape, although Wood Turtles have a small dark flattened

head compared to the large rounded head of the female *G. geographica* (Oldfield and Moriarty, 1994).

Species identification of nesting activity including nests destroyed by predators is somewhat empirical, although accuracy is felt to be at least 90%. The eggs from destroyed nests of Common Map Turtles and Wood Turtles are similar in size and shape, so the distinction is made on number of eggs. Common Map Turtles generally deposit 10-20 eggs, whereas Wood Turtles have 4-12 eggs (Oldfield and Moriarty, 1994). Other turtle species sympatric with Wood Turtles deposit larger clutches, smaller eggs or spherical-shaped eggs. With the exception of large Spiny Softshells distinguishing tracks is impossible.

Body temperature (BT), body mass (BM), carapace length (CL), plastron length (PL), unusual markings and scars were recorded of a captured Wood Turtle. The turtle was assigned a number and a triangular file was used to notch marginal plates as described by Buech, et al (1990) and Ferner (1979). After processing the turtle was released at the capture site.

RESULTS

Field work was performed from [redacted] to the highway bridge from May 2, 1994 through June 11, 1994. One evening was spent in the [redacted] area which is down river from the highway bridge. A total of 94 field hours on 8 different days was spent conducting this survey. Weather conditions ranged from clear and breezy to overcast and calm. Heavy thunderstorms were experienced one day. Air temperature ranged from 15.4°C - 27°C. Much of the time weather seemed unseasonably cool and damp. Considerable rainfall in early June caused the river to swell and the current to increase in speed.

Fourteen potential nesting sites (PNS) were located between [redacted] and the highway bridge; and all were carefully surveyed on foot several times. Two sites were surveyed between highway [redacted] and the Mississippi River. Refer to Map 1 & 2. High water significantly altered or totally obliterated several of these sites in early June.

Without a doubt the Spiny Softshell (*Apalone spinifera*) is the most visible and most abundant turtle in the lower Cannon. This species was observed on every kayak trip and at times in relatively high numbers. Painted Turtles (*Chrysemys picta*) are very common in the backwaters and spring-fed ponds found near the river, but are rare in the main channel. Common Map Turtles (*Graptemys geographica*) show up with regularity in the main channel, but are also found in the backwaters where water is shallow and slow moving. Snapping Turtles (*Chelydra serpentina*) are highly aquatic and remain submerged and hidden much of the time. They infrequently bask in early spring and are visible at that time. Judging from the number of predator destroyed nests, they are likely to be found in good numbers in both backwater areas and the primary channel.

The only Wood Turtles sightings were in and along the main channel of the Cannon River, and they were infrequent. One adult *Clemmys insculpta* was observed basking on a mud bank in the northeast quarter of section [redacted] on the north side of the river on 15 May

(WTS-B). This turtle was found with a spotting scope while hiking the north shore of the river. A second adult was found with a spotting scope while surveying the river in a kayak on 28 May (WTS-A). This turtle was basking on a south mud bank in the extreme southwest quarter of section . Neither of these turtles allowed approach close enough for capture. A female was found nesting on a southern sand bank (PNS-L) at 2010 hours on 6 June in the northeast quarter of section . She had dug a body pit and was in the process of excavating an egg chamber. Once disturbed, it was unlikely that she would finish the nesting process at that time, so the following information was collected. She had a body mass of 1050 grams, a carapace length of 19 cm, a plastron length of 19 cm, a cloacal temperature of 23°C, 12 growth rings, a darkly stained plastron and a pitted carapace. She was assigned number 01 and a marginal plate was notched with a file to reflect this number in accordance with standard turtle marking procedures. This turtle was then released. Additionally, a predator destroyed nest found on 8 Jun at PNS-H in section was tentatively identified as a *Clemmys insculpta* nest. Refer to Map 3 for locations of Wood Turtle sightings.

FIELD NOTES
CANNON RIVER VALLEY - GOODHUE COUNTY, MN
1994

2 May 94

Cannon River Valley, Goodhue County, Minnesota. I left Goodhue at 0945 hours with Sherilyn and Banjo. We hiked the north side in from highway bridge. AT - 15.4°C, breezy, partly cloudy. In spring-fed ponds there were 3 adult *Graptemys geographica*, 10 *Chrysemys picta*. On the river and up to the oxbow nesting sites, we observed 2 adult *Apalone spinifera*, 1 *Chrysemys picta*, 1 *Graptemys geographica* and 2 unidentified turtles. During the afternoon, the AT was 20°C with sunshine. We returned to Goodhue at 1700 hours. Total field hours - 15.

