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Send all manuscripts and correspondence to the Editor. Information for "Seasonal Field Notes" should be sent to the Associate Editor or the appropriate Field Note Compiler. Manuscripts that deal with Wisconsin birds, ornithological topics of interest to WSO members, and WSO activities are considered for publication. For detailed submission guidelines, see pages 3–5 of the Spring 2000 issue (Vol. 62, No. 1) or contact the Editor. As a general guide to style, use issues after Vol. 60, No. 1, 1998.

Thank You, Joan

It is never too late—nor too early, for that matter—to learn about birds. A case in point: I have a friend who was born in 1921, and who decided at the age of 72 to begin birdwatching. I have encountered her on occasion in the maple and oak woods encircling portions of Lake Namekagon in Bayfield County.

When I first noticed her, she was sitting on a long stick that she had fashioned into a kind of stool. Leaning against this, she watched what turned out to be a nesting Blackburnian Warbler near the top of a tall spruce in an opening adjacent to a flower and vegetable garden. She tells me that she can observe birds like this for an hour or more, without moving from her singular spot, seemingly impervious to biting deer flies or mosquitoes. Most impressive at any age!

As it turns out, she also is an artist of considerable dexterity. Beginning at the age of 18, she enrolled in the Clarence White School of Photography in New York City, where she studied for three years. She went on to master ceramics, sculpture, painting, design, and printmaking at the University of Tampa in Florida, where she took courses for 10 years. And did I mention that she also raised five kids with her husband Ted? She says she would have become an architect, but that her father strongly advised against it because of how women were treated when they attempted to enter fields dominated by men. "Of course, in those days," she told me recently, "one always listened to what your father had to say."

She has, I soon learned, a rather irrepressible spirit. Once her kids left the nest, she turned again to the artistic pursuits that interested her. And to new ones: she learned how to fly-fish, for example. I have to confess that during a few late afternoons I have—from a discreet distance—sat with my pant legs rolled up, legs dangling off a dock, and watched, mesmerized by the long, whiplike casts of her fishing line falling across still water.

Her older sister, she says, was the first to get her interested in birdwatching, although she tells me she used to dream about birds as a child. She soon joined the Audubon Society and began to participate in field trips. But she came to realize rather quickly that the experience of observing birds was more than just a time for watching them. The experience aroused her curiosity about life history aspects, and she wanted to know everything she could about what she was seeing. She began to take field notes and make sketches—pencil drawings, then watercolor paintings, then block prints using wood. Her artistic renderings satisfied to some extent the strong feelings about birds that she had come to love.

I asked her if she had a favorite bird or group of birds. "The warblers," she answered. "They are beautiful and yet vulnerable, fleeting, not with us for very long, reminding me of my own transitory state."

I asked her if she would consider allowing WSO to print some of her illustrations. She said she would be honored.

A few months passed. When last we talked it had been about a Hermit Thrush nest I had found not far from her cabin. Then, in today's mail, a large package arrived from Joan Wyeth Griggs. I opened it and was delighted to find several drawings and paintings, some of which you will see in this and in forthcoming issues of *The Passenger Pigeon.* [Editor's Note: See pages 184, 198, and 206 of this issue.] (For those who might be wondering, there is a connection to the great American artist, Andrew Wyeth. Joan is a distant cousin, but she does not like to dwell on this bit of trivia and quickly moves on to other subjects.)

Thank you, Joan, for loaning your work to WSO, and for those fleeting but precious occasions of birdwatching together in northwestern Wisconsin.

President

Reintroducing "Current Ornithology"

In this issue of *The Passenger Pigeon,* I am pleased to resurrect a department of the journal begun during Stan Temple's tenure as editor in the late 1980s. Stan used the "Current Ornithology" section to address, in nontechnical language, a wide variety of basic ornithological questions and conservation issues and to relate them specifically to Wisconsin birds.

My own aims in reestablishing "Current Ornithology" as a frequent feature of the journal are twofold. The first is simply to renew the discussion about current topics in bird research and conservation as they impact on Wisconsin birds—once again with an emphasis on nontechnical language. In the works for future issues are essays on climate change and habitat fragmentation, prepared by experts in each field.

My second aim is to better familiarize WSO members with the fascinating variety of ornithological research being done in the state by profiling the researchers themselves. Although their names may be unfamiliar to many birders, ornithologists are hard at work in many of Wisconsin's universities, private colleges, museums, and state agencies doing cutting-edge research on important and interesting topics.

The current issue features Dr. Ken Yasukawa, Biology Professor at Beloit College, who shares some insights and experiences from his more than 25 years of field work studying the behavior of Red-winged Blackbirds. Ken's idea of a good time is tromping through a marsh with a tape recorder and microphone to learn exactly how red-wings communicate using their many songs and calls. As the author of 35 journal articles and coauthor of the red-wing species account for *The Birds of North America* series, Ken is well-known in ornithological research circles. Now, through his own words, readers of *The Passenger Pigeon* can get to know him better, too.

Erratum: The photo of the *Selasphorus* hummingbird that appeared on page 83 of the Spring 2000 issue (Vol. 62, No. 1) was taken by Fred Lesher, not Rick Kinzie as printed.

R. Tod Highsmith, Editor

Red-winged Blackbird *by Jack Bartholmai*

Red-winged Blackbirds: the Sound and the Fury

by Ken Yasukawa

Every reader of *The Passenger Pigeon* is familiar with the Red-winged Blackbird (*Agelaius phoeniceus*). One of the commonest breeding birds in Wisconsin, it seems to occupy every fence post along every highway in the state. For many ornithologists, this easily observed species has been the center of attention for decades—some have gone so far as to label it as the "white rat" of field ornithology. What makes this species so interesting to so many researchers, and why have I personally spent 28 years at field sites in three different states observing and conducting experiments with red-wings? I hope to answer these questions by telling you about my most recent work with this species.

My research focuses on a variety of aspects of Red-winged Blackbird behavior and ecology, many dealing with a topic biologists call "sexual selection." Charles Darwin proposed the idea of sexual selection to account for the evolution of characteristics such as the bright plumages and conspicuous behaviors of many male birds—characteristics important for attracting mates, but potentially disadvantageous because they might also draw the attention of predators. I have studied the territorial behavior, mate acquisition, and bright red-and-yellow "epaulets" of male red-wings because all are involved in the process by which these birds attract females.

The Red-winged Blackbird is one of a relatively few bird species with a polygynous mating system; that is, one in which a single male can have several mates at once. My colleague Gordon Orians, who began his own studies of red-wings as an undergraduate at the UW-Madison many years ago, claims that a male he studied in Washington state had 33 females nesting within its territory simultaneously. Obviously, it is very important for a male to have characteristics that allow him to get a good territory and to attract females to it, and these characteristics are the bases of sexual selection.

I began my studies of Red-winged Blackbird vocal behavior in the late 1970s at The Rockefeller University Field Research Center in New York state, where I had taken a post-doctoral fellowship with Peter Marler, a leading authority on vocal communication in

birds and other animals. I was initially interested in male song, and undertook a field experiment using loudspeakers on red-wing territories that showed that male song by itself (i.e. in the absence of a real male) worked as an effective "keep out" signal.

In 1980, I joined the faculty at Beloit College (Figure 1) and quickly discovered that teaching at a premier liberal arts college is hard work. I had little time for fieldwork until the end of our academic year in early May. By that time, male red-wings have already established territories and are singing relatively infrequently, and their mates have already begun to nest. The aspects of behavior that had held my attention previously were suddenly not practical for study. But although their singing is much reduced at that stage of the breeding season, males are far from silent. They spend significant amounts of time perching up high and watching their territories. Why do they make so much noise and what are they watching? These and other questions are what hold my research attention these days.

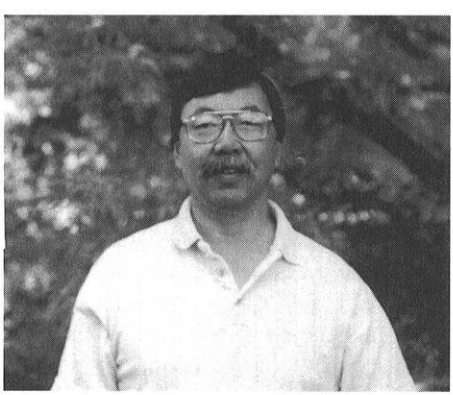

Figure 1. Red-winged Blackbird researcher Ken Yasukawa is a professor of biology at Beloit College, Beloit, Wisconsin. Photo by Marc Roy.

Male Red-winged Blackbirds possess a large number of alarm calls that are given in response to predators, especially to predators that are approaching nests. If you have ever been "attacked" by a male red-wing (I get phone calls about such attacks all the time), you have heard these calls. They sound like the male is saying *check* or *chip,* or they are loud whistles that sound something like *pee-ump* or *preeet* (Figures 2 and 3). Many red-wing biologists have noted these calls, and a few have studied them specifically. Most notable among these alarm-call specialists is my friend and colleague Les Beletsky. Les has done a number of observational studies and experiments, and he believes that male red-wings have an alert-call system.

According to Beletsky, male red-wings are always calling when they are on their territories, and all of the males in a neighborhood use the same alert

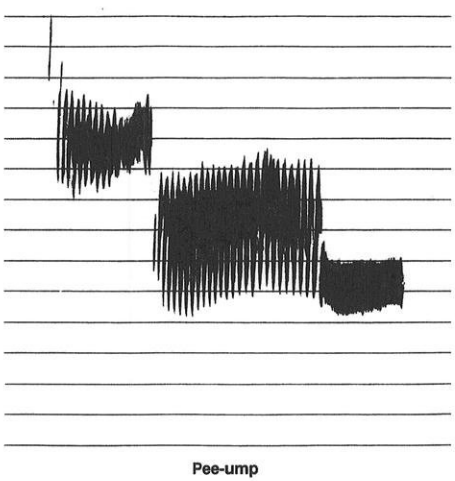

Figure 2. A commonly used alarm call given by male Red-winged Blackbirds in response to a predator or human approaching a nest. The call is a relatively high-pitched, raspy whistle that sounds like *pee-ump.*

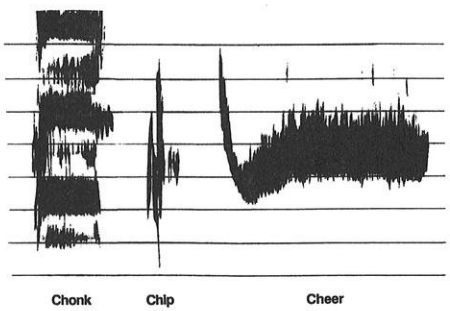

Figure 3. Three additional alarm calls of male Red-winged Blackbirds. The first call is a metallic *chonk,* the second a clicklike *chip,* and the third is a slurred and raspy descending whistle that sounds like *cheer.*

call at any given time, so there is always a level of background calling. If one of the males notices an approaching predator, however, he immediately switches to a different call type. Hearing the change, the other males in the vicinity quickly switch to match this new call, and the contagious change in call type sweeps through the area. If the predator continues to approach, males may respond by increasing the rate at which they call and the rate at which they switch to different call types.

This alert-call system enables redwings to keep track of danger in the area and to take appropriate action. For example, if the calling is in response to an American Crow (*Corvus brachyrhynchos*), males will attack it and drive it away, but if the approaching predator is a Cooper's Hawk (*Accipiter cooperii*), males will circle above it (if they can take flight before the hawk is too near) or will crouch motionless in vegetation. Coincidentally, this alert calling is helpful to ornithologists, who can use male vocal behavior like a Geiger counter to locate active redwing nests.

Ornithologist Frank Peek once studied male Red-winged Blackbird song by rendering males "mute" via surgery. Peek found that he could approach a nest on a muted male's territory much more closely without flushing the female than he could on the territory of a normal male. This observation—along with Beletsky's description of an alert-call system and previous work of my own on the location and frequency of male perching during the nesting season—suggested to me that male red-wings might be acting as sentinels for their mates with active nests. Males perch conspicuously and scan their territories for much of the day, giving alarm calls at baseline frequencies when active nests are present. Perhaps they are standing watch for nest predators and call at baseline rates when "all is well" to let their mates know that they are on the job.

In 1999, Nicole Burton, a student at Beloit College, and I tested this "predator early-warning system" with a simple experiment. One of us walked slowly towards active red-wing nests and noted when the females flushed from their nests. On each male's territory we measured these "flushing distances" twice, once with the male present and once with the male absent (males are often away foraging at distant sites). Males that were present would give alarm calls as we approached, but males that were absent obviously could not. We found that we could approach to within 10 meters of a nest before the female flushed, on average, when the male was absent. Nests in our study area are placed in grasses and other dense vegetation from which the female's field of view is very limited, so it was not surprising that we could get so close when the female did not have a lookout. On the other

hand, when the male was present and alarm calling, females flushed when we were about 30 meters from their nests, on average. If we had been actual nest predators, it would have been much easier to find the nests in the male-absent condition than in the male-present condition because of the difference in flush distances. In addition, had we been stealthy predators, we may even have been able to catch the female—as well the contents of her nest—without the male's vocal "heads up."

During the 2000 breeding season, Beloit College students Amanda Sanders, Jenny Werner, and I decided to do some follow-up experiments in an attempt to identify the specific components of the predator alert system (Figure 4). Using the 1999 results, we decided to tape-record male red-wing vocal behavior when a predator (a human observer or a plastic crow) was positioned 30 meters and 10 meters from active nests (the same distances at which females flushed when males were present and absent, respectively). However, as is often typical of ornithological fieldwork, our results were not what we expected. We found almost no differences in the alarm calling of males with predators at 30 and 10 meters from active nests.

What happened? There are many possibilities, including that male vocal behavior does not differ at these two distances. Perhaps once females are alerted to the approach of a predator by the calling of males, they simply flush when they hear the predator nearby, or after a certain period of waiting. Another explanation is more interesting to us, however. Unlike the 1999 study in which females were al-

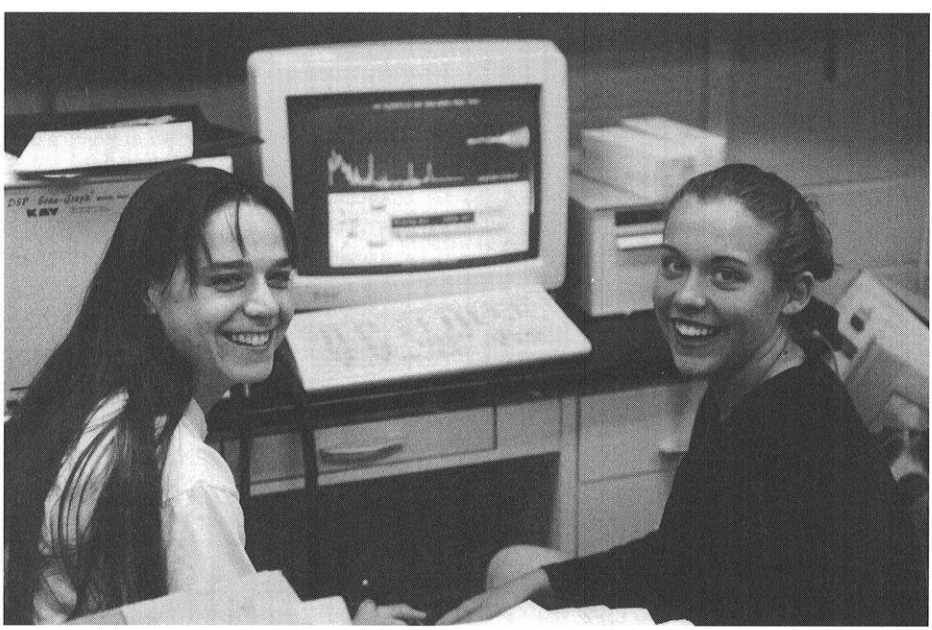

Figure 4. Beloit College students Amanda Sanders (left) and Jenny Werner using a digital sonograph to analyze Red-winged Blackbird vocalizations. Photo by Ken Yasukawa.

ways present on their nests when we approached them, during the 2000 study females were always off their nests when we began to tape-record the males. The reason for the difference was simple, but unintended. We always began our presentations by measuring 10 and 30 meters out from the subject nest, then stationing the predator at the 30-meter location. Our activity at the nest always caused the female to flush from the nest, and our continued presence in the vicinity prevented her from returning to incubate. Thus, unlike during the 1999 experiment, the female was perched conspicuously and in a position to observe the predator herself. Perhaps in this situation males do not provide information about the distance of a predator from the nest.

Our simple experiments in 1999 and 2000 point out one maxim of research: Attempts to answer a specific question may or may not be successful, but they invariably lead to more questions. Now we would like to know whether the female's location or situation affects the male's antipredator calling behavior, whether the calling behavior of the male actually does change as a predator approaches an incubating female, and what, if any, components of calling behavior might change. After all, I have only been studying Red-winged Blackbirds for 28 years. There is still much work to be done.

For those of you who would like to learn more about red-wings, the following short bibliography contains many interesting sources of information.

