A Survey of the County Highway Z (Hwy. 54) and River Crossing Corridor between Wisconsin Rapids and Port Edwards, Wisconsin, for the Presence of the Threatened Blanding's and Wood Turtles and Red-shouldered Hawk.

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Introduction

A survey to determine the presence of three Wisconsin threatened species within a proposed road expansion corridor and bridge crossing the Wisconsin River from the City of Wisconsin Rapids to the Village of Port Edwards, Wisconsin was conducted between mid-March and mid-June, 2006. This proposed project corridor would establish a new road tying in 20th Street South just south of Lovewood Drive and Airport Avenue to County Trunk Highway Z near the DNR Griffith Nursery in Wisconsin Rapids. It would require widening the present County Trunk Z and establishing an extension of County Trunk Z from Rangeline Road west across the north end of Nepco Lake and two channels of the Wisconsin River and Domtar Island to Letendre Avenue and State Trunk Highways 54 and 73 in the Village of Port Edwards.

Study Area

The study area was broken up into four distinct survey areas. Area 1 - Co. Z (North-South Segment) and Rangeline Road West to Wisconsin River Channels and Domtar Island, Area 2 - North of Co. Z (East-West Segment) –Sampson Road to Airport Complex, Area 3 - South of Co. Z (East-West Segment) to north shore of Nepco Lake, and Area 4 - 20th Street Corridor-Ridges Golf Course to Lovewood Dr. and Airport Avenue.

Survey Period

This survey was limited to approximately 10 days or 80 hours based on available funding resources. Therefore, the actual 13 field days were distributed between 18 March

and the 14 June, 2006, to allow for better coverage of the field season for all three species being surveyed. This survey was initiated on March 18 because red-shouldered hawks had already been arriving on spring migration to their central Wisconsin breeding territories by March 15, 2006. The remaining field days were clustered during periods when the red-shouldered hawk and the two turtle species should be most available to be encountered.

Methods

Each of the survey areas were traversed at least twice, to observe the habitats involved and conduct auditory surveys and ground searches for the presence of three Wisconsin threatened species, the northern red-shouldered hawk (*Buteo lineatus lineatus*) Blanding's turtle (*Emydoidea blandingii*) and wood turtle (*Clemmys insculpta*).

Red-shouldered Hawk

Habitats were evaluated based on size of forested area, size and species of dominant canopy trees, forest structure, proximity of occupied buildings, active thoroughfares, and other human disturbances. The initial habitat traverse was conducted to identify trails, access roads, clearings, habitat edges, water sources, and levels of disturbance. This information assisted to adequately identify locations of listening stations during the broadcast calling and observation surveys.

Broadcast calling and listening stations were spread across the forested habitat to provide good auditory coverage and excellent observations if territorial hawks responded to the calls. A cassette tape player, power horn speaker, and voice calling were all used to

attempt to elicit territorial hawks within the survey areas which appeared to support promising nesting habitat. Two to three territorial calls were broadcast from riverside, on trail networks, and from roadsides followed by 3-4 minutes of listening and observations. Surveyors were dressed in camouflaged clothing to allow any close approaches by birds responding silently to the broadcasts. Broadcast calling was used at all four surveys areas usually shortly after dawn until mid-morning and again during late afternoon until dusk to avoid interference with automobile traffic and aircraft noise. The frequency of broadcast calling was higher during the early nesting season, between March and early May. During the habitat traverses and listening/ observation surveys, other species of birds were identified and listed.

Field survey days were distributed across the primary spring arrival dates through fledging period for the red-shouldered hawk in central Wisconsin. A mid-March day was assigned to listen and observe territorial birds and help to locate stick nests before tree leaf emergence. Two days in April were assigned for additional observations of any territorial flight displays, broadcast calling surveys, and continue to locate any candidate stick nests that might show active nest repair or building activities. The month of May represents the peak of nesting activity. Five days were designated to continue broadcast calling and nest searches, even though red-shouldered hawks become much less vocal when incubating or caring for young. Finally, two days were set aside in June to continue nest searches, concentrating on any hidden platforms in tall conifers, when young would be calling for food and beginning to branch out and be more visible for observations. The calendar of field activities is listed in the appendix.