15 May 94

Cannon River Valley, Goodhue County, Minnesota. Del Jones and I hiked up old RR right away on north side from . AT - 23°C, clear, slight breeze. Numbers of *Chrysemys picta*, numbers of *Graptemys geographica*, numbers of *Apalone spinifera*, 3 *Chelydra serpentina* and 1 adult *Clemmys insculpta* observed. The *Clemmys insculpta* was basking on a north mud bank of the river in the first oxbow. Total field hours - 14.

28 May 94

Cannon River, Goodhue County - 0800 hours, breezy, AT - 23°C. I kayaked from to Highway bridge surveying for turtles and potential turtle nesting sites (PNS). PNS-A has a gravel and sand substrate with willows, and is just before the first oxbow after leaving .

At 1049 hours, AT - 23°C, partly cloudy with slight breeze, one adult *Clemmys insculpta* was seen with a spotting scope on the south side of the river on a mud bank. It slide off into the water on approach by kayak. There was an agriculture field planted in

corn above the river bank where the turtle was spotted. It is possible that this field may be used by nesting turtles.

I observed numbers of *Apalone spinifera* basking on the river's mud bank along the north side just before the entrance of [redacted] Creek. Several *Apalone spinifera* and one *Graptemys geographica* observed basking near PNS-F. At 1600 hours, AT - 27°C, breezy and partly cloudy. Three *Graptemys geographica* seen basking along river banks on deadfall. Total field hours - 11.

3 Jun 94

I hiked in on the north side and worked along the river bank with a spotting scope. I observed large numbers of *Chrysemys picta* basking in small spring fed ponds, 2 adult *Chelydra serpentina* and 2 adult *Graptemys geographica*. It was partly cloudy and calm. Field hours - 8.

6 Jun 94

I kayaked from [redacted] to highway [redacted] bridge from 0800 - 2100 hours, and returned home at 2200 hours. Recent heavy rains during the past 2 days (1 - 1 1/2 inches), river swollen and swift, AT - 25°C, clear with slight breeze. Large numbers of *Apalone spinifera* basking along river banks. I kayaked up [redacted] Creek to the [redacted] Trail trestle. There were two small sand banks in a small oxbow area of [redacted] Creek. No turtles or turtle tracks were observed along [redacted] Creek. I returned to the Cannon River and again observed large numbers of *Apalone spinifera* basking along the edges of the river. At 1800 hours a large adult *Apalone spinifera* was observed on PNS-D searching for a nesting site. At 1900 hours on PNS-F, I found 2 *Apalone spinifera* and 1 *Chelydra serpentina* looking for nesting areas. It was calm, overcast and AT - 24°C.

At 2010 on a small sand bank on the south side of the river a female *Clemmys insculpta* was found nesting. She was covered with sand from excavating a body pit, but

had not deposited eggs. BT - 23°C, AT - 24°C, calm and overcast, BM - 1050 grams, CL - 19 cm, PL - 19 cm, 12 growth rings, stained plastron and pitted carapace. She was assigned 01 and her marginal was filed with a triangular shaped file to reflect this.

I was picked up at the bridge by my daughter, and I returned home at 2200 hours.

8 Jun 94

I put the Kayak in the water at _____ at 0800 hours, AT - 18°C, clear and breezy. I found 2 destroyed *Apalone spinifera* nests on PNS-A. I explored the south bank on foot from downstream of the first oxbow to the entrance of _____ Creek including the edge of the corn field. I spent approximately 3 hours doing this. No evidence of turtle nesting or turtle tracks were observed. Fifteen *Apalone spinifera* and one adult male *Graptemys geographica* were observed on the north bank with a spotting scope while I was hiking along the south bank.

At 1600 hours, AT - 25°C, breezy and clear. PNS-B has been divided into two sections because of high water. Part 1 on the north bank has heavy growth of saw grass. One set of *Apalone spinifera* tracks were observed. Part 2 also has thick saw grass and a gravel substrate. The better nesting areas at this site are under water. Large numbers of *Bufo americanus* larvae were in the shallows of river along the banks (they were probably in small ponds before the water level came up).

PNS-C (on the north bank) not good for nesting due to high water. Near PNS-D, 14 *Apalone spinifera* were observed basking at the up river edge along some quiet water of a small inlet. Also one adult female *Graptemys geographica* was observed. Large numbers of *A. spinifera* tracks and several exploratory nest digs were observed at PNS-E. Also, there were 2 destroyed *A. spinifera* nests at this site.