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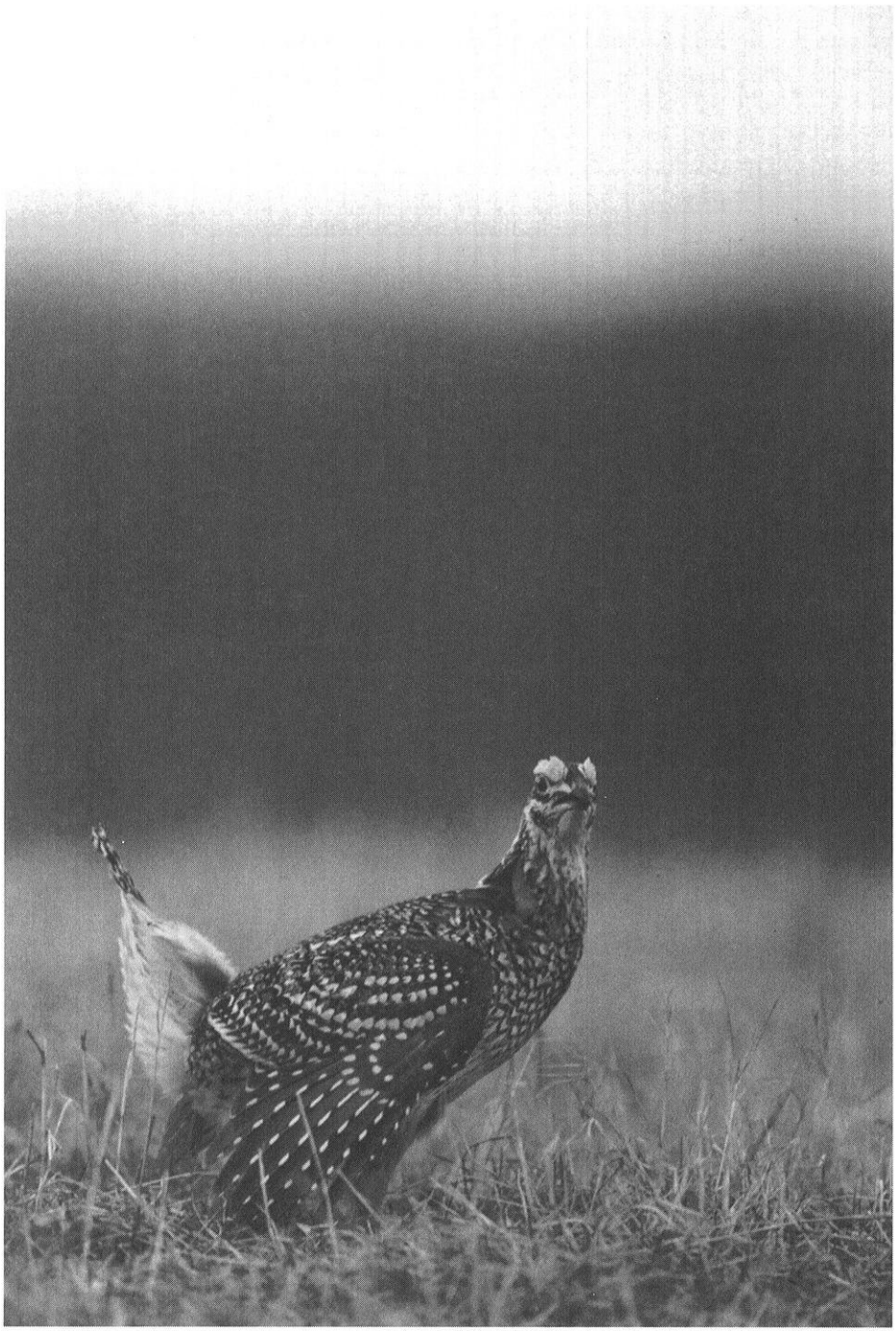

Displaying male Sharp-tailed Grouse, Pershing Wildlife Area, Taylor County, Wisconsin
by Tim Walsh

The History, Status, and Future of Sharp-tailed Grouse in Wisconsin

Sharp-tailed Grouse in Wisconsin have experienced dramatic population declines as a result of habitat loss. Unless additional habitat is secured by expanding managed reserves or through changes in land use, this species may be extirpated from the state. The Wisconsin Sharp-tailed Grouse Society is working to maintain and increase the barrens, savanna, and bog habitats that support sharptails and other shrubland and grassland species in Wisconsin.

by Larry Gregg and Neal D. Niemuth

Prior to settlement by Europeans, the Sharp-tailed Grouse (*Tympanuchus phasianellus*) was found throughout the upper Midwest, but has since been extirpated from much of its previous range (Aldrich 1963, Gregg 1987). Sharptails are birds of prairies and brushlands, and they presently reach the eastern-most limit of their range in the Lake Superior area. In this primarily forested and agricultural region, sharptails are restricted to patches of grasslands and brush created by prescribed burns, wild fires, marginal agriculture, large clearcuts, open bogs, and frost pockets (Vanderschaegen 1977, Gregg 1987). Before the advent of fire suppression, wild fires created extensive blocks of open habitat in Wisconsin (Curtis 1959) suitable for sharptails (Figure 1). But in the absence of disturbance such as fire, open lands in the upper Midwest grow to forest, quickly becoming unsuitable for sharptails.

Because of changes in disturbance and land use, the range and abundance of Sharp-tailed Grouse in Wisconsin have varied dramatically. Before 1850, sharptails were "extremely abundant" in the prairies and oak savannas of southern Wisconsin, where they were referred to as "bur oak grouse" (Schorger 1943). At that time, the greatest amount of sharptail habitat in Wisconsin was in the prairies and savannas of the south (Figure 2), although sharptails also occurred in pine barrens, burns, and open bogs in other parts of the state (Schorger 1943, Gregg 1987). Fire suppression and agriculture took their toll on habitat as

Figure 1. Sharp-tailed Grouse habitat five years after the Deer Print Lake Fire, which burned 863 acres of timber and slash in southeastern Douglas County in 1988. Fire suppression has eliminated most large wild fires in Wisconsin. Open habitat created by wild fire is usually temporary because of tree planting and succession. Photo by N. Niemuth.

the prairies and oak savannas were settled, and Sharp-tailed Grouse were rare in portions of southeastern Wisconsin by 1852 (Schorger 1943). By the turn of the century, Kumlien and Hollister (1903) observed that the sharptail was "probably doomed to speedy extinction in the state."

But as sharptail habitat was being lost in the prairies and savannas of southern Wisconsin, settlement was creating sharptail habitat in other parts of the state. Timber harvest and land clearing were often followed by slash fires, all of which created large tracts of open land in the northern forests. Draining of wetlands, along with timber harvest, agriculture, and fire, created additional open habitat in central Wisconsin (Hamerstrom 1963). Because of these changes in land use, sharptails flourished in central and northern Wisconsin during the latter part of the 19th century and early part of the 20th century. Leopold (1931) summarized existing data and estimated that 55,350 sharptails were present in the state, along with 54,850 Greater Prairie-Chickens (*Tympanuchus cupido*). Leopold (1931) felt these numbers were "optimistic," but Barton (1938) estimated a fall population of 10,000 sharptails in just the Moquah Barrens region of Bayfield County.

With the advent of effective fire control in the 1920s, habitat-creating wild fires were reduced, and secondary succession resulted in the reforestation of much open habitat in Wisconsin (Curtis 1959, Gregg 1987). In addition, millions of trees were planted to "reclaim" open land that was otherwise

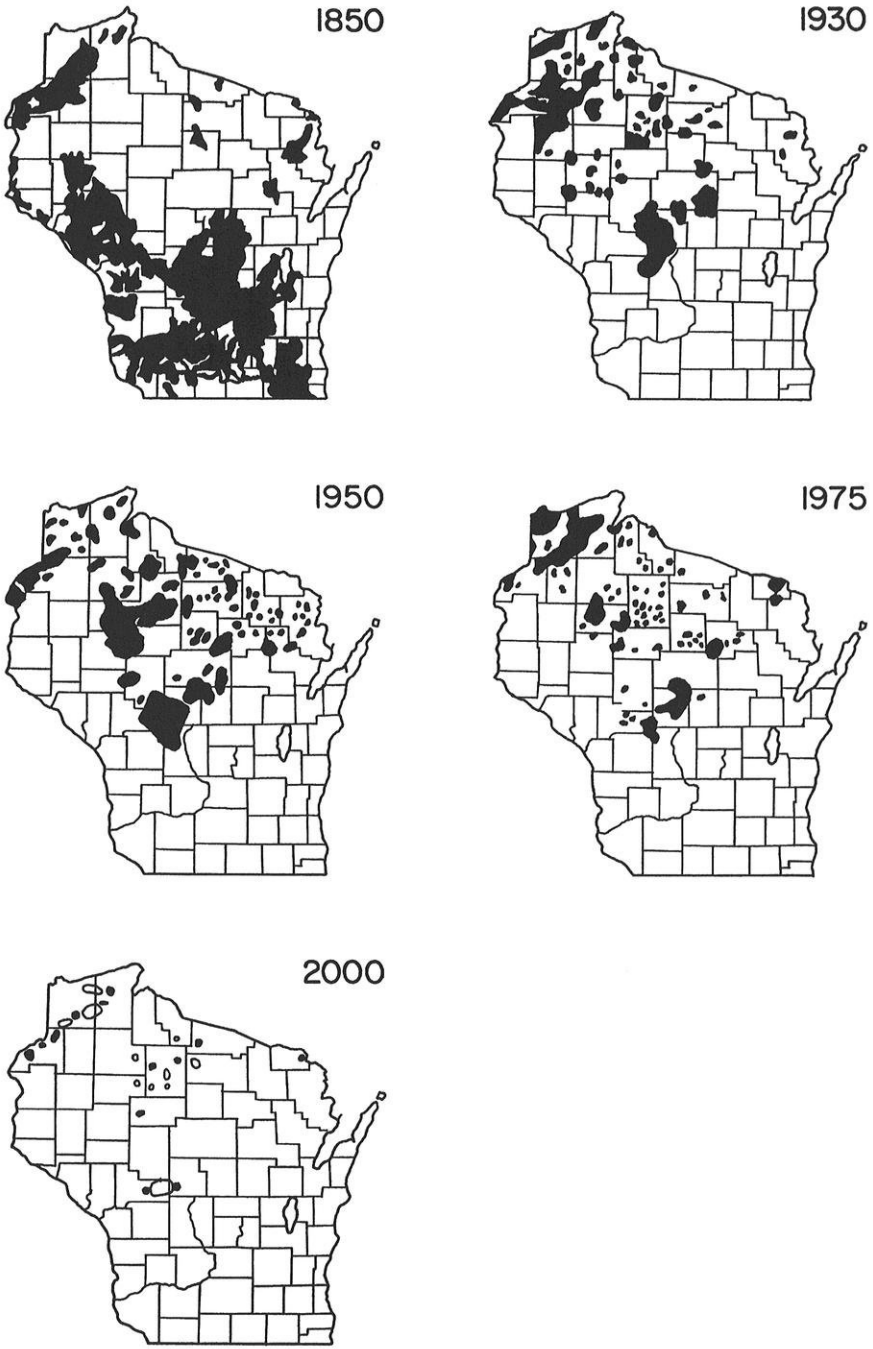

Figure 2. Changes in Wisconsin Sharp-tailed Grouse range, 1850–2000, adapted from Gregg (1987). Open circles in map for 2000 represent unmanaged lands with scattered sharptail populations.

considered worthless. Sharptails continued to be present in many parts of Wisconsin, especially in association with marginal agriculture, but without habitat-creating disturbance, the stage was set for the disappearance of sharptails from the state.

The declining fortunes of sharptails drew much attention over the years. Although the prairie-chicken was generally in the forefront of public concern, extensive research on sharptails in Wisconsin was conducted in the 1930s, 1940s, and 1950s. The studies of Grange (1948), Frederick Hamerstrom (1939, 1963), and Hamerstrom et al. (1952) all led to the same conclusion: Sharptail populations were declining because habitat was disappearing. Grange (1948:233) summed up the situation by observing that "most prairie chicken and sharptail habitat in Wisconsin, wherever located, appears headed for one of two fates: (1) forest or (2) agriculture."

In response to the need for secure habitat, several management areas were set aside for sharptails in the 1950s (Doll 1955, Newman 1959). Sharptail populations responded dramatically at some sites, particularly where habitat was managed. The Crex Meadows Wildlife Area (CMWA), for instance, harbored fewer than 10 sharptails in 1947 (Norm Stone quoted in Kirsch et al. 1973), but populations increased as habitat was created and managed. Unfortunately, sharptails disappeared from several other sites because land was not maintained as early successional habitat. Sharptails were still found on unmanaged lands in many parts of the state in the 1950s (Figure 2), but by 1975 sharptail habitat was much reduced, particularly on unmanaged lands (Vanderschaegen 1977; Figure 2). By the early 1980s, remaining habitat was highly fragmented, with the majority of sharptails at or close to managed reserves where early successional habitat was maintained through prescribed fire (Figure 3) and mechanical disturbance (Gregg 1987). Presently, only a handful of populations are found away from managed reserves (Figure 2).

But even sharptails on managed areas might not be secure. Grange (1948) noted that sharptail habitat should be in large blocks of at least 2,000 acres to maintain flocks during the lows of their population cycles. In addition, Grange (1948:230) observed that sharptails "exhibit no ability whatever to survive in small colonies outside the limits of their contiguous range." The dependence of sharptails on large, nearby blocks of habitat became more apparent as sharptail habitat continued to disappear. To provide a framework for habitat management and restoration, Gregg (1987) identified the management potential of habitat reserves in Wisconsin, and suggested that at least 50,000 acres of breeding habitat be preserved to maintain breeding populations of 500 sharptails. Temple (1992) performed a population viability analysis of sharptails and concluded that five reserves, each of 10,000 acres, would be required for the long-term viability of the species in the state.

Unfortunately, 50,000 acres of secure sharptail habitat do not exist in Wisconsin, and none of the existing reserves contain 10,000 acres of brushland habitat (Gregg 1987). Following recommendations to increase the amount of habitat available for sharptails, the Wisconsin Department of Natural Resources (WDNR) attempted in 1991 to purchase the Namekagon Bar-

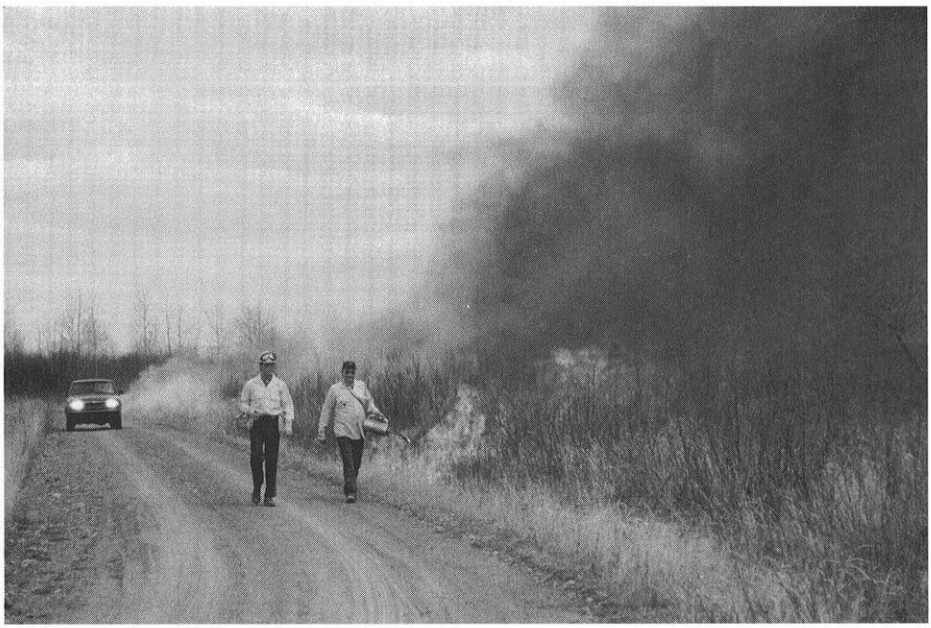

Figure 3. Prescribed burning sets back succession, creating habitat for Sharp-tailed Grouse and other grassland and brushland species. Photo by L. Gregg.

rens Wildlife Area (NBWA; Figure 4), which is leased from Burnett County, and to increase its acreage by purchasing land from adjoining private and county landowners. Purchase offers were declined, and NBWA remains leased with approximately 4,300 acres in its largest unit.

Following the failure to increase the size of NBWA, a plan has been proposed to manage 36,000 acres of the Douglas County Forest as dynamic pine barrens habitat (Strand and Epperly 1995). Under this landscape management proposal, timber harvest will be used to create large openings in a portion of the management unit. These openings, similar to the pine barrens savanna that was once common in the region, will eventually be planted to trees, but only after new openings have been created. Similar management has been proposed for timber lands surrounding the Moquah Barrens Wildlife Area, a pine barrens reserve harboring Sharp-tailed Grouse in the Chequamegon National Forest (Parker 1995). Management under both proposals will create habitat for Sharp-tailed Grouse, but the openings will be dynamic in time and space. In both situations, temporary openings created by timber harvest will be close to managed reserves, which can serve as reservoirs to stock newly created habitat.

Intensive management at dedicated reserves has preserved early successional habitat and Sharp-tailed Grouse populations in Wisconsin. Proposed landscape management (e.g. Strand and Epperly 1995) can increase the amount of early successional habitat available to Sharp-tailed Grouse. In

Figure 4. Pine barrens and brush prairie at the Namekagon Barrens Wildlife Area in northeastern Burnett County are maintained through prescribed burning. Photo by N. Niemuth.

this paper, we present information on the abundance and population trends of Sharp-tailed Grouse on dedicated reserves, as well as what can be done to enhance the role of reserves in preserving sharptail populations in Wisconsin. We also document populations of Sharp-tailed Grouse off of dedicated sites on large openings created by timber harvest, and discuss how landscape management can benefit Sharp-tailed Grouse and other species requiring early successional habitat.

Study Area and Methods

Population trends at dedicated reserves—Populations of Sharp-tailed Grouse on managed reserves were indexed by counting the number of males on leks (sharptail dancing grounds; Figure 5). Sharptails typically use few, traditional leks, which expedites locating and observing birds at sites where management keeps habitat open for many years. Observation blinds were placed at leks on several managed properties, facilitating observation and identification of males. When no blinds were available, grouse were observed from vehicles or on foot. A complete census of leks was attempted at managed reserves in recent years. Survey history varied among managed sites; long-term sharptail lek counts are not available.