Blanding's Turtle and Wood Turtle

Habitats were evaluated based on size of forested area, size and species of dominant canopy trees, forest structure, presence and quality of tributary streams and isolated backwater ponds, river bank conditions, depth and current of the river and Nepco Lake near the banks, and proximity of occupied buildings, active thoroughfares, and other human disturbances. The initial habitat traverse was conducted to identify trails, access roads and boat landings, clearings, habitat edges, and levels of disturbance. This information assisted to adequately identify locations to safely place turtle traps, conduct bank side basking surveys and possible nesting areas.

Turtle trapping was conducted using three Fyke-type, 3-hoop turtle traps each baited with a nylon bag of sardines canned in spring water. Three locations were identified that would provide the safest and least disturbed sites for these traps. These included the 1. Wisconsin River – East Shore upstream from pumping station at Nepco Lake, 2. Wisconsin River – East Shore Domtar Island, middle of the proposed road corridor, and 3. Nepco Lake, North Bay, northeast shore of Plum Creek property. These properties and public waterways have daily visits by fisherman and boaters making it necessary to place the turtle traps in areas where people would not cause problems with the equipment. Problems existed with locating trap sites in the river due to deep water, steep banks, exposed rock outcrops, and swift current on river banks and Domtar Island shoreline, therefore no wings or leads were used and traps were placed parallel to the bank with the entrance facing downstream. Due to the problems with depth and current, the capture chamber of the traps in the river channels had to be floated with Styrofoam blocks or tied up to overhanging branches of fallen trees to allow captured turtles to

breath and provide camouflage to prevent human disturbance. The trapping site in the north bay of Nepco Lake worked well due to the shallow and quiet nature of the water. Portions of six field days were used to set, monitor, and remove turtle traps.

Turtle basking and swimming observations were conducted anytime we were near the banks of the river or the shores of Nepco Lake. Walking the banks of the Wisconsin River and Nepco Lake involved slow, deliberate movements to attempt to view turtles in the littoral zone, preferably basking on exposed tree stumps and logs, or on open sunny banks. Walking river banks and stream channels of One-Mile and Two-Mile Creeks from the Wisconsin River to County Trunk Highway Z to Sampson Street involved wading these streams and walking up and down the surrounding stream banks within ten meters of the water's edge, searching the edges of brush piles, and habitat patches that provided good lateral cover but open overhead sunlight. Nesting habitat was evaluated by locating open sandy or gravel edges near water, where gravid females could haul out in areas with sloping banks and dig nests. Monitoring for nesting females occurred during the peak of the nesting period between May 15 and June 15, 2006. Portions of six field days involved nesting turtle searches.

Other Incidental Rare Species

Several species, listed as either federally endangered, state threatened, species of concern, or species of greatest conservation need in Wisconsin, were targeted for inclusion in this survey. These species include the Karner blue butterfly, osprey, bald eagle, Prothonotary Warbler, American Woodcock, Least Flycatcher, Wood Thrush, and Veery. During the initial inspection of the habitats involved in the four survey areas, plant

species, soils, and hydrology were noted to help narrow down favorable microhabitats that may increase the opportunity to encounter these species, even in this very dry year. While conducting broadcast calling for red-shouldered hawks, listening and observation stations were established to assist in locating these other incidental species.

Results and Discussion

Red-shouldered Hawk

Habitat requirements of the red-shouldered hawk can vary considerably range wide, with three common factors for success in defending their territory and raising young. These include a preference for 1. Large undisturbed, unbroken mature forest tracts usually exceeding 200 acres, 2. Riparian zones within their forested habitat can be rivers, lakes, or swamp-marsh edges, and 3. Floodplain and riparian habitats usually support a healthy population of reptiles and amphibians, which make up an important portion of their diet.