A predator destroyed *C. Serpentina* nest was found at PNS-F. PNS-G appears to be a good turtle nesting area. I observed *A. spinifera* tracks at PNS-G. AT 19°C, 19:45 hours, calm and clear (probably too cool for turtles to nest). PNS-H is heavily vegetated

with numerous areas of open sand. Large numbers of turtle tracks. One predator destroyed nest on the upriver edge was very likely a *Clemmys insculpta* nest.

PNS-I - south bank, very small, sand and gravel, a few turtle tracks. PNS-K had heavy vegetation and no turtle tracks.

Fresh turtle tracks (possible *C. insculpta*) found at PNS-L, but turtle did not attempt to nest.

PNS-N - located at the mouth of the split, I saw a raccoon destroying a turtle nest and eating the eggs at PNS-N, but I could not get over to investigate because of swift current.

10 Jun 94

There was a road kill *G. geographica* (adult female) on the highway near the [redacted] area. I entered the river at [redacted] at 1200 hours and finished at 2200 hours at the highway [redacted] bridge. Twenty minutes after entering river a heavy thunderstorm hit, and it rained for 2 hours. I checked out the point of the oxbow on the north side down river from PNS-A and found it to be very poor quality for turtle nesting due to heavy vegetation. PNS-D had 8 *A. spinifera* basking at 1809 hours. It was cool, overcast and damp from rain. Turtles were not nesting due to weather conditions.

11 Jun 94

At 1000 hours, I drove into Gravel Pit in Section [redacted] and hiked into the south bank of the Cannon river to PNS-L (previous site of nesting *C. insculpta*). The sand bank had been washed out by high water, so any attempt of turtle nesting was lost. No other signs of turtles were found. I spent 2 hours searching this area on foot.

At 1700 hours I drove into the [redacted] area along the south side on the Cannon River down river from highway [redacted]. AT - 18°C, clear and calm. I found numerous predator destroyed turtle nests along a section of the [redacted]

from PNS-O and PNS-P of about 1 mile in length (most nests were *C. serpentina*, *C. picta* or *G. geographica*). There was a total of about 35 nests. In addition I found an adult female *C. picta* heading back towards water as she had already deposited eggs. A large adult female *Emydoidea blandingii* was found depositing eggs in a nest right on the shoulder of the trail. On a large steep sand bank of the river, I found 14 predator destroyed turtle nests (mostly *Chelydra serpentina* and *Graptemys geographica*). I also found a large adult *C. serpentina* depositing eggs at 2230 hours.

AT - Air Temperature

BT - Body Temperature

BM - Body Mass

CL - Carapace Length

PL - Plastron Length

**Pages 14-17 removed from this document, contained location information
in the form of maps.**

DISCUSSION AND RECOMMENDATIONS

On the lower Cannon River, during two weeks in June of 1988 six Wood Turtle sightings were reported from 23 hours in the field (Oldfield, 1988). Over the past ten years, casual field work during the nesting season generally revealed 2 - 3 turtles, but these low numbers were attributed to sporadic and incomplete survey methods. The total of three Wood Turtle sightings during this study period is extremely disappointing especially taken in light of the number of field hours and the thoroughness of the search methods in appropriate areas. Explanation of poor results when searching for wildlife is never easy or verifiable, but it is possible that the poor results of 1994 may be just bad timing. Ewert's estimate of 44 Wood Turtles occupying the lower Cannon River in 1969 may still be relevant, but this survey did not ascertain his findings and may in fact point to a serious population decline.

It is impossible to make any significant recommendations concerning management of the Wood Turtle on the Cannon River without additional field work to either verify a population in status quo when compared to previous surveys or a population in peril. Increase in human activities (development, biking, fishing and canoeing) along this segment of the river over the past ten years is certainly impacting Wood Turtles, especially in relation to an increase in egg predator activity along the bicycle trail. Present day knowledge of adult numbers is essentially unavailable from this survey, and it is critically important information.

Excluding the bicycle trail, recreation in the Cannon River Valley from [redacted] to the Mississippi River is not great. During this survey, only eleven canoes were seen on the river, and nine fisherman were observed along its banks. Oxbows, log jams and swift currents during high water greatly deter recreation on the river. Accessibility to the river by motor vehicle is very restricted.

Personal communication with Robert Hay of the Wisconsin D.N.R. was helpful. Each year, he conducts Wood Turtle Surveys along the Black River in Wisconsin. He

suggested successful search methods for Wood Turtles on land that may be helpful along the Cannon River.

It is highly recommended to plan and pursue another field season to attempt to find more individuals and to learn more about Wood Turtle populations along the Cannon River. Hopefully, a new field season with an increased effort will produce better results than this survey did.

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