Abundance in large clearcuts—Sampling focused on large openings created by timber harvest in southeastern Douglas County, as well as portions of Bayfield and Washburn counties (Figure 6). Many of the openings had been created following salvage logging of

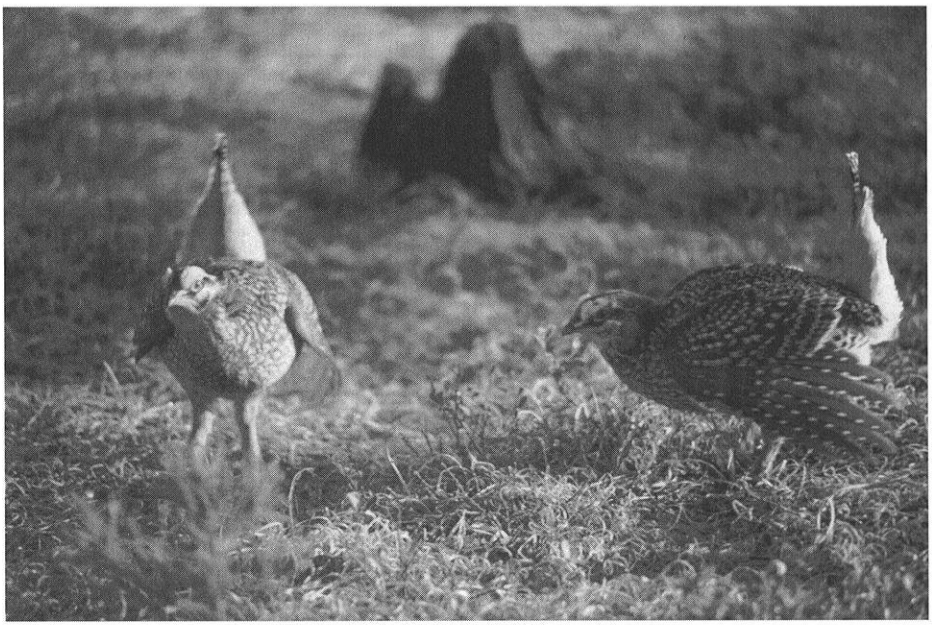

Figure 5. Sharp-tailed Grouse populations are monitored by counting the number of males that attend leks, or dancing grounds, in spring. Photo by L. Gregg.

jack pine (*Pinus banksiana*) that had been damaged by jack pine budworm (*Choristoneura pinus*) in 1992 and 1993 (Weber 1995). These openings, in conjunction with existing openings, created several blocks of open habitat that were larger (up to 2,500 acres) than those typically created by timber harvest, and were used by Sharp-tailed Grouse (Niemuth 1995). Local land managers were consulted prior to sampling to identify potential habitat and sites where Sharp-tailed Grouse had been observed.

In April of 1995, 1997, and 1998, members of the Wisconsin Sharp-tailed Grouse Society (WSGS) searched for leks using roadside surveys. The number of birds at each lek was counted and the location mapped. No distinction was made between males and females when sampling leks off of managed reserves, and we estimated the number of males as 75% of all birds flushed. In 1995, leks were visited two or more times to estimate average attendance; leks were visited once in 1997 and 1998.

Results and Discussion

Population trends at dedicated reserves—Sharptails at Crex Meadows Wildlife Area responded strongly to creation and management of habitat, and numbers of dancing males increased from fewer than 10 in 1947 to 137 in 1998 (Figure 7). The number of dancing males showed considerable variation over time at CMWA (Figure 7), as well as at other managed sites (Table 1). Variation in numbers of displaying males over time has been attributed to differing management

Figure 6. Large clearcuts such as this in southeastern Douglas County provide excellent habitat for Sharp-tailed Grouse and other grassland and shrubland birds. Habitat created by clearcutting is temporary because of tree planting and succession. Photo by N. Niemuth.

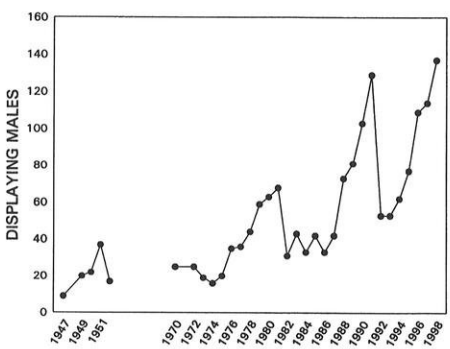

Figure 7. Number of dancing male Sharp-tailed Grouse counted at the Crex Meadows Wildlife Area, Burnett County, Wisconsin. No data are available from 1953–1969. Data courtesy of Jim Hoefler, WDNR.

practices (Gregg 1987), changes in amount and quality of habitat (Berger and Baydack 1992), population cycles (Grange 1948), and variability in lek attendance by males (Grange 1948).

Even though some populations have increased because of habitat management, the total number of sharptails on managed areas has been low (Table 1). Populations at other managed sites are smaller than at CMWA, and some, such as the Douglas County, Dike 17, and Wood County Wildlife Areas, have perilously low populations. Typically, large reserves such as CMWA harbored more birds than sites with little habitat, such as the Dike 17 Wildlife Area.

Spring numbers of displaying male Sharp-tailed Grouse on managed reserves were small compared to anecdotal accounts of past populations, but the continued persistence of sharptails at most reserves demonstrates the value of managed reserves for main-

Table 1. Sharp-tailed Grouse population trends on managed wildlife areas (first nine locations) and recently disturbed sites (SE Douglas County) in Wisconsin. Sites in SE Douglas County were only surveyed in 1995, 1997, and 1998.

	Number of Dancing Males											
Location	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Crex Meadows	42	67	81	103	126	47	53	59	83	110	117	132
Douglas County	>10	>10	7	3	5	4	2	8	12	9	9	18
Kimberly-Clark	13	15	25	40	56	32	20	20	28	20	15	25
Moquah Barrens	2	2	–	3	6	9	6	7	21	14	17	34
Namekagon Barrens	15	15	>15	33	37	25	16	25	44	48	55	74
Pershing	30	39	43	23	37	34	24	16	26	30	43	34
Riley Lake	25	30	>20	20	25	8	5	7	18	17	19	19
Wood County	42	–	32	–	54	13	11	16	19	18	10	17
Dike Seventeen	–		–	–	16	10	9	9	8	7	3	18
SE Douglas County									153[a]	–	213[a]	377[a]
TOTAL (reserves only)					362	182	146	167	259	273	288	371
TOTAL (all sites)					362	182	146	167	412	273	501	748

[a]Number of males estimated as 75% of all birds flushed from leks.

taining sharptail populations. However, our observation period is brief, and the disappearance of sharptails from the Dunbar Barrens, the Spread Eagle Wildlife Area, and the Ackley Wildlife Area indicates how vulnerable sharptail populations can be, even at managed sites. Perhaps more important, the history of sharptails at the Spread Eagle Barrens demonstrates the importance of suitable sharptail habitat. Sharptails disappeared from the Spread Eagle Barrens in the 1980s, but recolonized the site following the creation of habitat in the mid-1990s (Jean Strelka observed a brood there in 1997 [Bettie Harriman, pers. comm.]).

To ensure continued populations of sharptails at managed sites in Wisconsin, the size of reserves should be increased (Gregg 1987, Temple 1992). Larger reserves would not only increase the amount of available habitat, but would also allow managers to increase habitat heterogeneity within reserves, more closely mimicking vegetation patterns and structure associated with wild fires (Niemuth and Boyce 1998).

Abundance in large clearcuts—In 1995, 23 leks were located on unmanaged lands in southeastern Douglas County, with one additional lek in western Bayfield County and one in northwestern Washburn County. One lek was in an agricultural field adjacent to the 1977 Five-mile Fire; two were in openings created by timber harvest and the 1988 Deer Print Lake Fire; eight were in openings created by salvage logging of budworm-damaged timber; and 12 were associated with early successional habitat created by timber harvest prior to the budworm infestation. The mean number of attending birds at each lek ranged from two to 23. Total attendance (mean of multiple observations for all sites) at the 25 leks was 204 birds. The maximum number of birds seen at one lek was 28.

In 1997, 18 leks were located on unmanaged lands in Douglas County. All

leks were in openings created by timber harvest, except one associated with the Deer Print Lake Fire. The maximum number of birds seen at one lek was 31. In 1998, 24 leks were located on unmanaged lands in Douglas and Bayfield Counties. The maximum number of birds seen at one lek was 42.

Sharp-tailed Grouse away from managed reserves add substantially to known populations of sharptails in Wisconsin. Indeed, a complex of clearcuts in southeastern Douglas County harbored the largest population of Sharp-tailed Grouse in the state (Table 1). In addition, small remnant populations of sharptails were present on unmanaged lands in portions of Price, Bayfield, Oneida, Rusk, Taylor, Jackson, Sawyer, and Wood Counties (Figure 8).

Comparison of past and present sharptail populations is complicated by a lack of pre-settlement data, poor understanding of the species' range, and differences in timing and methods of surveys. However, it is obvious that the total number of sharptails present in the state is but a fraction of what was present historically.

Unfortunately, populations found in large clearcuts are not secure because of the temporary nature of the openings, which are typically planted to red pine (*Pinus resinosa*) or jack pine following harvest (Figure 9). In addition, several of the large blocks of open habitat in which sharptails were found were created in response to jack pine budworm infestations, not as management for grouse, and such habitat is unlikely to be created again in the foreseeable future. In the absence of extensive budworm infestations, openings created by timber harvest are typically much smaller in extent and are less

Figure 8. Sharp-tailed Grouse habitat on abandoned agricultural fields in Bayfield County. Photo by L. Gregg.

Figure 9. Sharp-tailed Grouse lek located in young pine plantation. Habitat in this photo is of marginal quality because of the size and density of trees; this lek was no longer used two years after the photo was taken. Photo by N. Niemuth.

likely to be used by sharptails. Planned timber harvest, such as the landscape management plan of Strand and Epperly (1995), is needed to ensure that large blocks of early successional habitat continue to be available to sharptails.

By aggregating clearcuts rather than dispersing them across the landscape, large blocks of habitat can be created without increasing the total amount of timber harvested (Niemuth and Boyce 2000). Similar management was planned for the Riley Lake area in Price County in the early 1950s (Doll 1953), but the plan was not carried out. Use of clearcuts by sharptails in southeastern Douglas County demonstrates the value and potential of landscape management in maintaining sharptail populations. In the absence of naturally occurring fires, timber harvest can create open habitat for sharptails. On sandy soils with natural regeneration or planted pines, sharptail populations might be present for up to ten years following timber harvest; on heavier soils dominated by fast-growing aspen (*Populus* spp.), sharptails might be able to utilize a site for only a year or two following timber harvest.

The role of hunting—In most populations of grouse, hunting is thought to compensate for natural mortality and have little or no effect on populations. However, the decreased number of sites at which sharptails are found in Wisconsin has concentrated hunting pressure. Most sharptail hunting in Wisconsin takes place at managed sites such as Crex Meadows, Douglas

County Wildlife Area (DCWA), and Namekagon Barrens, and populations at those sites might have experienced overharvest in the past (Gregg 1990). Over the years, measures to prevent overharvest were enacted at managed sites, including refuges closed to hunting within Crex Meadows, Namekagon Barrens, and the Pershing Wildlife Area, and the total closure to hunting of the Kimberly-Clark Wildlife Area, Moquah Barrens Wildlife Area, Dike 17 Wildlife Area, and DCWA (Gregg 1990). However, sharptail populations have not increased at sites that were closed to hunting. Indeed, from 1995 to 1996 sharptail populations increased at three of the four managed sites where hunting was allowed, and decreased at all five of the managed sites where hunting was not allowed (Table 1). This indicates that sharptail populations are probably not depressed by hunting, but are more likely influenced by habitat quality and availability.

To get a better understanding of harvest levels, the WDNR required Sharp-tailed Grouse hunters to report their bag during the 1992–1995 seasons. This count was then adjusted upward to account for non-reporting and hunting-related mortality. About 200 people hunted each year during this period, with an average total harvest of 92 sharptails. Because of concerns about the possible impact of harvest on certain populations, Sharp-tailed Grouse hunting was completely prohibited in Wisconsin in 1996.

Limited harvest of sharptails was allowed under a permit system beginning in 1997. Under this system, permits were only issued in harvest units where at least 25 males were observed dancing in spring. The number of permits issued (maximum allowable harvest) was set at 25% of the projected fall population, which was based on spring counts. Hunters were required to report their harvest to the WDNR.

The maximum harvest allowed under this system was probably conservative for several reasons. First, sharptail populations in harvest units were undoubtedly higher than estimated, as limited survey effort cannot locate all leks. Second, estimating 75% of birds flushing from leks as males may underestimate male numbers because the average number of birds of both sexes at a lek is a "workable substitute" for the maximum number of males that attend that lek (Ammann 1957:151). Third, some game managers reduced the number of permits issued in their harvest areas. Finally, the number of birds harvested was considerably less than the number of permits issued, as reported hunting success was only 20.8% (137 birds harvested out of 660 permits) in 1997 and 10% (178 birds harvested out of 1800 permits) in 1998. Also, in April and May of 1998, 140 adult sharptails at NBWA, DCWA, and several clearcuts in southeastern Douglas County were tagged with leg bands offering a reward for return of the band. Only four birds were reported harvested during the hunting season (Tim Connolly, pers. comm.). Clearly, hunting mortality was low, representing a small fraction of the total number of sharptails in Wisconsin.

Impacts on other species—The large expanses of open habitat required to preserve sharptails in Wisconsin benefit many other species. The negative effects of habitat fragmentation on forest species have been widely publicized, but habitat fragmentation also affects

non-forest species. In fact, the proportion of grassland and shrubland bird species that has declined between 1966 and 1991 in eastern North America is much greater than the proportion of forest-dwelling species that has declined during the same period (Askins 1993). The major factor contributing to the decline of these species in eastern North America is loss of habitat (Askins 1993). Many of these species, such as the Upland Sandpiper (*Bartramia longicauda*), Northern Harrier (*Circus cyaneus*), Common Nighthawk (*Chordeiles minor*), and Western Meadowlark (*Sturnella neglecta*) are area-sensitive, and in the pine barrens of northwestern Wisconsin are found only in large tracts of habitat such as those required by sharptails (Niemuth 1995). The Connecticut Warbler (*Oporornis agilis*) and Mourning Warbler (*Oporornis philadelphia*) are often found in small groves of trees, along with a host of brushland and edge species. For an in-depth account of birds found in Wisconsin pine and oak barrens, see Mossman et al. (1991).

The future of sharptails in Wisconsin—Like all wildlife, Sharp-tailed Grouse are inextricably linked to habitat. Dramatic declines in populations of Sharp-tailed Grouse in Wisconsin are the result of changes in land use that have in turn reduced the amount of early successional habitat. For instance, where Barton (1938) once estimated 10,000 fall sharptails in the Moquah Barrens region of Bayfield County, only three dancing males were found in spring of 1990 (Table 1). In 1998, 34 males were present, the result of sharptail translocation and extensive habitat management at the Moquah Barrens Wildlife Area in the early 1990s. Presently, managed reserves provide the only secure habitat for sharptails in Wisconsin, and it is possible that sharptails will someday exist in the state only at managed reserves. However, management alone will not suffice, as most of the reserves are simply too small to ensure the long-term survival of sharptails in Wisconsin (Gregg 1987, Temple 1992).

Purchasing and managing the large blocks of land required by sharptails will be difficult. Several of Wisconsin's managed savanna reserves, including the Crex Meadows Wildlife Area and the Namekagon Barrens and Douglas County Wildlife Areas, were purchased largely with money provided by hunters. Prescribed burning and other management needed to maintain open habitat are also largely paid for with hunters' dollars. But as opportunities to hunt sharptails decline, it will be difficult to justify using hunters' money to manage sharptail habitat.

New approaches to land management may be needed to maintain sharptails in Wisconsin. Savanna and barrens communities are rare and increasingly threatened and should be preserved to maintain a host of species in addition to sharptails. All too frequently, open land is considered wasted unless it is planted to trees, which is the death knell for sharptails and other open-country species. As we have shown, sharptails respond favorably to timber harvest, and coordinated efforts by timber and game managers at private, county, state, and federal levels can increase the size of brushland habitat patches without increasing the amount of timber harvested.

Sharptails and sharptail habitat provide an abundance of non-consumptive recreation. In addition to viewing dancing males in spring, sharptail hab-

itat provides opportunities for berry picking, bird watching, and the chance to experience some of the wide-open spaces that were once common in Wisconsin. But to ensure that these opportunities are not lost, non-consumptive users of sharptails must help pay for land acquisition and management.

Presently, sharptails in central Wisconsin are in the most danger of disappearing. In 1929, 5,000 or more sharptails were estimated to be present in each of Jackson, Wood, Juneau, and Clark Counties (Leopold 1931). In 1975, the total population of sharptails at the Dike 17 Wildlife Area in Jackson County was estimated as 90–100 birds and increasing (Vanderschaegen 1977); in 1998, only 18 dancing males were found. The Wood County Wildlife Area has experienced a similar decline (Table 1). Because of succession, little upland habitat is available to sharptails in central Wisconsin. Remnant populations are persisting in large wetlands, which provide open space for sharptails but are otherwise low quality habitat. Loss of sharptails from this region is especially unfortunate, as large portions of central Wisconsin are publicly owned as wildlife areas and could be managed for open-country species. The Wisconsin Sharp-tailed Grouse Society is spearheading an initiative to identify potential habitat and coordinate savanna restoration in this region. Sharptail habitat in central Wisconsin is declining rapidly, and without prompt intervention, another portion of Wisconsin's sharptail legacy will soon be gone.

The Wisconsin Sharp-tailed Grouse Society

The call to preserve sharptails in Wisconsin has been sounded numerous times since the beginning of this century. Each time, sharptail populations are lower and the need to preserve habitat is greater. The Wisconsin Sharp-tailed Grouse Society was formed in 1990 in response to declining populations of sharptails in the state. The purpose of the Society is "the preservation and enhancement of the oak and pine barrens, savannas, sedge meadows, and bog habitats of which the Sharp-tailed Grouse is a key indicator species." The Society hopes to preserve sharptails in Wisconsin through five objectives: 1) publicizing the Sharp-tailed Grouse's plight; 2) educating the public and resource professionals about Sharp-tailed Grouse; 3) encouraging management of Sharp-tailed Grouse habitat; 4) promoting both hunting and non-hunting recreational use of the Sharp-tailed Grouse; and 5) influencing both state and local decisions that will benefit the Sharp-tailed Grouse and other barrens species. For more information about sharptails and the Wisconsin Sharp-tailed Grouse Society, write to WSGS, Box 1115, Cumberland, WI 54829.