Excerpt from the ***Wisconsin DNR Fact Sheet Website***

> ***"Habitat:*** *Breeding habitat includes bottomland hardwoods, mesic deciduous or mixed deciduous-conifer forests, and wooded margins of marshes. Suitable habitat includes unfragmented, mature floodplain forests along major rivers, including the Mississippi River, St. Croix River north to St. Croix Falls, the Chippewa River to Chippewa Falls, the Wisconsin River to Wausau, and the Wolf River to Shawano."*

Habitat quality in Area 1 (Co. Z (North-South Segment) and Rangeline Road West to Wisconsin River Channels and Domtar Island) appeared to be one of the most

promising areas based on its overall size, with about 331 acres upland, mostly bottomland forest, and 143 acres of the isolated Domtar Island, surrounded by two channels of the Wisconsin River. Area 1 with its potential of 474 acres appeared to be the area requiring the most effort, but also the best combinations of habitat characteristics to support a breeding pair of red-shouldered hawks. This forest is primarily lowland mixed hardwood, dissected by small clear, cool water tributary streams, backwater wetlands (relatively dry during this 2006 drought), and good isolation. Human access is limited from Rangeline Road and the gated Dam Access Road. Hikers, bird watchers, mountain bikers, and fisherman use the trail system within this forest for recreation and accessing the river above the dam. This large forested parcel is bordered by a popular golf course on the north, the Wisconsin Rapids Airport Complex on the east, and the Wisconsin River with a hydroelectric dam on the west. Early spring and summer observations did not identify territorial red-shouldered hawks within this portion of the survey area.

Inspection of Domtar Island was quite disappointing regarding habitat quality and the presence of human disturbances. Apparently the island has had a long history of use for the lumbering and paper-making industry. The island has a well used gravel road and buildings used to maintain the two hydroelectric dams that are based on the north end damming the eastern channel of the Wisconsin River, and a dam on the south end damming the west channel of the river. The forest is a second growth mixed hardwood interspersed with small pine plantations, ash lowlands, and a well developed network of forest roads. Domtar Island, splits the Wisconsin River into two channels, and is about a quarter mile wide and one mile long. It is formed on a series of granite outcrops that historically helped to identify this township as Grand Rapids. Many invasive plant

species have established themselves on the island, primarily along the access roads where the greatest disturbance continues. Early spring and summer observations did not identify territorial red-shouldered hawks within this portion of the survey area.

Habitat conditions in Area 2 (North of Co. Z -East-West Segment and Sampson Road to Airport Complex) did not look as promising as Area 1. Active logging was being conducted and the pine plantations and mix forest was highly disturbed with skidding trails, decking sites, and slash piles accessing off of Sampson Street. The western portion of this site is less disturbed with a more mature canopy and better forest structure, but has a series of bicycle and foot paths often being used by people during the spring and summer period. This approximately 130-acre site is surrounded by County Highway Z on the south, Sampson Street on the east, and the Wisconsin Rapids Airport on its northwest margin. No red-shouldered hawks were observed within this survey area.

The history of Area 3 (South of Co. Z -East-West Segment to north shore of Nepco Lake) shows a much more open canopy within the recently logged pine plantation and mixed hardwood-pine forest. Some stumps and slash show logging occurred within the last 10 years and the ground cover and under story species are just beginning to respond to the generous sunlight reaching the forest floor. Initial inspection of this site did not appear to be very promising, due to the newly established housing access road complex dissecting the property, and a red-tailed hawk was observed hunting within the forest edges and the utility rights-of-ways. With red-tailed hawks present, a natural enemy of the red-shouldered hawk, red-shouldered hawks probably do not nest within this more open forest. Although this parcel is about 295 acres and is surrounded by

Nepco Lake on the south margin, its overall characteristics do not favor the red-shouldered hawk. No red-shouldered hawks were observed within this survey area.