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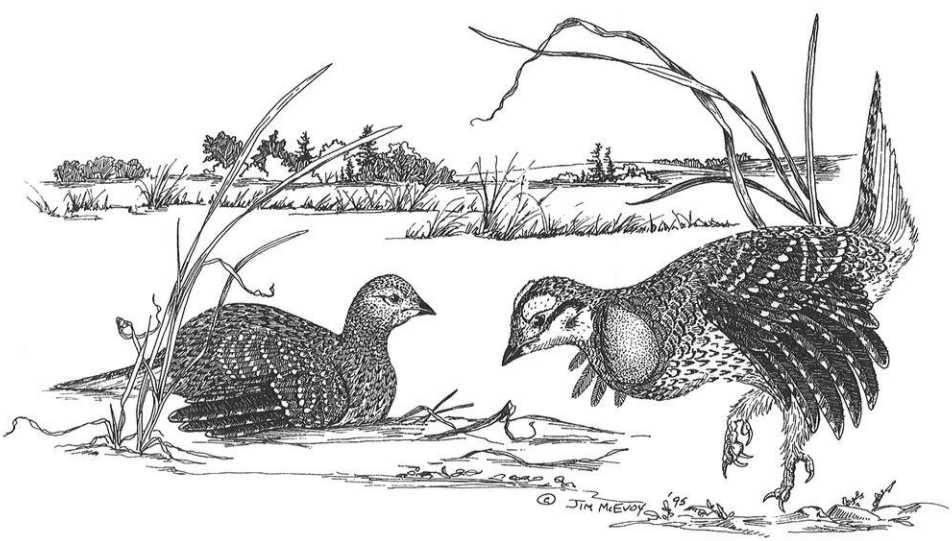

Sharp-tailed Grouse *by Jim McEvoy* (Wisconsin Department of Natural Resources)

The History of Sharp-tailed Grouse in the Crex Meadows Wildlife Area

The wetlands and prairies of Crex Meadows were severely degraded following human settlement, but habitat restoration efforts have helped make the area an important refuge for part of Wisconsin's beleaguered Sharp-tailed Grouse population. A 1999 survey counted 115 male sharptails at 19 separate leks.

by James O. Evrard, James E. Hoefler, and Paul A. Kooiker

At the time of European settlement, the Prairie Sharp-tailed Grouse (*Tympanuchus phasianellus campestris*) was found in Wisconsin, Michigan, Minnesota, and northern Illinois and Iowa and the provinces of Ontario, Manitoba, and Saskatchewan (Aldrich 1963, Miller and Graul 1980). The species has since disappeared from Illinois, Iowa, the Lower Peninsula of Michigan, and southern Minnesota and Wisconsin (Berg 1990).

Today in Wisconsin, Sharp-tailed Grouse are found primarily in the far northwest part of the state. Sharptails are found only in areas managed specifically with prescribed burning for the birds, forested areas with recent large clearcuts or wild fires, large open bogs, and, decreasingly, abandoned farmland on the forest fringe (Vanderschaegen 1977; Gregg 1987, 1994).

One of the Sharp-tailed Grouse management areas is the Crex Meadows Wildlife Area (CMWA). This paper documents the history of the Sharp-tailed Grouse and its management in the CMWA and the adjacent western Burnett County portion of Wisconsin's Northwest Pine Barrens.

History of the Crex Meadows Area

The CMWA is located north of the Village of Grantsburg in western Burnett County (Figure 1). The 26,200-acre wildlife management area is owned and managed by the Wisconsin Department of Natural Resources (WDNR). The CMWA is a restored brush prairie-wetland complex described by Vogl (1964) and Miller et al. (1983).

The CMWA occupies a significant portion of the southwestern marsh section of the Northwest Wisconsin Pine Barrens (Murphy 1931). The management area consists of extensive sedge

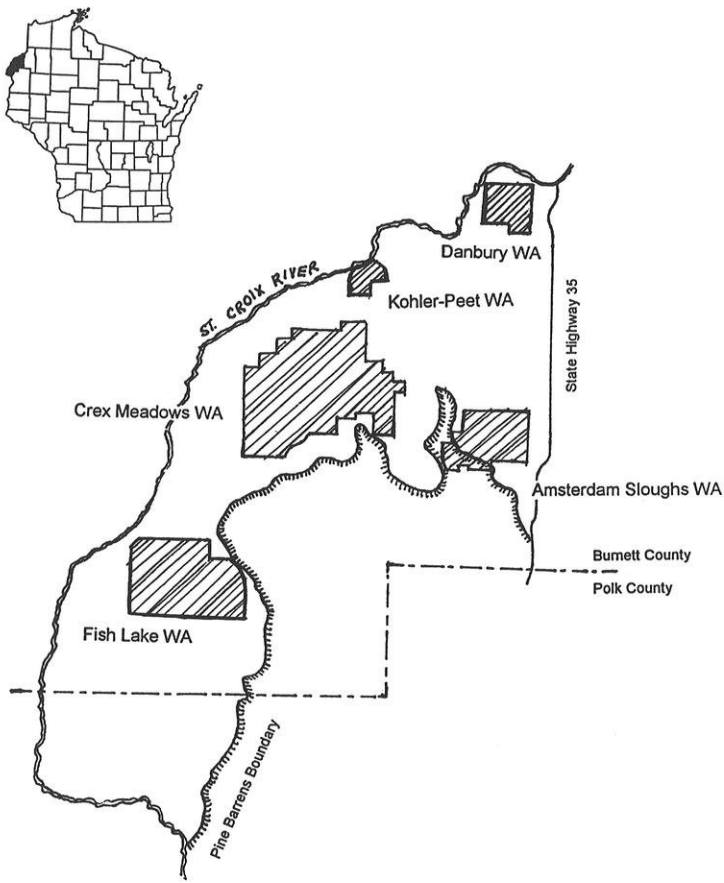

Figure 1. Location of the Glacial Lake Grantsburg Wildlife Management Complex in Wisconsin's Northwest Pine Barrens.

marshes interspersed with level to slightly rolling uplands of fire-managed "brush prairie" (Strong 1880), pine/oak savanna, and mixed jack pine (*Pinus banksiana*), scrub or Hill's oak (*Quercus ellipsoidalis*), and aspen (*Populus* spp.) forests.

The marshes were formed in the basin of ancient Glacial Lake Grantsburg. A lobe of the last advance of the Wisconsin glacier blocked the St. Croix River, forming the lake. When the ice dam melted, a series of shallow lakes remained, from which the sedge meadows developed. Sandy glacial outwash formed the shores of the shallow lakes (Strong 1880).

The pine/oak prairie savanna (Vogl 1964) and the sedge marshes were maintained in their open condition by frequent lightning and Indian-ignited fires (Evrard in review). European settlement began in the late 1850s when Scandinavian farmers homesteaded the barrens. They plowed the open sandy uplands to cultivate grain and used the sedge marshes as a source of wild hay for their livestock.

Between 1890 and 1902, the sedge marshes were drained for commercial cranberry production. The ditches and dams allowed water level control, important for cranberry growing. The marshes were purchased in 1912 by the Crex Carpet Company to produce wire grass (*Carex stricta*) for weaving into carpeting. Full production of wire grass was achieved by 1915. The cranberry ditches and dams were used to control marsh water levels to encourage the growth of wire grass and to allow the grass to be mowed prior to baling and shipping, via railroad, to the company's St. Paul, Minnesota, factory.

The development of an effective fire control program by the Wisconsin Conservation Department (WCD) in the late 1920s and early 1930s ended most of the widespread wild fires that regularly swept the area. With the cessation of frequent wild fires, trees and other woody vegetation began to invade the brush prairie and savanna uplands and sedge marshes.

Drought and an economic depression caused the collapse of the Crex Carpet Company and the abandonment of most of the pioneer farms in the early 1930s. By 1940, over two thirds of the land in the CMWA was tax-delinquent, with ownership reverting to Burnett County.

The WCD began buying the tax-delinquent land in 1945, creating the CMWA the following year. Other private lands within the boundaries of the CMWA were also gradually acquired. Management of the property began in 1947, with restoration of fire to the newly forested uplands and water to the drained wetlands. This management scenario of water level manipulation, prescribed burning, and wildlife food plots continues today by the WDNR. The WDNR manages the CMWA and the nearby 13,800-acre Fish Lake Wildlife Area (FLWA), the 7,900-acre Amsterdam Sloughs Wildlife Area (ASWA), and the 2,500-acre Danbury Wildlife Area (DWA) as one work unit known as the Glacial Lake Grantsburg Wildlife Management Complex (Figure 1).

The CMWA presently contains approximately 3,950 acres of open water (Evrard 1995); 9,600 acres of sedge marsh; 7,400 acres of grass and brush prairie; 5,560 acres of pine/oak/aspen forest; and 125 acres of food plots (Miller et al. 1983).

The food plots consist of alternating, rotational, 30-meter-wide strips of corn (*Zea mays*), buckwheat (*Fagopyrum esculentum*), and rye (*Lolium temulentum*). Alfalfa (*Medigo sativa*) is occasionally grown as a green manure crop to increase organic matter in the soil.

Marsh vegetation is dominated by blue-joint grass (*Calamagostis canadensis*) and sedges (*Carex* spp. and *Scirpus* spp.). Dominant grass and forb species in upland brush prairie and old fields include big bluestem (*Andropogon gerardi*), little bluestem (*A. scoparius*), puccoon (*Lithospermum canescens*), phlox (*Phlox pilosa*), blazing star (*Liatris* spp.), sunflower (*Helianthus rigidus*), and lupine (*Lupinus perennis*). Woody species include Hill's oak saplings, hazelbrush (*Corylus americana*), and sweet fern (*Comptonia peregrina*).

The primary management goals of the WDNR for the CMWA are the production of wildlife with emphasis on migratory birds, Sharp-tailed Grouse, and endangered and threatened wildlife, as well as to provide public hunting, trapping, wildlife education and observation, and other compatible outdoor

recreational opportunities (Miller et al. 1983).

Sharp-tailed Grouse Surveys at Crex Meadows

Surveys for Sharp-tailed Grouse apparently began in 1948, when WCD wildlife researcher Jim Hale spent two days at the CMWA looking for sharptails (unpub. files at WDNR Grantsburg). He did not see any sharptails, but found the tracks of adults and young at several buckwheat food plots.

The most accepted survey used for an index to a population of Sharp-tailed Grouse is the spring display ground or lek survey (Grange 1948). Beginning before dawn in late April and early May in favorable weather, known and suspected Sharp-tailed Grouse habitat is surveyed by driving roads and stopping regularly to listen for the sounds of displaying male sharptails. Upon hearing sharptails, the observer carefully stalks to the lek and attempts to determine the number of displaying males. After counting or failing to count the birds, the sharptails are flushed and counted. At least two counts should be made of each lek or dancing ground (Ammann 1957).

In April and May, 1949, a knowledgeable Grantsburg area resident, Andrew Schultz, was hired by WCD to conduct systematic prairie grouse display ground censuses. He apparently found the last native Greater Prairie-Chicken (*Tympanuchus cupido pinnatus*) reported for the CMWA (Evrard, in review). He also found six Sharp-tailed Grouse dancing grounds containing 37 birds, of which he thought at least 20 were males (unpub. files at WDNR Grantsburg). During the winter, CMWA Manager Norm Stone reported feeding 111 prairie grouse on buckwheat/corn stack feeders.

In 1950, Schultz again surveyed sharptails but did not start until May 16, late for an effective census. He found four dancing grounds containing 29 sharptails, of which he thought 22 were males.

Schultz again surveyed sharptails in 1951, finding nine dancing grounds with 64 sharptails, 37 of which were thought to be males. Five sharptail broods were seen during the summer. Stone reported that there were 25 buckwheat food plots totaling 59 acres planted in the CMWA that year.

In 1952, WCD Technician George Tyberg reported finding five dancing grounds with 24 sharptails, 17 of which were thought to be males. Sharp-tailed Grouse spring surveys were not conducted on a regular basis again until 1972.

Scattered reports in the WDNR files at Grantsburg during the period indicated that in 1953 dancing male sharptails were also observed in the FLWA, about 10 miles southwest of occupied range on the CMWA, and in 1955 in the then Kohler-Peet Wildlife Area just north of the CMWA (Figure 1). When the WDNR's St. Croix River State Forest (later renamed Governor Knowles State Forest) was created in 1970, the Kohler-Peet Wildlife Area was incorporated into the state forest as the Kohler-Peet Barrens Management Area (KPBMA) (Giles et al. 1995). The KPBMA is considered to be a part of the CMWA sharptail habitat unit because the two areas are nearly contiguous.

A map constructed of a 1957 WCD state-wide survey of prairie grouse showed that the birds were considered abundant in western Burnett County

only in the CMWA and an area to the northeast that is now the DWA (Figure 2). Prairie grouse numbers in most of the balance of the sandy pine barrens in western Burnett and extreme northwest Polk County were considered intermediate. Since the last prairie-chickens in the area were seen in 1949, the 1957 prairie grouse estimates could only refer to Sharp-tailed Grouse.

In 1958, the five-man WCD crew reported seeing eight sharptail broods in the CMWA during the summer.

Bruce Thompson, a college student, conducted a spring sharptail survey of the CMWA in 1970 and found 25 sharptails on at least four dancing grounds.

Systematic spring sharptail surveys began in 1972 and were continued in 1973 by graduate student Brent Ramharter (Ramharter 1976). The senior author was responsible for the spring sharptail surveys from 1974 through 1979 and the junior authors from 1980 to 1999.

Sharp-tailed Grouse Populations at Crex Meadows

The lowest annual estimate of displaying male sharptails in the CMWA for the nearly three-decade period was 16 in 1974 and the highest was 137 in 1998 (Table 1). Despite the peaks and lows of the apparent ten-year or "game" cycle of Grange (1948), the sharptail population, expressed as the number of displaying males and leks, has steadily increased in the CMWA

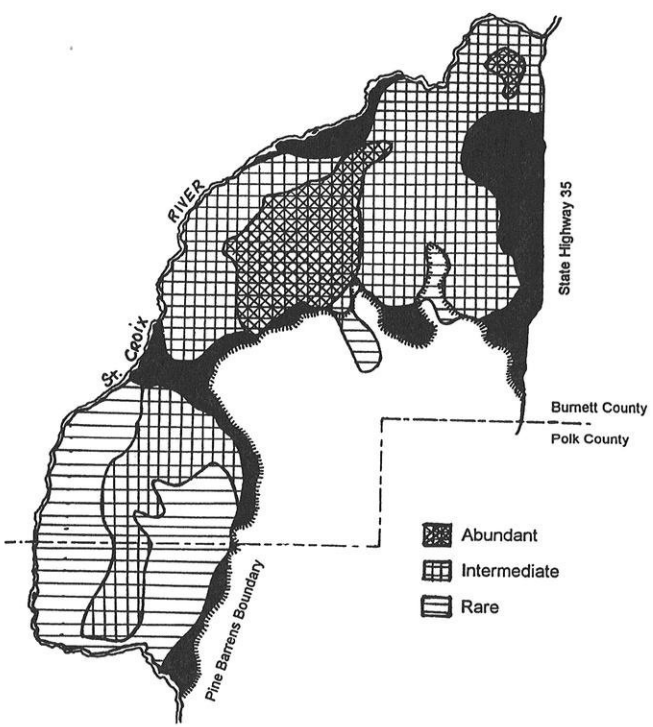

Figure 2. Density of Sharp-tailed Grouse in the pine barrens of western Burnett County, 1957.

Table 1. Maximum number of displaying male Sharp-tailed Grouse and leks, Glacial Lake Grantsburg Wildlife Management Complex, 1972–99.

Year	Males	Leks	Mean Males/Lek
1972	25	4	6.2
1973	19	5	3.8
1974	16	5	4.0
1975	20	4	5.0
1976	35	8	4.4
1977	36	8	4.5
1978	44	11	4.4
1979	59	10	5.9
1980	63	13	4.8
1981	68	13	5.2
1982	31	7	4.4
1983	43	9	4.8
1984	33	11	3.3
1985	42	8	5.2
1986	33	7	4.7
1987	42	9	4.7
1988	73	11	6.6
1989	84	11	7.6
1990	103	17	6.1
1991	129	25	5.2
1992	53	12	4.4
1993	53	13	4.1
1994	62	18	3.4
1995	77	16	4.8
1996	109	15	7.3
1997	114	19	6.0
1998	137	23	6.0
1999	115	19	6.0

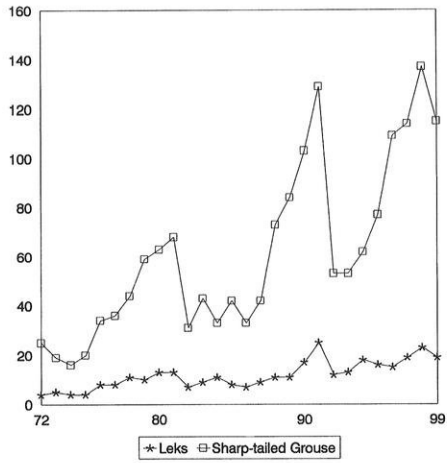

Figure 3. Maximum number of displaying male Sharp-tailed Grouse and leks, Glacial Lake Grantsburg Wildlife Management Complex, 1972–99.

(Figure 3). During the same period, The mean number of displaying males per lek (5.1) has remained fairly stable, ranging from 3.3 to 7.6.

Despite increasing sharptail numbers, the range occupied by dancing males has largely been confined to the CMWA-KPBWA during the 28-year period (Figure 4). Sharptails used a block of Burnett County Forest land adjoining the CMWA on the northeast until maturing planted red pines (*Pinus resinosa*) destroyed their habitat by the early 1970s. A 20,000-acre wild fire in May 1959 created open habitat in this area. Following a 1980 wild fire that burned 4,000 acres on the northwest side of the CMWA, sharptails moved into the newly-opened habitat. The habitat in this area has since deteriorated and sharptail numbers in this area have declined. The range that sharptails occupy expands and contracts with the rise and fall of their population during cyclic highs and lows and with habitat changes.

After an absence of 37 years, sharptails were again seen displaying in the FLWA in 1990. Sharptails were observed on six other occasions in the FLWA and in nearby farmland in that year. No displaying birds have been seen since that time, although sharptails were observed in nearby farmland in 1992 and one sharptail was seen in the FLWA in the spring of 1999. In 1977, displaying Sharp-tailed Grouse were heard in the DWA and three birds were observed in 1989. A viable population of sharptails exists in the Namekagon Barrens Wildlife Area, 15 miles northeast of the DWA. In 1989, five sharptails were seen in the ASWA.

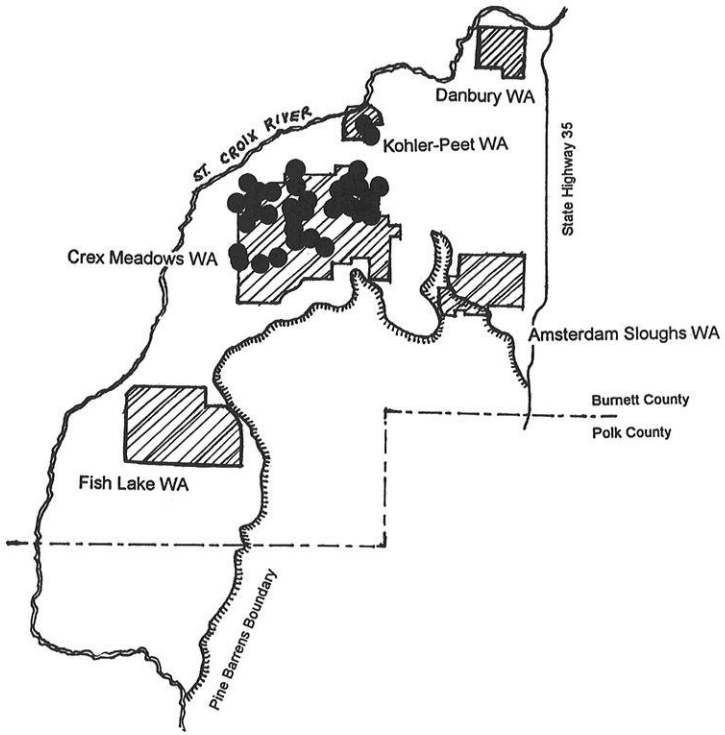

Figure 4. Location of Sharp-tailed Grouse leks, Glacial Lake Grantsburg Wildlife Management Complex, 1972–99.

The Future for Sharptails at Crex Meadows

What does the future hold for the Sharp-tailed Grouse in the Glacial Lake Grantsburg Management Complex?

Despite the dim prospects for sharptails in Wisconsin overall, their future appears to be secure in the CMWA. Extensive and intensive (and also expensive!) habitat management on the property and adjoining KPBWA has allowed the sharptail population to slowly increase. Some additional habitat can be developed, but current funding and manpower constrictions will not permit any significant habitat increases.

Sharp-tailed Grouse habitat restoration is ongoing in the FLWA, with approximately 2,500 acres restored to date. Sharptails have been seen in the property in recent years, but have yet to reestablish a breeding population. With continued habitat restoration and the nearness of the CMWA, Sharp-tailed Grouse should return to the FLWA as a permanent breeding species.

Other potential habitat exists in the ASWA, DWA and in the Burnett County Forest. Portions of the ASWA and DWA were originally pine barrens, but restoration of this habitat has been minimal

in the two properties due to WDNR funding constraints. Restored habitat in the ASWA and DWA could be expected to support Sharp-tailed Grouse, especially during cyclic highs, if suitable corridors of habitat can be maintained to link the managed properties.

Permanent quarter-mile-wide firebreaks, maintained in brush prairie habitat, have been constructed in the Burnett County Forest, including areas adjacent to the CMWA-KPBMA. These firebreaks have limited sharptail use, but do provide habitat in heavily forested areas, mainly red pine plantations, and can provide linkage to managed sharptail habitat.

Consolidation and coordination of clear cut timber harvests in the Burnett County Forest adjacent to the CMWA-KPBMA could temporarily increase habitat available to Sharp-tailed Grouse. Sharptails will move into large (greater than 500 acres) clearcuts after timber harvests and will continue to use these areas for at least 10 years, depending upon the rate of timber regeneration. The proposed ecosystem management plan for Wisconsin's northwest Pine Barrens (Niemuth 1993) suggests consolidation and coordination of timber harvests of shade-intolerant trees, particularly jack pine and red pine, as a method of mimicking the fires that originally created and maintained the pine barrens. This management will greatly aid the Sharp-tailed Grouse and other wildlife requiring extensive open lands for survival.

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Sharp-tailed Grouse, Pershing Wildlife Area, Taylor County, Wisconsin *by Tim Walsh*

Hermit Thrush *by Joan Wyeth Griggs*

The Winter Season: 1999–2000

by Kenneth I. Lange

It was yet another mild winter. In fact, it was the warmest winter, December through February, since the federal government began keeping records 105 years ago. Further, the last three winters have been the warmest on record in the United States. This warming trend seems to be real, and not part of a natural fluctuation; those cold, snowy winters of the not-too-distant past now seem almost archaic.

Strange things were happening in Wisconsin in December: on the 7th in Crawford County, Martin Murphy saw several American Robins foraging for worms; a few days later, in Portage County, Rob Whitmire noticed that some of his lilacs were leafing out; and on the 14th Karen Etter Hale was still picking broccoli and lettuce in Jefferson County. November's mild weather, with little or no snow cover, actually continued until mid–December. On the 15th, the first significant storm moved through the state, with the heaviest snow—up to a foot—in northern Wisconsin. Soon after, on the 20th, the period's first subzero weather blew into Wisconsin and persisted for five days. For the remainder of the month, temperatures were often above normal, much reducing the snow cover and making one question the safety of frozen ponds and lakes.

The new century was ushered into Wisconsin by several snowstorms moving through the state in the first week of January. By this time, southern Wisconsin had a snow cover of 1–4 inches, and northern Wisconsin approximately 9 inches. Gradually this increased, due to series of mainly light snowfalls, although southern Wisconsin remained relatively open. Temperatures for approximately the last 10 days of January ranged from below normal to above normal.

By the middle of February, the Wausau area had approximately average snow cover, while northern and southern Wisconsin were below average. Record high temperatures in the last week of February led to such newspaper headlines as "Warm weather cancels Birkebeiner ski race," "More events fall victim to warm weather," and "Nice weather is hurting those in the winter business."

Comments from contributors help put the season in perspective. Robbye

Johnson in Douglas County remarked that, once again, "winter never happened," and as a result found herself reacting indifferently to the arrival of spring. Alta Goff in Barron County reported that the beginning of December and all of February were warmer than usual; after a thunderstorm on 25 February, standing water was everywhere and the yard was bare of snow. In the Eau Claire area, as related by Janine Polk, the winter started and ended warmer than usual, but it was "fairly average" in between; Dan Belter reported much the same for Marathon County. For Oconto County, as reported by Jerry and Karen Smith, the heaviest snowfall was 5 inches in early February, and the maximum on the ground at any one time was 10 inches; usually it was just 1–2 inches. The snow cover throughout the state melted remarkably quickly with the surge of warm weather in late February. For example, Charlotte and Roy Lukes in Door County reported snowmobilers to be everywhere 19 and 20 February, but a week later most of the snow was gone. In the Madison area, as reported by Philip Ashman, the winter started and ended mild, with only one major cold snap and just two snowfalls of over 5 inches; lakes were open until 12–13 January, and small patches of open water were again present by the end of the period. Tom Klubertanz reported the Rock River on the south side of Janesville to be mostly frozen by 25 January, but again mostly open by 1 February. Karen Etter Hale in Jefferson County remarked that January had 13 days over 30 degrees and less than 10 inches of snow, while February had all but three days above 30 degrees with 10 inches of snow that didn't last because of the mild weather. In Milwaukee County, the heaviest snowfall was approximately 7 inches on 18 February—it melted in less than a week, and there was seldom, if ever, more than 6 inches on the ground, as reported by Mark Korducki. By the end of the period in Kenosha County, soggy yards were common, as noted by Ron Hoffmann.

So how did the birds fit into all this? In a sense, *all* records are weather related, but certain ones, for example the two species of loons and four of grebes, and the three scoters, stand out. Also noteworthy are Wisconsin's first winter record for Yellow Warbler and third for Yellow-throated Warbler. Sandhill Crane, Tufted Titmouse, and European Starling reports are also intriguing, and again ranging farther north than usual were Ring-billed Gull, Cedar Waxwing, and American Tree Sparrow. See the species accounts for details.

Daryl Tessen aptly described the spring migration as a "great finish to a very quiet season." The goose build up in the Arlington area of Columbia County was especially impressive: on 28 February, Tessen saw all five species of geese known from Wisconsin here, the first time that anyone has been so fortunate as to find all the Wisconsin geese on the same day. Earlier, on 22–23 February, Ron Hoffman in Kenosha County watched flocks of ducks moving north over Lake Michigan. On 26 February, Mark Peterson and Tessen saw two Broad-winged Hawks in Dane County, and on 29 February Willy Hutcheson found a Lesser Yellowlegs in Columbia County, both new early-arrival dates. The Northern Harrier and Sandhill Crane migrations were impressive, and so, too, was the Amer-

ican Woodcock migration. For details, see the species accounts.

Spring migration was reported for these species, possibly a record number: Red-throated Loon, Common Loon, Pied-billed Grebe, Turkey Vulture, Greater White-fronted Goose, Snow Goose, Ross's Goose, Canada Goose, Brant, Tundra Swan, Wood Duck, Gadwall, American Wigeon, Mallard, Blue-winged Teal, Northern Shoveler, Northern Pintail, Green-winged Teal, Canvasback, Redhead, Ring-necked Duck, Greater Scaup, Lesser Scaup, Common Goldeneye, Hooded Merganser, Common Merganser, Ruddy Duck, Bald Eagle, Northern Harrier, Sharp-shinned Hawk (?), Cooper's Hawk (?), Red-shouldered Hawk, Rough-legged Hawk, American Kestrel, American Coot, Sandhill Crane, Killdeer, American Woodcock, Ring-billed Gull, Herring Gull, Long-eared Owl, Short-eared Owl (?), Northern Saw-whet Owl, Northern Flicker (?), Eastern Bluebird, American Robin, Cedar Waxwing, Fox Sparrow, Song Sparrow, Red-winged Blackbird, Eastern Meadowlark, Western Meadowlark, Rusty Blackbird, Brewer's Blackbird (?), Common Grackle, and Brown-headed Cowbird. See the species accounts for details.

There were also these signs of spring: night-crawler castings by the end of the period in Kenosha County (Hoffmann), a chipmunk on 29 February in Barron County (Goff), Red-tailed Hawks copulating on 7 February in Milwaukee County (Korducki), a Mourning Dove carrying nest material on 22 February in Kenosha County (Hoffmann), and a Northern Saw-whet Owl calling on 27–28 February in Douglas County (Steve and Laura LaValley).

Late fall migration was reported for Snow Goose, Canada Goose, Tundra Swan, some of the diving ducks, Ring-billed Gull, and Herring Gull. As I'm so fond of saying, see the species accounts for details. And while you're at it, check the account for Barrow's Goldeneye to find out the likely source of those birds on Lake Michigan.

A total of 89 people contributed reports or photos covering 57 counties. The counties with the most complete coverage (five or more contributors per county) were Brown, Columbia, Dane, Forest, Kewaunee, Manitowoc, Milwaukee, Oconto, Ozaukee, Racine, Sheboygan, and Waupaca. A total of 10 counties was covered by just two contributors per county: Chippewa, Fond du Lac, Jackson, La Crosse, Langlade, Menominee, Rock, St. Croix, Waushara, and Wood. A total of 19 counties was covered by only one contributor per county: Adams, Barron, Burnett, Clark, Crawford, Florence, Grant, Jefferson, Lincoln, Monroe, Pepin, Pierce, Richland, Sawyer, Shawano, Taylor, Vilas, Walworth, and Washburn. These 15 counties were not covered: Polk, Buffalo, Trempealeau, and Vernon along the Mississippi River; Iron, Price, and Rusk in northern Wisconsin; Marinette in northeastern Wisconsin; Calumet in eastern Wisconsin; Juneau, Marquette, and Green Lake in central Wisconsin; and Iowa, Lafayette, and Green in southern Wisconsin.

The following statewide species are not included in the species accounts: Ruffed Grouse, Great Horned Owl, Barred Owl, Downy Woodpecker, Hairy Woodpecker, Pileated Woodpecker, American Crow, and Black-capped Chickadee.

These abbreviations are included with the species accounts: BOP—beginning of period, EOP—end of period, TTP—throughout the period, CBC—Christmas Bird Count(s), and m. obs.—many observers.

A final note, a farewell, really, to a very special person. I began going through the field reports for this seasonal summary soon after Sam Robbins died, and found myself thinking of him often. It just wasn't the same, after all these years, without at least one report from this kind and gentle man; I half expected that if I looked yet once more, surely I would find at least a note or two.

To Sam, may your spirit commingle with the call notes of all those birds that you loved and knew so well. We should all strive to follow the message that you wrote in my copy of *Wisconsin Birdlife:* "Keep them flitting, feeding, flying!"

Reports (1 December 1999–29 February 2000)

Red-throated Loon.—One in Manitowoc County, 11–16 December (Holschbachs, Sontag), Wisconsin's first winter record since 1 December 1997, when one was also found in Manitowoc County (Tessen); previous to the 1997 record, this species had not been reported in winter since 12 December 1987. Even more remarkable was one in Ozaukee County 27 February (Uttech), presumably an early migrant; the previous extreme early date was 24 March 1984 in Manitowoc County (Sontag).

Common Loon.—Verch noted this species in Bayfield/Ashland Counties through 8 December, a total of 8; also in several southern counties through 11–12 December (m. obs.). Uttech found one in Ozaukee County 27 February, presumably an early migrant.

Pied-billed Grebe.—One still in Bayfield/Ashland Counties 2 December (Verch); TTP, 1–2, in Dane, Ozaukee, Racine, and Kenosha Counties (m. obs.). Lone birds in Dane and Eau Claire Counties 24–27 February (m. obs.) were most likely spring migrants.

Horned Grebe.—Verch noted this species in Bayfield/Ashland Counties through 9 December, a total of 12; in Dane, Washington, and Ozaukee Counties through 31 December–1 January (m. obs.). Diehl reported a grounded bird in the city of Milwaukee 28 January; it was rehabilitated at the Wisconsin Humane Society and released.

Red-necked Grebe.—One on Lake Mendota, Dane County, on 12 December (Ashman, Stutz).

Eared Grebe.—One in Oconto County 5–16 December (Smiths).

Double-crested Cormorant.—Bayfield/Ashland Counties through 16 December, 5 (Verch); TTP, 1–3, Brown and Winnebago Counties. Also January records for Outagamie and Milwaukee Counties, and a February record on the 22nd for Kenosha County (m. obs.).

Great Blue Heron.—After the Christmas Bird Counts, one from 15–30 January in Crawford County (Kirschbaum), and one into February in Racine County (Bielefeldt and Peters). Hoffmann reported several TTP in Kenosha County.

Turkey Vulture.—One in Dane County on 27 February (Harriman and David Kuecherer).

Greater White-fronted Goose.—Spring migrants in record-high numbers. First noted by Stutz on 25 February in Columbia County, then on the 26th in Dane (m. obs.) and Dodge (Tessen) Counties. The total number of birds in Wisconsin on the 26th was approximately 300, including a flock of 185 in Columbia County (Peterson, Tessen); latest date was 27 February.

Snow Goose.—December records for 5 counties: St. Croix, Outagamie, Winnebago, Ozaukee, and Walworth. Apparently TTP in Dane County. Spring migrants in these counties: St. Croix at EOP, Portage on 26 February (1), Columbia on 25 February to EOP (maximum 17 on the 27th), and Dane on 26 February to EOP (maximum 41 on the 27th).

Ross's Goose.—The first winter records for this species in Wisconsin were in February 1996 and December 1998. This season 1–2 were found

with other species of geese in Dane and Columbia Counties on 26–28 February (m. obs.). Also 2 in a cornfield with 6 Tundra Swans in Outagamie County on 28 February (Peterson).

Canada Goose.—TTP in at least 26 counties, north to Barron, Bayfield/Ashland, Marathon, Oconto, and Door Counties (m. obs.). Hale in Jefferson County reported this species TTP, with 180+ migrating south on 7 January. Spring migrants found mainly on 26–29 February in these counties: Douglas, Washburn, Pierce, Clark, Marathon, Oconto, Dane (1,000 on 27 February), and (25 February) Washington (m. obs.).

Brant.—One in the Arlington area, Columbia County, on 27–28 February (documented by Heikkinen and Unson, who discovered it, and by Tessen). This is Wisconsin's seventh reliable spring record and 3rd winter report (Robbins, Samuel D., Jr., *Wisconsin Birdlife,* 1991:155–156).

Mute Swan.—Reports for these counties: Douglas, TTP, 4; Bayfield/Ashland, TTP, 1; St. Croix, TTP, 1; Marathon, TTP, 1; Shawano, TTP, 4; Door, TTP; Winnebago, 1 December; Dane, TTP, 6; Washington, 9 January; Ozaukee, 30 December; Milwaukee, TTP, 4; Kenosha, TTP, 1; and Walworth, TTP, 6 (m. obs.).

Trumpeter Swan.—One TTP in Douglas County (Johnson, Putz); TTP in St. Croix County, with 42 on 8 January (Persico) and 46 on 30 January (Tessen); and 2 on the Little Wolf River in Waupaca County, 4 February to EOP (Hewitt).