The collection of five 40-acre parcels within Area 4 (20th Street Corridor-Ridges Golf Course to Lovewood Dr. and Airport Avenue) consisted of mostly pine plantations and mixed oak-pine forest with many human disturbances. For example, the northernmost 40-acre parcel is 20 acres of pine plantation and 20 acres of housing development bisected by Lovewood Drive. The other parcels are surrounded by city streets and dominated by pine plantations and disturbed mixed forest with foot and bicycle paths. Although three of these parcels are directly adjacent to each other, forming a block of 120 acres, the city streets still fragment them and the traffic increases the level of disturbance. Each of these parcels was quietly traversed, with each visit using different access points. After further inspection of the habitat, there was little hope of finding red-shouldered hawks using these parcels. No red-shouldered hawks were observed within Area 4.

In summary, four survey areas totaling approximately 1099 acres within the study area were traversed at least twice. This was to determine the habitat quality and the possible presence of red-shouldered hawks during their spring courtship flights or while defending their breeding territories. Visual observations were concentrated from mid-March through late April, 2006. Area 1 was the most promising habitat for breeding red-shouldered hawks, while Areas 2 and 3 were marginal due to alteration of the forest structure and other human disturbances. Area 4 was the most isolated from significant wetland habitats, surrounded by human development, and was the least likely to support this threatened species of raptor.

Another important and effective method of locating territorial raptors is through the use of broadcast calling and well distributed listening stations, especially when applied to large forest acreages. Calling and listening stations did not locate calling red-shouldered hawks. They did help locate barred owls, great horned owls, red-tailed hawks, a Cooper's hawk, and several imitating blue jays. A list of bird species encountered during these surveys is shown in Table 1.

Excerpt from ***University of Michigan Museum of Zoology Animal Diversity Website***

> *"Red-shouldered hawks are monogamous and territorial. Courtship displays occur on the breeding grounds, and involve soaring together in broad circles while calling, or soaring and diving toward one another. Males may also perform the "sky-dance" by soaring high in the air, and then making a series of steep dives, each followed by a wide spiral and rapid ascent. These courtship flights usually occur in late morning and early afternoon. (Crocoll, 1994) Red-shouldered hawks use physical displays, such as courtship flights, and vocalizations to communicate. Biologists recognize seven different calls given by red-shouldered hawk adults. The most common call is "kee-aah". This call is used to announce that a territory is occupied, and when the birds are alarmed. (Crocoll, 1994)"*

Habitat requirements of the Blanding's turtle in central Wisconsin show a preference for the still waters of open marshes and sloughs, even man-made farm ponds and reservoirs that provide deep enough pools for hibernation and produce a variety of submergent, emergent, and floating aquatic plants for cover and food.

Excerpt from the ***Endangered and Threatened Vertebrate Species of Wisconsin.***

> ***"Habitat:*** *Prefer shallow and deep marshes, the shallow bays of lakes and reservoirs, shallow, slow moving streams and rivers, and backwater sloughs with soft bottoms and aquatic vegetation. Rarely found in northern forested regions, fast moving rivers or northern bogs."*

Excerpt from the ***Wisconsin DNR Fact Sheet Website***

> *"The Blanding's turtle is semi-aquatic. It prefers open, grassy marshes containing shallow water, but it will, on occasion, move to ground adjacent to water to forage or bask in the sun. While in the water, it feeds on crustaceans, snails, insects, frogs, and fishes. Crayfish appear to be a preferred food when available. When on land, however, it consumes earthworms, slugs, grasses, berries, and succulent vegetation. The Blanding's turtle is unique because, unlike most turtles, it can swallow food both in and out of the water. During the winter, it hibernates by burying itself in the silt on the bottom of the pond, bay, or river it inhabits which reduces its chances of freezing. The nests, however, are not safe. Subject to predation by birds and small mammals such as crows, skunks and raccoons, many eggs are lost in the first 24 hours of incubation. Those that do hatch are in danger of additional predation and highway mortality as they travel to their aquatic habitat. Hatchlings are about one and a quarter inches long and range from dark gray to greenish in color. Little is known about the habits of the young. They appear to be very secretive, foraging exclusively in aquatic habitats which are*

densely vegetated. Once they are about 6 inches long they can be seen basking and foraging more easily and often.

Even fully grown the Blanding's turtle is one of nature's most timid creatures. Due to their shyness, they must be approached very delicately if they are to be observed. If disturbed on land, the Blanding's turtle will pull itself tightly into its shell. If it is basking in an aquatic environment, it may quickly dive and remain hidden in the watery depths if it senses danger. It will remain at the bottom for 20 to 30 minutes at a stretch before again peeking carefully above water. Though shy, the Blanding's turtle is also exceedingly gentle and will very rarely attempt to bite."

After completing habitat assessments for this species of the Wisconsin River and its tributaries, and Nepco Lake, the trapping locations and the conditions of the waters, Blanding's turtles were not expected to be found in the Wisconsin River due to its strong current and lack of aquatic weed beds. No Blanding's turtles were seen or trapped at the Wisconsin River trapping sites. The nature of the weed beds and the fact that Nepco Lake is a flooded swamp made this body of water more promising for Blanding's turtles. The trapping sites were chosen to represent the best and least disturbed areas in hopes of encountering this species. Blanding's turtles were not observed basking, swimming, egg-laying and were not found in the turtle traps placed in Nepco Lake (Table 2).

Wood turtles have habitat requirements very different from Blanding's turtles. In central Wisconsin, they prefer wooded cold water streams with deep pools for hibernation and currents generally defined for higher quality trout and smallmouth bass

streams. They spend much of their spring and summer basking in the sun where sunlight can reach the forest floor and on edges of habitats where lowland herbaceous and shrub zones meet forest edges. They often travel within the stream to cover more geography and remain safe, but can venture great distances from large rivers, using tributaries to aid them into uplands to summer.

Excerpt from the ***Endangered and Threatened Vertebrate Species of Wisconsin.***

> ***"Habitat:*** *Prefer lowland hardwood forests and open wet meadows associated with moderate to fast current streams and rivers with sand or gravel substrates. May forage in upland deciduous mesic forest and open meadows in summer. Use south facing sandy river banks or flat sandy soil openings adjacent to rivers for nesting sites, including gravel banks, roadsides, fields, and meadows. Hatchling and juveniles prefer alder thickets associated with shorelines and are considered critical habitat for this segment of the population."*

Excerpt from the ***Wisconsin DNR Fact Sheet Website***

> *"The wood turtle is also well-named because of its choice of habitat, but its genus, Clemmys, is known as the "pond turtles" group. Putting these together means the wood turtle is semi-aquatic, living along forested rivers and streams. Water pollution, irrigation, and forest erosion have tainted many of its former haunts. Active by day, April to November, wood turtles are omnivorous and consume insects, mussels, carrion, berries, dandelions and other succulent herbs. In late fall, wood turtles inhabit stream banks and hibernate over winter in large community burrows.*

In Wisconsin, wood turtles live mainly along the Black, Wisconsin, St. Croix, Brule and Baraboo Rivers. When summer arrives, they forage in deciduous forests and open meadows adjacent to these rivers. Turtle experts now believe that wood turtles may be less terrestrial than originally believed; some "woodys" may inhabit rivers year round."

When traversing the bottomlands of Area 1, upstream in and along both One-Mile and Two-Mile Creeks, wood turtles were expected to be encountered. The habitat conditions of Areas 2, 3 and 4 did not appear to be adequate for summering or nesting wood turtles. The most effort was placed in Area 1 for wood turtles. The upland habitat appeared to be correct. One-Mile and Two-Mile Creeks however did not have deep enough pools to provide protection. The average water depth was quite shallow at 2 to 6 inches, with deeper areas ranging from 10-36 inches in depth. These upland habitats may be good habitat in a normal year, but the drought of 2006 has severely affected water levels. The infrequency of rainfall since March has significantly reduced the flow in these two streams. This being the case, wood turtles would most certainly take advantage of the Wisconsin River as their alternate summer habitat if they were avoiding their traditional summer habitat in the uplands. In anticipation of this change in the climate based on the lack of rain, record warm winter, and very hot spring, wood turtle traps were located in areas with slower currents nearest to the proposed bridge crossing. Unfortunately, no wood turtles were captured in the traps, seen basking near the Wisconsin River or its tributaries, or found nesting along the banks of the Wisconsin River or Nepco Lake. Interviews with local fishermen using primarily Nepco Lake identified a rain event in June (not one of the field survey dates) that did produce nesting turtles. These fishermen