Tundra Swan.—Verch noted this species in Bayfield/Ashland Counties through 16 December, with a maximum of 500 on 2 December; 3–28 December records for 11 other counties. The latest significant fall migration was reported for Dane County on 8 January, a total of 44 birds, and on 12 January, 94 birds; the latest date for Dane County was 18 January (m. obs.). Spring migrants were noted in Columbia County on 26 February (Stutz); in Dodge County 27–28 February, 12–13 (Tessen); and in Winnebago County at EOP (Tessen).

Wood Duck.—TTP, 1 to "several," in Eau Claire, Ozaukee, Milwaukee, and Kenosha Counties. Also found 15–30 January in Crawford County, through 3 February in Brown County, and into February in Racine County (m. obs.). Migration observed in Door County on 27–28 February (the Lukeses).

Gadwall.—TTP or likely so in these counties: St. Croix, Pierce (maximum 9), Dunn (maximum 6), Crawford, Winnebago, Dane (maximum 380, 15 January), Ozaukee, Milwaukee (maximum 8), and Racine (11 January, a pair). Migrants in these counties: St. Croix, 20 February, 62; Columbia, 26 February, 2; and Kenosha, 29 February (m. obs.).

American Wigeon.—TTP in Ozaukee and Milwaukee Counties, also(?) Racine County (1 on 11 January). Migrants 26 February in Dane, Columbia (8 birds), and Marathon Counties (m. obs.).

American Black Duck.—Reports from 22 counties scattered throughout the state (m. obs.), except for the southwestern quarter and the northernmost two tiers of counties, other than Bayfield/Ashland Counties.

Mallard.—TTP in 25 counties scattered throughout the state, except for the southwestern quarter and the extreme northernmost counties, other than Bayfield/Ashland. Migrants or likely migrants 24 February to EOP in Douglas County, 27 February in Clark County, and 28 February in Jefferson County (m. obs.).

Blue-winged Teal.—Found 28 February in Jefferson County (Hale).

Northern Shoveler.—TTP in Dane County, maximum 300, 15 January (Stutz), and in Milwaukee County (m. obs.). Migrants in Columbia County on 26 February (Stutz, Tessen) and in Racine County on 28 February (Bielefeldt and Peters).

Northern Pintail.—TTP in Door County, 2 on 8 January in Milwaukee County, and 1 into February in Racine County. For Dane County, through 19 December, then 23 February to EOP, maximum 5. Migrants also in Walworth, Ozaukee, Dodge, and Columbia Counties, 25–29 February, and (a few) by 29 February in Douglas, Bayfield, and Ashland Counties (m. obs.).

Green-winged Teal.—Found in Brown County through 3 February. Migrants or possible migrants in these counties: Racine, 13 February, 1; Ozaukee, 27 February; Dane, 26 February, 8; Columbia, 26–27 February, 15; and Shawano, 17 February, 1 (m. obs.).

Canvasback.—TTP in these counties: Walworth(?); Milwaukee, maximum 6; Ozaukee; and (?) Sheboygan (12 February). Migrants or possi-

ble migrants in Dane County on 23 February and in Columbia County on 26 February (m. obs.).

Redhead.—TTP in Milwaukee, Ozaukee, Manitowoc (maximum 2), Door, and Dane Counties(?); a total of 8 on 1 February in Walworth County (m. obs.). A maximum of 300 on 28 February in Door County (the Lukeses) likely included migrants.

Ring-necked Duck.—TTP in Milwaukee and Ozaukee Counties, and Dane County(?), with one on 1 February in Walworth County. Migrants or likely migrants in these counties: Kenosha 29 February, Racine 28 February, Dane by 23 February, Columbia 25–27 February (13), and Marathon 27 February (m. obs.).

Greater Scaup.—TTP in Lake Michigan, from Kenosha County north to Door County. Korducki for 15 January estimated 10,000+ in Milwaukee County, Sontag for 29 February estimated a maximum of 3,300 in Manitowoc County, and the Lukeses estimated a maximum of 700 in Door County. Migrants seen in Winnebago County on 28 February and in St. Croix County from 1–27 February (m. obs.).

Lesser Scaup.—TTP in these counties; Milwaukee, Ozaukee, Manitowoc, Winnebago, and (maximum 10) Dane. Migrants 23 February in Dane County, and 26–27 February in Walworth, Manitowoc, Columbia, and Marathon Counties (m. obs.).

Harlequin Duck.—A female in Milwaukee County (m. obs.).

Surf Scoter.—Noted after December in Lake Michigan for the fifth consecutive winter. These records: Racine County, a female from 12–20 January; Milwaukee County, one from 31 December–19 February; and Ozaukee County, TTP (m. obs.). Also one on Lake Mendota, Dane County, through 12 December (Ashman, Stutz).

White-winged Scoter.—These reports for Lake Michigan: Milwaukee County on 1 January (m. obs.) and Ozaukee County on 15 February (Uttech). One other record: a female on 1 January in Winnebago County (m. obs.).

Black Scoter.—These reports for Lake Michigan: Milwaukee County, one on 9 February (Peterson, Tessen), and Ozaukee County, 15–16 January (Uttech, Wood). One other record: a female through 11 December in Marathon County (Belter, Ott).

Oldsquaw.—Apparently TTP in Lake Michigan, from Kenosha County north to Door County (m. obs.), although Gustafson asked: "Where are the Oldsquaws? I finally saw my *first* for the winter 2/5/00 in Milwaukee," and Sontag in Manitowoc County noted this species only through 11 January.

Bufflehead.—TTP on Lake Michigan, from Kenosha County north to Door County. Also TTP in Winnebago and Dane Counties (m. obs.).

Common Goldeneye.—TTP in these localities: western and northwestern Wisconsin, for example Chippewa, Dunn, and Eau Claire Counties, Pierce and St. Croix Counties, and Douglas, Bayfield, and Ashland Counties; the Wisconsin River, from Dane and Sauk Counties to Marathon County; Rock County; Washington County on 9 January; Winnebago County; and Lake Michigan, from Kenosha County north to Door County. Migrants on 24 February in Walworth County and by EOP in Marathon County (m. obs.).

Barrow's Goldeneye.—TTP on Lake Michigan, Ozaukee County, for the sixth consecutive winter (m. obs.); Frank on 18 December observed a male and a female. The likely source for these birds is the Laurentian Highlands in Quebec (see *The Wilson Bulletin,* March 2000, Vol. 112(1), pp. 1–7, The breeding range of the Barrow's Goldeneye in eastern North America).

Hooded Merganser.—TTP in these localities: St. Croix County; Dane County; Winnebago County; and Lake Michigan, from Kenosha County north to Door County. Migrants from 23–29 February in these counties: Walworth, Racine, Washington, Dane(?), Columbia, Shawano, Oconto, Marathon, and Dunn (m. obs.).

Common Merganser.—TTP in these localities: Douglas, Bayfield, and Ashland Counties; St. Croix and Pierce Counties; the Wisconsin River, from Dane and Sauk Counties to Marathon County; Winnebago County; Washington County on 9 January; and Lake Michigan, from Kenosha County north to Door County. Migrants in these counties: Walworth, 24 February, 45; Rock, 20 February, 12; Columbia, 26 February; Oconto, 30 January to EOP; Dunn, 26 February; and Barron, 28 February (m. obs.).

Red-breasted Merganser.—TTP on Lake Michigan, from Kenosha County north to Manitowoc County (3 January in Kewaunee County). Also TTP in Winnebago County, and found through 23 January in Dane County (m. obs.).

Ruddy Duck.—TTP on Lake Michigan, from Racine (Kenosha?) County north to Ozaukee County (8 January, 3 in Sheboygan County). Also found TTP in Winnebago County and Dane County and through 1 February in Walworth County. Migrants in Columbia County on 26 February, also Dane County EOP? (m. obs.).

Bald Eagle.—TTP in some 20 counties, including Douglas, Bayfield and Ashland, and Door; at least some individuals departing southern counties by EOP (m. obs.).

Northern Harrier.—TTP in these counties: Kenosha, Waukesha, Washington, Ozaukee, Manitowoc, Winnebago(?), Dane(?), Portage, and, apparently for the first time ever, Bayfield and Ashland. Migrants or probable migrants on 26 February in Winnebago County; 27 February in Dane, Columbia, and Fond du Lac Counties; and 29 February in Marathon, Clark, and St. Croix Counties. One in Douglas County on 6 February might have been a wintering bird or an early migrant (m. obs.).

Sharp-shinned Hawk.—After the CBC, reports for 21 counties, from St. Croix, Barron, Marathon, Oconto, and Door Counties in the north to Richland, Dane, Walworth, and Kenosha Counties in the south (m. obs.); these reports may include migrants.

Cooper's Hawk.—After the CBC, reports for 29 counties, north to St. Croix, Dunn, Chippewa, Clark, Marathon, Oconto, and Door Counties (m. obs.); some migrants may be included in these reports.

Northern Goshawk.—Exclusive of the CBC, reports for 4 counties: Bayfield and Ashland, TTP (Verch); Vilas, 8 February (Reardon); and Door, TTP (the Lukeses).

Red-shouldered Hawk.—TTP in St. Croix County(?), 15–30 January in Crawford County, one on 12 January in Portage County, one on 8 January in Dane County, and TTP in Washington County. Migrants or probable migrants on 22 February in Shawano County, 27 February in Waupaca and Columbia Counties, and 29 February in Washington County (m. obs.).

Broad-winged Hawk.—Peterson and Tessen observed 2 on 26 February in Dane County; the previous early-arrival date was 6 March 1976 in Walworth County (Tessen).

Red-tailed Hawk.—Northward to these counties, where TTP: Douglas, Clark, Marathon, Oconto (BOP and EOP), and Door (m. obs.).

Rough-legged Hawk.—Birds, as usual, moving north in February (m. obs.).

Golden Eagle.—Exclusive of the CBC, these reports: Bayfield/Ashland Counties, an adult on 28 February (Brady); Jackson County, an adult and an immature on 16 January (Stutz), 2 adults on 22 January (Wood), and an immature on 29 January (Tessen); Crawford County, 15–30 January (Kirschbaum); and Grant County, one found dead, probably electrocuted, 5 February (Kirschbaum).

American Kestrel.—Northward to these counties, where TTP: Barron, Marathon, Oconto (15 January and 24 February, the latter record likely a migrant), and Door (m. obs.).

Merlin.—Exclusive of the CBC, reports for these counties: Clark, 1–14 January (Decker); Portage, 27 February (Hall); Brown, 11 January (Hansen); and Ozaukee, 1 January (Frank).

Peregrine Falcon.—Reports for Milwaukee, Ozaukee, Manitowoc, and Brown Counties, and Douglas County (m. obs.).

Gray Partridge.—A total of 7 counties: Shawano, maximum 15 on 7 February (Peterson); Door, TTP (the Lukeses); Kewaunee, 20 on 22 January (Tessen); Brown, maximum 75 on 22 January (Hansen); Ozaukee, 9 on 23 January (Wood); Kenosha, maximum 6 (Hoffmann); and Dane, 27 February (Tessen).

Ring-necked Pheasant.—Northward to these counties: Douglas (15 January), Marathon (29 February, 1), Oconto (TTP), and Door (TTP).

Spruce Grouse.—No reports.

Sharp-tailed Grouse.—Found in Jackson County on 29 January (Tessen reports one bird, which was caught and eaten by a Bald Eagle), and in Douglas County (Johnson).

Greater Prairie-Chicken.—Reports for 3 counties: Clark (Decker); Marathon, 19 February, 41 (Belter); and Portage, 22 January, 225 (Tessen) and 30 January, 229 (Hall).

Wild Turkey.—Noted in 28 counties, north to St. Croix, Barron, Chippewa, Clark, Marathon, Waupaca, Oconto, and Door (m. obs.).

Northern Bobwhite.—Reports for 6 counties: Dunn; Chippewa; Richland, maximum 1 (Duerksen); Portage, TTP, maximum 15 on 27 February (Hall); Walworth; and Kenosha (m. obs.).

Virginia Rail.—One until 18 December at the western end of Lake Wingra in the UW-Madison Arboretum, Dane County; this species has been at this locality in six of the last seven winters (Ashman).

American Coot.—TTP in St. Croix County(?), Dane County (Hilsenhoff found 1,600 on 6 January), Walworth County(?), and the counties bordering Lake Michigan from Kenosha County north to at least Ozaukee County (January records of 1–2 birds for Washington, Portage, and Dunn Counties). February records for Sheboygan County (3 on the 15th), Manitowoc County (the 26th), Winnebago County (1 on the 12th), and St. Croix County (30 on the 27th) likely include migrants (m. obs.).

Sandhill Crane.—Robbins in *Wisconsin Birdlife* (1991:249) reports this species in winter to be "rarely present north to Marquette and Brown Counties." In 1998, this boundary may have been nudged slightly north, as cranes might have overwintered in Waushara County (*The Passenger Pigeon,* 1999, Vol. 61, No. 2, pages 221 and 228). This season the northern boundary may have been nudged northward yet another notch, as Hall found one on 27 January in Portage County. Spring migrants were found from 20–29 February in a remarkable total of 17 southern and central counties, north to Shawano County (m. obs.); Domagalski reported "flocks" on 23 February in Waukesha County. Some birds apparently returned even earlier; remarked Parsons in Walworth County, "Left area late December–arrived back mid-February."

Killdeer.—After the CBC, through 17 January in Milwaukee County. Migrants from 22–28 February in these counties: Walworth, Kenosha, Milwaukee, Ozaukee, Manitowoc, Winnebago, Dane, Columbia, Sauk, Richland, Portage, and Taylor; usually one bird, maximum 5 on 26 February in Dane County (m. obs.).

Lesser Yellowlegs.—One bird was seen at Goose Pond near Arlington, Columbia County, with Killdeer, on 29 February (Hutcheson). This is two and a half weeks earlier than the previous early arrival date of 17 March 1977, in La Crosse County (Jerome R. Rosso).

Purple Sandpiper.—One in Milwaukee County 6 December (Korducki), and one in Sheboygan County 17 December (the Brassers, Tribensee); same bird?

Common Snipe.—TTP in these counties: St. Croix, 1 (Persico); Sauk, 7 on 12 February (Lange); and Dane (Burcar).

American Woodcock.—Previous to this season, migrants had been detected in February in 1981, 1996, and 1998, the earliest date being the 19th. In this season, woodcocks were found in 3 counties: Marathon, 1 on 28 February (Belter); Portage, 1 on 29 February (Hall); and Walworth, 2 on 29 February (Parsons).

Bonaparte's Gull.—One in Bayfield/Ashland Counties on 9 December (Verch); one in Shawano County on 10 December (Peterson); a total of 25 in Milwaukee County on 2 December (Frank); and 2 in Kenosha County through 19 January (Hoffmann).

Ring-billed Gull.—For northernmost Wisconsin, these reports: on 1 December in Douglas, Bayfield, and Ashland Counties, and on 4 December in Vilas County. Latest dates 8–20 December in these counties: St. Croix, Dunn, Chippewa, Eau Claire, Portage, Oconto, and Door. TTP on Lake Michigan, from Kenosha County north to Manitowoc County. For Dane County, noted through 17 January, then again on 23 February. Migrants also in Columbia County on 25 February, Rock County on 27 February, Manitowoc County on 20 February, and Dunn County on 26 February (m. obs.).

Herring Gull.—TTP in these far northwestern counties: Douglas (1,000+, Johnson), Bayfield, and Ashland. Also TTP in St. Croix County (maximum 6), Washington County, and Lake Michigan from Kenosha County north to Door County (m. obs.). For Dane County, Ashman reported this species through 17 January, then again on 23 February. For Oconto County, the Smiths noted it through 19 December, then again on 29 February.

Thayer's Gull.—Exclusive of the CBC, reports for these counties: Winnebago, Outagamie, Kewaunee, Manitowoc, Ozaukee, and Milwaukee. The dates range from 11 December to 21 February (m. obs.).

Iceland Gull.—Exclusive of the CBC, reports for Milwaukee, Ozaukee, and Manitowoc Counties, the dates ranging from 3 January to 21 February (m. obs.).

Lesser Black-backed Gull.—Lone birds in Dane County from 12–20 December, and in Milwaukee County on 8 January (m. obs.).

Glaucous Gull.—Exclusive of the CBC, reports for these counties: Douglas, maximum 5 on 2 February (the LaValleys); Outagamie; Manitowoc, maximum 8 on 22 January (Tessen); Sheboygan, maximum 5 on 12 February (the Brassers); Ozaukee; Milwaukee; and one on 26 February in Columbia County. The dates range from BOP to EOP for Douglas and Manitowoc Counties, and from 14 December to 27 February for the other counties (m. obs.).

Great Black-backed Gull.—Exclusive of the CBC, reports from these counties: Milwaukee, Ozaukee, Sheboygan, Manitowoc, and Kewaunee; TTP in Sheboygan and Manitowoc Counties, otherwise 3 January to 21 February. No more than 2 birds seen at a time (m. obs.).

Rock Dove.—Northward to the following counties, where TTP: Douglas, Bayfield and Ashland (180 on 1 January, Verch), Marathon, Oconto, and Door (m. obs.).

Mourning Dove.—Northward to the following counties: Douglas (TTP), Bayfield and Ashland (TTP), Vilas (4 December), Forest (19 December), Oconto (TTP), and Door (TTP).

Eastern Screech-Owl.—After the CBC, reports for 10 counties: Kenosha, Milwaukee, Ozaukee, Washington, Winnebago, Waupaca, Shawano, Marathon, Richland, and Dane (m. obs.).

Snowy Owl.—Exclusive of the CBC, reports for 9 counties: Douglas, 23 January to 22 February; Portage, 20 December to 17 February; Shawano, 7 February, 1; Outagamie, 14–21 January, maximum 3; Brown, 6 February; Kewaunee, 4 December; Manitowoc, 28 December to 5 February, 1; Milwaukee, 9–16 December (one hunting along I-43 until colliding with a car and breaking a wing; rehabilitated at the Wisconsin Humane Society and released, Diehl); and Kenosha, several TTP (m. obs.).