indicated it was the normal snapping turtle and painted turtle haul out, but no "odd" turtles with rounded backs like the Blanding's turtle or sculpted shells like the wood turtle. Just the normal "snappers and painters, that's all." A summary of the turtle trapping effort is shown in Table 2. Given that the acreage surveyed in Nepco Lake was in excess of 90 acres, and trapping was concentrated within the actual proposed road corridor, Blanding's turtles could still be present within Nepco Lake, but in isolated patches of aquatic vegetation well away from the area impacted by the proposed construction area. More field survey and turtle trapping hours would be necessary to thoroughly survey the entire complex of wetland edges and aquatic plant associations within Nepco Lake for the elusive Blanding's turtle.

Other Incidental Rare Species

Several species, listed as either federally endangered, state threatened, species of concern, or species of greatest conservation need in Wisconsin, were targeted for inclusion in this survey. These species include the federally endangered Karner blue butterfly; threatened osprey; the veery, a forest thrush which is a species of concern; and other species considered of greatest conservation need such as Prothonotary Warbler, American Woodcock, Least Flycatcher, Wood Thrush, and Bald Eagle, which was recently taken off the threatened species list. No Karner blue butterflies were observed within the survey areas, but all the other species were encountered within Survey Area One and Survey Area Three. Most notable were the regular observations of two pairs of osprey using both the Wisconsin River and Nepco Lake. Further investigation of these two pairs helped to locate an active nest about one mile south of the Nepco Lake-Domtar Pumping Station, on a private cranberry operation. The nest was last checked 17 August 2006, to report two well grown fledglings still on the

nest. Only one bald eagle was observed for about 30-minutes fishing along the rapids created by the granite outcrops on the Wisconsin River within the proposed road corridor, between the east bank and Domtar Island. No nest was located. Table One lists these incidental rare species in bold type.

References

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Table 1. – Bird Species Observed (O) or Heard (H) during Listening Surveys of the Wisconsin River Bottomlands, Domtar Island, and forested areas surrounding Nepco Lake and adjacent to County Highway Z between 18 March - 14 June 2006.

Sandhill Crane with Nest	OH
Canada Goose	OH
Mallard Duck	OH
Wood Duck	OH
Double-crested Cormorant	O
Great Blue Heron	OH
Belted Kingfisher	OH
Green Heron	OH
Turkey Vulture	O
Osprey with nest	**O**
Red-tailed Hawk	O
American Kestel	O
Bald Eagle, Adult	**O**
Cooper's Hawk	OH
Ring-billed Gull	O
Killdeer	OH
Spotted Sandpiper	OH
American Woodcock	**O**
Wild Turkey (feather)	O
Rock Pigeon	O
Mourning Dove	OH
Great Horned Owl	OH
Barred Owl	OH
Blue Jay	OH
American Crow	OH
Eastern Phoebe	OH
Eastern Kingbird	O
Least Flycatcher	**OH**
Eastern Wood-Pewee	OH
Great Crested Flycatcher	OH
Wood Thrush	**H**
Veery	**H**
Eastern Bluebird	O
American Robin	OH
Gray Catbird	OH
Pileated Woodpecker	OH
Downy Woodpecker	O
Hairy Woodpecker	OH
Red-bellied Woodpecker	OH
Cedar Waxwing	OH
Common Nighthawk	O
Chimney Swift	O
Warbling Vireo	OH
Red-eyed Vireo	H
Bank Swallow	O
Tree Swallow	OH
House Wren	OH
Red-breasted Nuthatch	OH
White-breasted Nuthatch	OH
Black-capped Chickadee	OH
Northern Cardinal	OH
House Finch	H
American Goldfinch	OH
Indigo Bunting	OH
Rose-Breasted Grosbeak	OH
Scarlet Tanager	OH
Baltimore Oriole	OH
Red-winged Blackbird	OH
Common Grackle	O
Brown-headed Cowbird	OH
European Starling	OH
American Redstart	OH
Mourning Warbler	H
Common Yellowthroat	OH
Ovenbird	H
Chestnut-sided Warbler	OH
Black and White Warbler	OH
Yellow Warbler	H
Prothonotary Warbler	**OH**
Eastern Towhee	OH
Song Sparrow	OH
Swamp Sparrow	OH
Chipping Sparrow	OH
Clay-colored Sparrow	OH

Bold indicates species of special concern or a species of greatest conservation need.

Table 2. – 25 Turtles captured (bold type) and observed (standard type) within Wisconsin River and Nepco Lake between 10 April and 14 June 2006

Trapping Site	Trapping Period	No. Traps	Trap Nights	Number and Species of Turtles Trapped Snap	Painted	False Map	Soft Shell
Wis. River Bank SW of Domtar Island	April 10-13	3	9	**2**	**4**	**1**	**1**
East Bank Wis. River Turtles Observed				0	2	0	0
Wis. River on East Domtar Island	April 27-30	3	9	**1**	**3**	**0**	**0**
Domtar Island Banks Turtles Observed				0	3	0	0
Nepco Lake East Bay Shore	May 13-17	3	12	**2**	**9**	**2**	**0**
Nepco Lake Turtles Observed				1	28	7	0
Total Turtles Captured		3	30	**5**	**16**	**3**	**1**
Total Turtles Observed				1	33	7	0

APPENDIX 1

Calendar of Activities - Wisconsin Rapids Project - 13 Total Field Days

Red-shouldered Hawk – Calendar of Activities – 10 Field Days

Month	*Visits*	*Date of Survey*	*Activities*
March	1	18	Nest searches (NS), Broadcast calling (BC), Observing territorial displays (OB)
April	2	10, 27	NS, BC, OB
May	5	13, 17, 21, 25, 31	NS, BC, OB
June	2	3, 14	NS, BC, OB

Wood and Blanding's Turtles – Calendar of Activities – 11 Field Days

Month	*Visits*	*Dates of Survey*	*Activities*
April	2	10, 14, 27, 30	10th-14th April, 27th-30th April Trapping (T), Bank Surveys (BS)
May	4	13, 17, 21, 31	13th-17th May (T), BS, Nesting Surveys (NS)
June	3	3, 12, 14	BS, NS

APPENDIX 2

Wisconsin Rapids Weather

Survey Month	Field Day	Temp High (F)	Temp Low (F)	Precipitation Amount (In.)
March	18	37	16	0
April	10	59	42	0
	27	68	36	0
May	13	47	41	.07
	17	74	51	Trace
	21	75	35	.02
	25	83	60	0
	31	79	61	0.15
June	3	80	53	Trace
	12	65	42	0
	14	78	57	Trace

APPENDIX 3

Approximate Sizes of Areas being Surveyed – Wisconsin Rapids Project

Survey Area	Description of Survey Area	Approximate Size of Survey Area Upland(Acres)	Open Water(A)	Shoreline(Miles)
1	Co. Z (North-South Segment) and Rangeline Road west	331		
	to Wisconsin River and		93	1.8
	Domtar Island	143		1.8
2	North of Co. Z (East-West Segment) Sampson Road to Airport	130	NE	
3	South of Co. Z (East-West Segment) to north shore of Nepco Lake	295	94	2.9
4	20th Street Corridor Ridges Golf Course to Lovewood Dr. and Airport Avenue.	200		
Totals		1099	187	6.5

NE - Did not estimate the open water of One-Mile and Two-Mile Creeks