Great Gray Owl.—One at Fort McCoy, Monroe County, on 2 January (Dennis Kuecherer).

Long-eared Owl.—After the CBC, these reports: Milwaukee County, 25 and 27 February, 4 (Bontly, Strelka); Vernon Marsh in Waukesha County, 12 February, 1 (Wood); Dane County, 8 February, 1 (Ashman); Winnebago County, 4 January, 1 (Tessen); and Manitowoc County, 29 February (the Holschbachs); these records may include migrants.

Short-eared Owl.—After the CBC, these reports: Bong State Recreation Area in Kenosha County, 8 January to 20 February, 2; Ozaukee County, 21 January to 6 February, maximum 2; Manitowoc County, 1 January to 19 February, maximum 3; Outagamie County, 1–14 January, 2 to 4 birds; Portage County, TTP; Pierce County, 2 January, 1; and Bayfield/Ashland Counties, 20 January, 1 (m. obs.).

Northern Saw-whet Owl.—Reports for 3 counties, all from late February, suggesting migration: Marathon County, 26 February, 2 (Belter); Oneida County, 25 February (Bechtel); and Douglas County, 27 February to EOP (the LaValleys).

Belted Kingfisher.—After the CBC, reports for 12 counties, a relatively high number in recent winters: Crawford, St. Croix, Oconto, Shawano, Wood, Portage, Waushara, Winnebago, Sheboygan, Ozaukee, Washington, and Dane (m. obs.).

Red-headed Woodpecker.—After the CBC, reports for 6 counties: Kenosha, Columbia, Sauk, Portage, Shawano, and Oconto (m. obs.).

Yellow-bellied Sapsucker.—Three reports: Waupaca County, one at a rural suet feeder, mid–January to 21 February (the Buetows); Brown County, 27 December to 4 January (Hansen); and Kenosha County, one at a feeder 8 January (Hoffmann).

Black-backed Woodpecker.—Found TTP in Bayfield/Ashland Counties (Brady), a male on 24 January in Sawyer County (Belter), and in Forest County on 12 January (Peterson) and 16 January (Tessen).

Northern Flicker.—After the CBC, reports for 11 counties: Kenosha, Waukesha, Ozaukee, Washington, Jefferson, Dane, Columbia (25 February), Sauk, Richland, Portage, and Douglas (21 February to EOP) (m. obs.).

Northern Shrike.—Generally uncommon. After the CBC, reports for 35 counties, from the

far northern counties south to Pierce, Pepin, Eau Claire, Clark, Wood, Adams, Columbia, Dane, Rock, and Milwaukee (m. obs.).

Gray Jay.—Excluding the CBC, reports for these counties: Douglas; Bayfield; Ashland; Sawyer; Vilas; Forest; Oneida (m. obs.); and Langlade, 16 January, 4 (Tessen).

Common Raven.—Southernmost records from Jackson, Waushara, and Outagamie Counties (m. obs.).

Horned Lark.—TTP in these counties: Barron, Pierce, Clark, Dane, Washington, and Kenosha. High counts from 15 January to 26 February, mainly in February, in 18 additional counties scattered throughout the state (m. obs.).

Boreal Chickadee.—Excluding the CBC, reports for Oneida, Forest, and Langlade Counties (m. obs.).

Tufted Titmouse.—Robbins in *Wisconsin Birdlife* (1991:413) asked "Are Wisconsin winters proving too hard for some of our titmice?" A partial answer may have been provided this winter, as titmice were noted in a relatively high number of 12 counties, including southeastern Wisconsin where generally they have been scarce. In Jefferson County, for example, this species was found from 25 January to 28 February, prompting this comment from Karen Etter Hale: "It is rare to have one in town, even rarer to have one stay more than a day or two." Reported from these counties: Dunn, Chippewa, Eau Claire, Richland, Sauk, Columbia, Dane, Jefferson, Ozaukee, Waukesha, Milwaukee, and Kenosha (m. obs.).

Red-breasted Nuthatch.—Throughout the state, except for the southwestern quarter, generally in average numbers (m. obs.).

White-breasted Nuthatch.—Northward to the following counties, where TTP: Douglas, Bayfield, Ashland, Vilas (4 December), Oconto, and Door (m. obs.).

Brown Creeper.—After the CBC, the only report from northern Wisconsin was from Douglas County, 15 February (Putz).

Carolina Wren.—Only one report: Once again a bird was found TTP in Waupaca County at the Hewitt residence, where it was supplied with cotton for roosting and grubs and mealworms for food (see *The Passenger Pigeon,* 1999, Vol. 61, No. 2, pages 222 and 231).

Winter Wren.—Found in Sauk County 4 January in Devil's Lake State Park (Harris), and in Dunn County 24 January (Aaron Holschbach).

Golden-crowned Kinglet.—After the CBC, reports for 4 counties: Ozaukee, 15 January (Strelka); Washington, TTP (Domagalski); Crawford, 15–30 January (Kirschbaum); and Douglas, 11 February (Putz).

Eastern Bluebird.—A pronounced migration was noted from 13–28 February, especially the last several days of the period. Reports from 12 counties: Milwaukee and Ozaukee; Rock, Dane, Columbia, Sauk, and Richland; Pierce and Dunn; and Waupaca, Shawano, and Oconto. TTP(?) in Kenosha County (m. obs.).

Townsend's Solitaire.—One on 1 January at the north end of the west bluff in Devil's Lake State Park, Sauk County (Harris).

Hermit Thrush.—After the CBC, these reports: Dane County, 4–19 February, 1 (Evanson, Stutz); and Waukesha County, 21 February, 1 (Moretti).

American Robin.—TTP in at least 20 counties, north to St. Croix, Dunn, Eau Claire, Clark, Marathon, Oconto, and Door Counties, but overall geographic range and numbers much reduced from last winter's records. The largest flocks reported were of approximately 30–40 birds in just a few counties. Migrants in some 10 southern and central counties 23–29 February (19 February in Walworth County); also 29 February in Vilas and Washburn Counties and 19 February to EOP in Douglas County (m. obs.).

Varied Thrush.—After December, reports from 5 counties: Dane, latest date 7 January (Pearsons); Waukesha, at least one TTP (m. obs.); Kewaunee, 3 January; Brown, BOP to 16 February (Garrison); and Oconto, a male from 1–26 January (Peterson, the Smiths).

Gray Catbird.—One in Kewaunee County on 21 January (Peterson).

European Starling.—Northward to these counties, where TTP: Douglas, Bayfield and Ashland, Vilas (18 December), Forest (19 December), Oconto, and Door (m. obs.). Hale in Jefferson County on 7 January counted over 300 on

one barn roof, and Lange in Sauk County noted a flock of 60 in Devil's Lake State Park on 29 December. Are starling numbers increasing in mid- to late winter?

American Pipit.—One in Ozaukee County on 18 December (Uttech), and one in Milwaukee County on 7 January (Idzikowski); rare in winter.

Bohemian Waxwing.—Excluding the CBC, reports for 14 counties in the northern half of the state; TTP in Marathon and Bayfield/Ashland Counties (m. obs.). The largest flock reported was of 200+ birds on 29 February in Bayfield/Ashland Counties (Verch); most flocks are less than 40 (m. obs.).

Cedar Waxwing.—After the CBC, northernmost reports from these counties: Douglas (10 February), Dunn (14 February, maximum 18), Marathon (TTP), Oconto (5 February), Brown (6 January), and Kewaunee (3 January, 140). High counts in several southern counties 21–25 February (m. obs.).

Yellow Warbler.—Wisconsin's first winter record: one in the Port Washington harbor, Ozaukee County, on 4 December (Fisher). This is approximately a month and a half later than the previous late-departure date of 20 October, which was set in Dane County 72 years ago in 1927!

Yellow-throated Warbler.—Wisconsin's first winter record was a bird at a feeder in Onalaska, La Crosse County, 8 December 1997 to 3 February 1998, and the state's second winter record was a bird at a feeder in Orion, Richland County, 22 December 1998. This winter, as in the winter of 1997–98, one again appeared at the feeder at the Leif L. Marking residence in Onalaska, La Crosse County, where it was noted from mid–November through 30 December (Markings fide Domagalski and Lesher).

American Tree Sparrow.—Again ranging farther north than usual: Douglas County, TTP (Johnson, Putz); Washburn County, 6 January to 16 February (Haseleu); Oneida County, 11 February (Stutz); and Oconto County, BOP and EOP, maximum 73 on 19 December (the Smiths).

Chipping Sparrow.—One at a feeder in Waushara County, 15 January (Tessen).

Field Sparrow.—Brown County, 29 January to EOP (Hansen, Tessen).

Fox Sparrow.—TTP(?) in Kenosha County (David, Hoffmann). Burcar's report for this species at EOP in Dane County likely represents migration.

Song Sparrow.—TTP in counties bordering Lake Michigan; for example Kenosha, Milwaukee, Ozaukee, and Manitowoc. Also TTP in Dane County. Migrants or likely migrants on 25–28 February in Kenosha(?), Racine, Waukesha, Dodge, Columbia, and Dane Counties (m. obs.).

Swamp Sparrow.—TTP in these counties: Kenosha, Washington(?), Kewaunee(?), Dane, and Sauk (m. obs.).

White-throated Sparrow.—TTP in these counties: Kenosha(?), Milwaukee (maximum 15 on 3 January), Ozaukee, and Dane (maximum 6 on 4 February). Also found in Marathon County on 16 January, and in Dunn County from 31 December to 2 January, 1 (m. obs.).

Harris's Sparrow.—An immature TTP in Oconto County (m. obs.).

White-crowned Sparrow.—One at a feeder on 19 January in Kenosha County (Hoffmann), and one on 9 January in Dane County (Ashman).

Dark-eyed Junco.—Northward to these counties: Douglas, 12–21 February (Putz); Bayfield and Ashland, 18 December (Verch); Marathon, TTP (m. obs.); Oconto, BOP and EOP (the Smiths); and Door, TTP (the Lukeses).

Lapland Longspur.—After the CBC, reports for 16 counties, east and north of a diagonal line from Kenosha County to Dane and Sauk Counties to Dunn and Washburn Counties; not reported from extreme northern Wisconsin. TTP in Ozaukee, Door, Dane, and Sauk(?) Counties. Most flocks less than 50; the largest group (130) was in Dane County on 23 January (m. obs.).

Snow Bunting.—After the CBC, reports for 25 counties, east and north of a diagonal line from Kenosha County to Dane and Sauk Counties to Pierce, Dunn, Barron, Washburn, Douglas, Bayfield and Ashland Counties. Not reported from extreme northern Wisconsin, other than the northwestern corner. TTP in Bayfield, Ashland, Barron, Dunn, and Door Counties. Most

flocks less than 100; the largest groups (over 100) in Kewaunee County, where 550 were seen on 29 January (Domagalski), and in Brown County, where 800 were seen on 11 January (Hansen).

Northern Cardinal.—Northward to these counties: Douglas (31 December to 21 February), Bayfield and Ashland (TTP), Marathon (TTP), Oconto (BOP and EOP), and Door (TTP).

Red-winged Blackbird.—TTP in these counties: Kenosha, Dodge and Winnebago(?), Manitowoc, Door, and Barron. Spring migrants in southern Wisconsin mainly 12–25 February (including 500+ on 23 February in Washington County), and mainly 26–29 February in more northerly counties, for example Marathon, Clark, Dunn, Pierce, St. Croix, and Douglas (m. obs.).

Eastern Meadowlark.—Migrants 24–29 February in Kenosha, Milwaukee, Ozaukee, Washington, Dane, and Winnebago Counties (m. obs.).

Western Meadowlark.—One in Portage County on 27 February (Hall).

Rusty Blackbird.—Noted in Brown County on 27 January (Hansen), and in Dane County on 9 February to EOP (Burcar); were these migrants? Likely migrants on 25 February in Washington County, on 26 February in Dodge County, and on 27 February in Portage County (m. obs.).

Brewer's Blackbird.—On 5 February, 2 in Dodge County (Tessen).

Common Grackle.—TTP in Kenosha County; also January records (lone birds) in Dane, Winnebago, and Dunn Counties. Migrants found 22–25 February in southeastern Wisconsin, north to Columbia and Winnebago Counties; on 26 February in several additional counties, including Waupaca, Clark, and Dunn; on 28 February in Marathon and Manitowoc Counties; and on 29 February in Brown County (m. obs.).

Brown-headed Cowbird.—TTP in Winnebago County, maximum 14 on 29 January; also one on 22–23 January in Walworth County. Totals of 80 in Dodge County on 5 February and 50 in Dane County on 6 February suggest migration, as does a clustering of dates from 23–29 February for 4 southern counties and Portage County. Also on 8 February in Manitowoc County and on 11 February in Brown County (m. obs.).

Pine Grosbeak.—Reports for 7 counties: Douglas, TTP, 20 February, maximum 54; Bayfield and Ashland, 6 on 24 January and 16 on 12 February; Sawyer, 24 January, 1; Vilas, "common"; Forest, 12 January, 50, with some still present 26 February; and Door, 7 January to 10 February (m. obs.).

Purple Finch.—Reports from 17 counties, from Barron, St. Croix, Dunn, Wood, Portage, Shawano, Oconto, and Door Counties south to Richland, Sauk, Dane, Waukesha, and Kenosha. Generally uncommon, maximum number 14 (m. obs.).

House Finch.—Northward to these counties, where TTP: Douglas, Bayfield and Ashland, Marathon (through 21 January), Oconto, and Door (m. obs.).

Red Crossbill.—Excluding the CBC, reports for 2 counties: Portage, 13 December (1); and Forest, 12 and 16 January (maximum 6) (m. obs.).

White-winged Crossbill.—Excluding the CBC, reports for these counties: Douglas, 19 February, 30 (Johnson, Putz); Menominee, 16 January, 2 (Tessen); Door, 10 December to 22 February (the Lukeses); and Fond du Lac, 2 males and 2 females by a feeder from "before Christmas" to at least 27 February (Wood).

Common Redpoll.—Common in the northern half of Wisconsin, but scarce or absent in the southern half. Reports for 24 counties, from Douglas, Vilas, Oconto, and Door Counties south to Pierce, Dunn, Eau Claire, Clark, Portage, Waushara, Winnebago, Dodge, Milwaukee, Ozaukee, and Kenosha Counties. Also from Dane County 5 January to 5 February. Generally noted on only one or a few dates in southeastern counties, typically TTP in central and northern counties. High counts (over 100) in January and February in Barron, Oconto, Marathon, and Portage Counties; also numerous in Manitowoc County, for example 75 on 14 January (m. obs.).

Hoary Redpoll.—Documented for 6 counties, from 1 to 3 birds, all at feeders: Douglas, 6–31 January (Johnson, Putz); Barron (Goff); Langlade, 16 January (Tessen); Oconto, 4 December to EOP (the Smiths); Waupaca, 23 December, 1 (Tessen); and Door, 26 January (the Lukeses).

Pine Siskin.—After the CBC, reports for 23 counties, ranging south and east from Barron County to Pierce, Eau Claire, Wood, Portage, Waushara, Winnebago, Washington, Waukesha,

and Walworth Counties; also Dane and Sauk Counties. Generally low numbers: maximum flocks of 20–25 in Waupaca and Dane Counties, otherwise usually less than a dozen (m. obs.).

American Goldfinch.—Northward to these counties, where TTP: Douglas, Marathon, Oconto, and Door. Numbers generally average or below average (m. obs.).

Evening Grosbeak.—After the CBC, reports for 13 counties: Douglas, Burnett, Bayfield and Ashland, Vilas, Forest, Langlade, Oconto, Menominee, Shawano, Marathon, Portage, and Door. Maximum numbers of 25–50 in Burnett County (7 January), Oconto County (16 January), and Menominee County (16 January).

House Sparrow.—Northward to these counties, where TTP: Douglas, Bayfield and Ashland, Marathon, Oconto, and Door (m. obs.).

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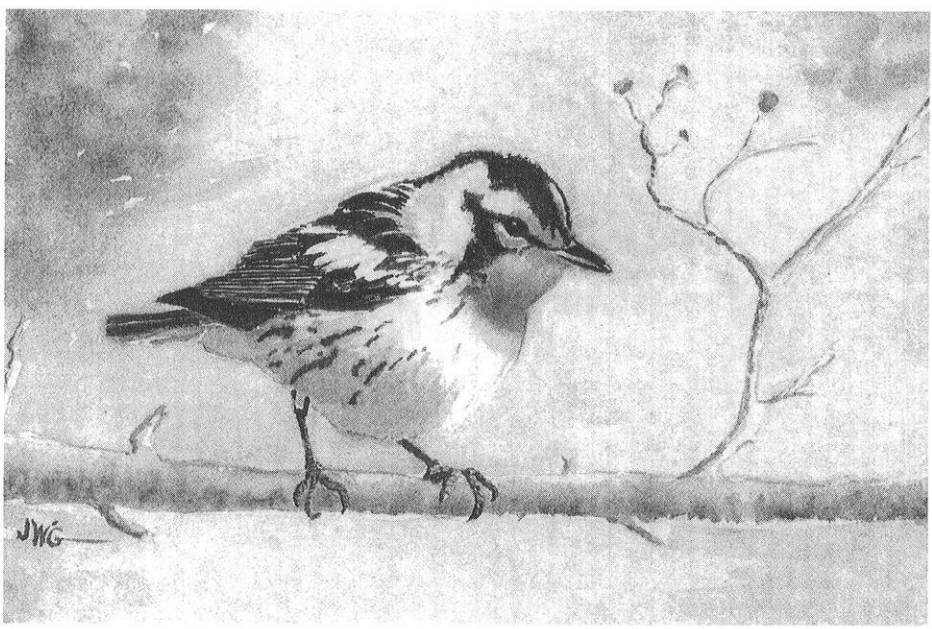
Erratum:

In "The Winter Season: 1998–99" (*The Passenger Pigeon*, Vol. 61, No. 2), the second sentence of the second paragraph on p. 219 should read "On the third of December [not November], painted turtles were active at Goose Pond."



Blackburnian Warbler *by Joan Wyeth Griggs*

"By the Wayside"

Rare species documentations for winter 1999–2000 include Ross's Goose, Brant, Barrow's Goldeneye, Lesser Yellowlegs, Purple Sandpiper, Thayer's Gull, and Yellow Warbler.

Ross's Goose (*Chen rossii*)

26 February 2000, Mielke Road, Columbia County—I observed a number of white birds among a huge flock of Canada Geese, Greater White-fronted Geese, Snow Geese (both color phases), and a few duck species in a cornfield just east of Schoeneberg Marsh. Five of the geese were smaller than the other goose species present, and somewhat larger than the Mallards. I had opportunity to compare their size as the smaller geese slowly worked across the field, sometimes assembling in front of the Snow Geese.

The smaller birds were white with black wing tips, and had a more rounded head than did the Snow Geese. Their bills were markedly different, lacking the "grin" patch of their larger neighbors, and were stubbier, more triangular, and had a greenish-gray discoloration at the base. Four of the birds had pink bills, and one had a dark bill (probably an immature bird). Their dark eyes, smaller bills, and overall size gave these geese a more gentle impression than the fiercer countenance of the Snow Geese. Although the Snow Geese were scattered across the field, the group of Ross's Geese stayed close to each other during my 35-minute observation.—*Thomas C. Wood, Menomonee Falls, WI.*

28 February 2000, Shiocton, Outagamie County—Just east of Shiocton along Highway 54, I found a small flock of white birds feeding in a cornfield on the south side of the road. Six of the birds were Tundra Swans, but the other two were small white birds about the size of Mallards. Their wing tips were black and their heads were rounded. Their bills were short and pinkish in color. No "grin" patch was seen on the bills. The Ross's Geese fed quietly while I was there, occasionally raising their heads.—*Mark S. Peterson, Caroline, WI.*

Brant (*Branta bernicla*)

27 February 2000, Harvey Road just north of Highway 60, Columbia County—We were scoping the pond on Harvey Road for Greater White-fronted and Ross's Geese when we discovered this bird in the midst of a mixture of Canada Geese, Snow Geese, and Mallards. At first, it struck me as an unusual duck, but on looking more carefully I saw the all-black head, black neck and chest, and a narrow broken band of

white marks on the neck (quite different from a Canada Goose). I immediately thought it was a Brant. The head was angular, somewhat unusual in shape compared to a duck's, with a flattish crown. There was a small (nickel-sized?), blurry gray patch behind the base of the bill. We only saw the bird while it was floating in the pond; the primaries were black and the secondaries were dark gray. The flanks and mid-chest appeared dirty white, while the tail and undertail were pure white.

It was hard to confuse this bird with any other because it was so clearly unique, but the Canada Goose comes closest. The Brant lacked the broad, solid white "chinstrap" of the Canada, having instead a narrower broken series of white marks lower on its neck and extending toward the nape. The black on the breast also extended down to the water, unlike on the Canada Goose.—*Chuck Heikkinen and Delia Unson, Madison, WI.*

28 February 2000, Harvey Road, Columbia County—I had received calls the previous night about a Brant being sighted at the Harvey Road/Highway 60 pond. As I had some work on *Wisconsin Bird Haunts* to do at Lake Wisconsin, I stopped by in the morning but saw nothing out of the ordinary. After finishing my work, I decided to bird my way back through the Arlington ponds on the way home, making the Harvey Road pond my last stop. As I completed counting the 175 Greater White-fronted Geese at the pond, I was surprised to see the Brant suddenly walk out from behind some Canada Geese. For the next 50 minutes, the Brant put on a great show, walking around in the field and feeding and preening.

The Brant was a small goose, mainly black and white. Its head, neck, and upper breast were black, while the back and wings were a gray/brown black. The small white mark on the neck was very obvious. The lower belly was white with gray striping, while the rump and undertail were pure white.

An interesting side note is that this sighting gave me a "grand slam" for geese for the day—Greater White-fronted, Snow, Ross's, Canada, and Brant!—*Daryl D. Tessen, Appleton, WI.*

Barrow's Goldeneye (*Bucephala islandica*)

18 December 1999, Virmond Park, Ozaukee County—While straining to observe a flock of 700+ Common Goldeneyes sitting tightly against the south shore of the park, I was fortunate to have someone spook the entire group out in front of me. It then became easier to spot a male Barrow's Goldeneye among them. While watching the drake, I noticed him drifting away from the flock with a female goldeneye close beside him. The possibility of her being a female Barrow's intrigued me, so I looked more closely at her.

The female's body and back were mottled gray like those of the female Common Goldeneyes, and the usual white wing patch was evident, but her beak was entirely gray and not yellow-tipped like the Commons. Her forehead rose more quickly than the Commons, similar to the drake Barrow's, but not quite as dramatically. As the pair drifted back to the main flock, a more direct comparison was possible. The female's bill was not only different in color, it was actually shorter than on the female Commons. In addition to the difference in head shape noted,

her head was a darker brown or gray-tinted. When she started diving, I found I could repeatedly locate her again because of these differences in the shape and color of the head and beak. Once back in the flock, the two Barrow's didn't hang together as tightly as they previously had.—*Jim Frank, Mequon, WI.*

LESSER YELLOWLEGS (*Tringa flavipes*)

29 February 2000, Goose Pond Sanctuary, Columbia County—While returning from a day of birding around the ponds and puddles of Columbia County, I stopped for a final look at the birds on the western side of Goose Pond. As I scanned the entire pond from the pullout on Goose Pond Road, I noticed a Lesser Yellowlegs actively feeding among a collection of Canada Geese, Mallards, and Green-winged Teal on the northern edge of the pond.

The overall size and shape of the bird were of a long-legged, medium-sized, gray shorebird with a straight, medium-length bill. The legs were yellow; the breast and belly were a clean, pale grayish; and the back, neck, and head were darker brownish-gray with some faint markings (white barring or dots) giving a little bit of texture. The neck was fairly long. There was a noticeable whitish line above the bird's eye, as well as the suggestion of a white eye ring. The bill was slim (almost needlelike), straight, and long, with very little or no curvature in either direction, and was colored fairly evenly a dark gray color. Unfortunately, I did not note the color of the bird's rump or tail.

The bird was feeding quite actively. It waded in a jumpy manner in the fairly shallow water, picking out items with its bill at irregular intervals, and changing its direction of movement often. In the time I observed it, it made no vocalizations.—*William Hutcheson, Madison, WI.*

PURPLE SANDPIPER (*Calidris maritima*)

6 December 1999, just north of Bradford Beach, Milwaukee County—I learned about this bird from John Idzikowski, who had found it on the previous day. I first observed the bird in flight. It was a chunky gray shorebird with a white wing stripe. Its overall coloration was a steely gray, with white edges on the back feathers. The breast was also dark gray, and there were flecks of gray along the dull white flanks. The legs and proximal third of the bill were bright orange, but the bill became black over its distal two-thirds and drooped slightly near the tip. A white eye ring was also observed. The bird's size was comparable to a Dunlin, but its overall build was more squat. It was quite approachable as it fed among the algae mats. This individual had more vivid coloration than the Purple Sandpiper seen a few weeks earlier at Harrington Beach State Park.—*Mark Korducki, Milwaukee, WI.*

THAYER'S GULL (*Larus thayeri*)

9 January 2000, Kewaunee Harbor, Kewaunee County—This was an adult bird standing on the ice. It was slightly smaller than nearby Herring Gulls and had a more rounded head. The bill was somewhat straighter and more petite. The dark brown streaking on the head was extensive and thick, and no Herring Gull present had this amount of

streaking. Looking at the bird about 50 yards away through my spotting scope, I could see that the iris of the eye was entirely brown. The white spots on the folded wing were larger than those on the Herring Gulls. When the bird preened, the underside of the primaries was noted to be a pale gray, not black like the Herring Gulls. Since the upper tips of the wings were black, Iceland Gull was eliminated as a possibility.—*Thomas C. Wood, Menomonee Falls, WI.*

YELLOW WARBLER
(*Dendroica petechia*)

4 December 1999, Port Washington Harbor, Ozaukee County—While visiting the harbor to look for gulls, we saw a small warbler-sized bird with a greenish-yellow back, a dull yellow breast with some grayish and reddish streaks (suggesting a first-winter male), a small dark beak, greenish wings with yellow edges, and a yellow-brown tail with yellow tail spots beneath. The bird looked a little "beady eyed." The bird was actively foraging and catching insects, first in the woods along the shore and then in the trees and grass on the south side of the restaurant. It did not vocalize, but was chased occasionally by House Sparrows.—*Bob Fisher, Downer's Grove, IL.*

50 Years Ago in *The Passenger Pigeon*

Conservation activities by the WSO often go unnoticed, but have been a key component of the Society's work since its very early days. Joe Hickey, who chaired WSO's Bird Conservation Committee in 1950, reported on WSO's view of conservation problems. Issues discussed included:

- Predator control in Alaska
- Introduction of exotic species (The introduction of Capercaillie and Black Grouse was being considered by Wisconsin's Conservation Department.)
- Status of rare Wisconsin birds (The Committee recommended that three steps be taken: organization of a statewide inventory of rare Wisconsin birds, appraisal of environmental hazards threatening our rare breeders, and organization of special wildlife management committees for species such as the Sandhill Crane, Peregrine Falcon, and Common Tern. The committee noted as a "disgrace" the fact that, although 25–50 cranes were present in the state, no sanctuaries or refuges had been established for them as had been done in Michigan.)
- Other Wisconsin birds needing study and protection (Double-crested Cormorant was mentioned.)
- Reallocation of federal responsibilities in conservation (Other members of the Committee were W. S. Feeney, Wallace Grange, Frank King, Clarence Jung, and Earl Loyster.)

(Excerpts from Vol. 12, No. 2, 1950)

WSO Records Committee Report—Winter 1999–2000

The WSO Records Committee reviewed 18 reports of eight species for the relatively quiet 1999–2000 winter season. Seventeen of the reports were accepted.

Accepted

Ross's Goose—

#2000–001 Columbia Co., 26 February 2000, Hutcheson (1 bird), Wood (5 birds); 27 February 2000, Tessen (2 birds).

#2000–008 Dane Co., 27, 28 February 2000, Tessen (1 bird).

#2000–002 Outagamie Co., 28 February 2000, M. Peterson (2 birds).

These individuals were seen in comparison to Canada, White-fronted, and Snow Geese. The obviously smaller size of these white geese with black wing tips was apparent, as was the smaller, more rounded head, and the smaller, triangular bill. This pink bill lacked the dark "grin patch" of the Snow Geese.

Brant—

#2000–003 Columbia Co., 27 February 2000, Heikkinen, Unson; 28 February 2000, Tessen.

This goose was smaller than accompanying Canada Geese. Its black head and neck extended down onto the upper breast. The face lacked the Canada's white chin patch, but the upper neck had a small patch of white lines. The dark brown back and wings contrasted with the gray-white flanks and lower breast. The rump and undertail were white.

Barrow's Goldeneye—

#99–051 Ozaukee Co., 18 December 1999, Frank; 8 January 2000, Stutz, Domagalski; 16 January 2000, Wood; 17 January 2000, Gustafson.

#99–082 Ozaukee Co., 18 December 1999, Frank (1 female).

The male exhibited the broader black coloration to the back, extending down in a point over the shoulder. This black encompassed white spots on the back instead of white encompassing black spots as on nearby Common Goldeneyes. The head had a faster rise up to the forehead, with the overall color bluish-black instead of greenish-black. The white spot on the face was elongated instead of round. The dark

bill was slightly shorter than those of the Common Goldeneyes. This is the sixth consecutive winter that this species—and probably this bird—has wintered in Lake Michigan off Virmond Park.

The female was noted because the male Barrow's Goldeneye at one point was seen swimming very tightly next to her, the pair drifting away from the flock of Common Goldeneyes. She was similar to the Common Goldeneyes in that her body was gray with a white wing patch evident. Slight differences were noted in the entirely dark gray bill, lacking the yellow tip of the Common Goldeneye and appearing just a bit stubbier in size and shape. The forehead rose faster than the Common Goldeneye females, although this was not quite as pronounced as on the male Barrow's. The overall brown color to the head was also consistently different from the female Common Goldeneyes. The female Barrow's head was a dull brown color no matter how it was turned, whereas the dark brown heads of the female Commons had an orangish cast that was never seen on this bird. When the pair drifted back into the flock, they separated and she began diving. Even mixed in with the other birds, the aforementioned characteristics made it possible to find her each time she surfaced.

Purple Sandpiper—

#99–083 Milwaukee Co., 6 December 1999, Korducki.

This dunlin-sized shorebird was overall chunky and gray. In flight, a white wing stripe was noted. The upper breast was steel gray, breaking into flecks of gray on the flanks and lower breast. The legs and proximal one-third of the bill were bright orange. The distal portion of the bill became black, drooping slightly at the tip. A faint, white eye ring was also noted.

Iceland Gull—

#2000–007 Milwaukee Co., 22 February 2000, Gustafson.

This bird was slightly smaller than a Herring Gull, slightly larger than a Ring-billed Gull, and with a lighter gray mantle. More strikingly, the primary tips lacked any black. The bird had the grayish tips of a probable *kumlien's* race individual. The yellow bill was slightly thinner than that of a Herring Gull, and the legs were pink. The folded wing tips extended noticeably beyond the tail.

Great Gray Owl—

#2000–005 Monroe Co., 2 January 2000, Kuecherer.

This large owl lacked ear tufts, had yellow eyes, and a yellow bill. The facial disks appeared to be concentric rings. The body was mottled and barred throughout.

American Pipit—

#2000–006 Milwaukee Co., 7 January 2000, Idzikowski (photo only).

This buffy-breasted, sparrow-sized bird had a dull brown back and crown. The upper breast had heavy brown streaking that thinned out on the middle and lower breast. The bill was thinner and slightly longer than the bill of a sparrow or longspur. A buffy eye line and faint buffy wing bars were also apparent in the photos.

Yellow Warbler—

#99–084 Ozaukee Co., 4 December 1999, Fisher.

This warbler had a green-yellow back, greenish wings with yellow feather edgings, and a dull yellow breast that exhibited some gray streaks and a few reddish streaks. The tail spots were reported to be yellow. This is a late record for Wisconsin.

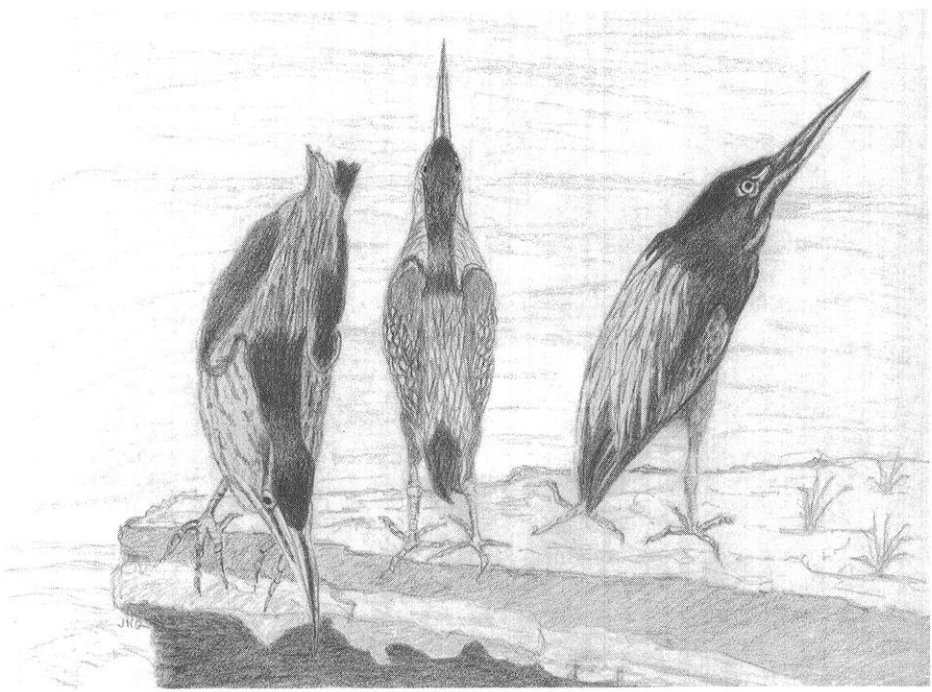
Not Accepted

Iceland Gull—

#2000–004 Dane Co., 27 February 2000.

This light gray-mantled, white wing-tipped gull was observed flying away from the observer at distances of one hundred to several hundred yards. The identification of this bird was hampered by the indirect comparison of size with Herring and Ring-billed Gulls in the area. For the most part the bird seemed larger than a Ring-billed Gull, but not larger than a Herring Gull. The bill was not as a small as the observer expected for an Iceland Gull, but not as large as anticipated for a Glaucous Gull. Given the "in-flight" view of this bird away from the observer and the fact that relative size is deceptive in these circumstances, there is some uncertainty as to what species was actually seen.

Jim Frank
WSO Records Committee Chair



Green Herons *by Joan Wyeth Griggs*

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Displaying Sharp-tailed Grouse at Crex Meadows Wildlife Area, Burnett County, Wisconsin
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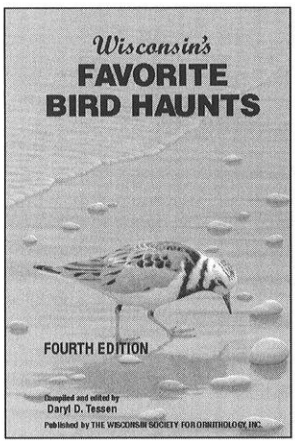

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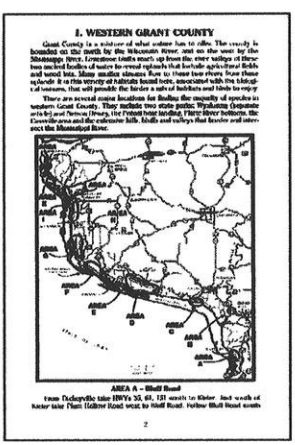

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