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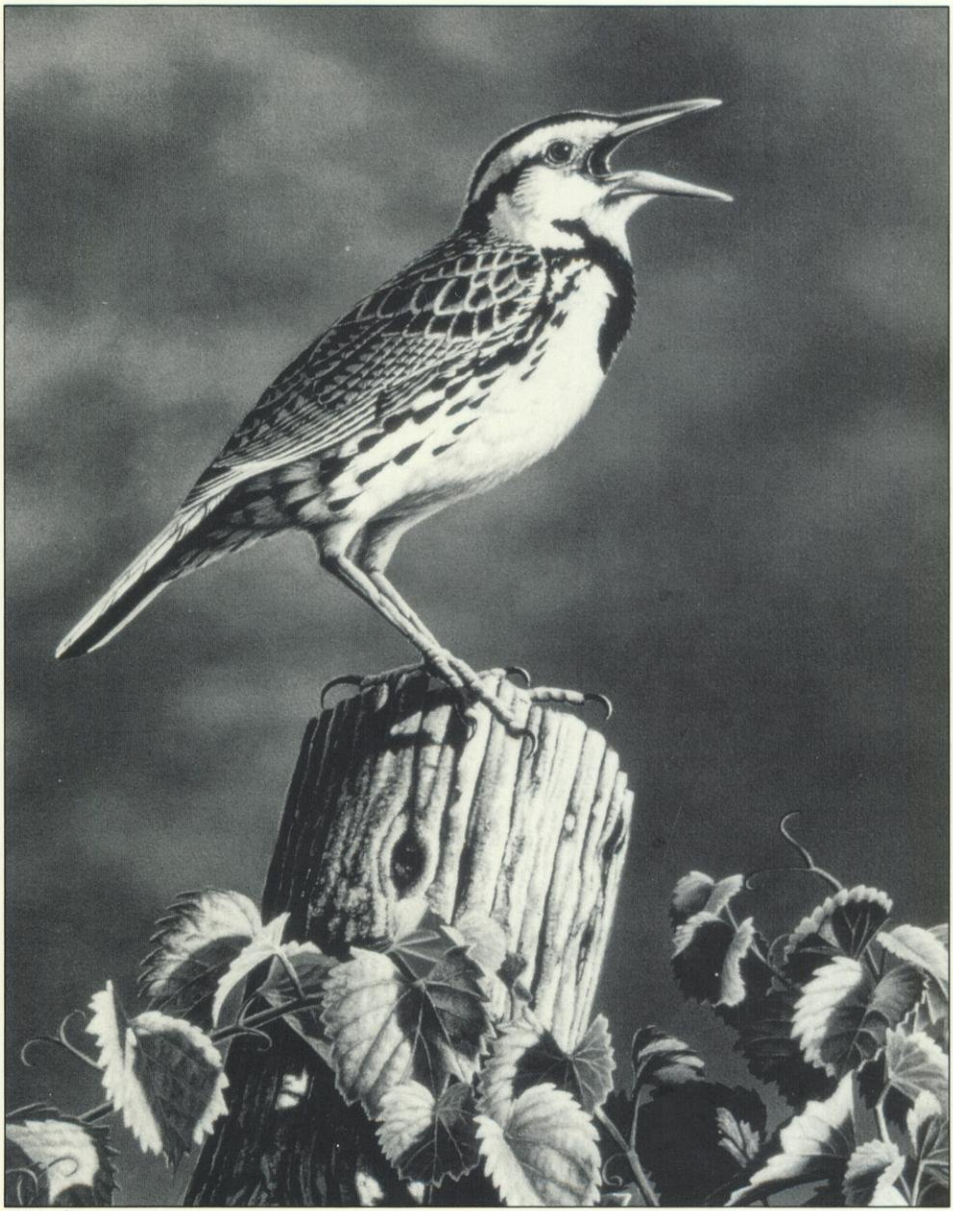

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Send all manuscripts and correspondence to the Editor; information for "Seasonal Field-Notes" should be sent to the Associate Editor or the appropriate Field-Note Compiler. Manuscripts that deal with information on birds in the State of Wisconsin, with ornithological topics of interest to WSO members, or with activities of the WSO will be considered for publication. All manuscripts submitted for possible publication should be typewritten, double-spaced, and on only one side of page-numbered typing paper. Illustrations should be submitted as photographs or good-quality drawings. Keep in mind that illustrations must remain legible when reduced to fit on a journal page. All English and scientific names of birds mentioned in manuscripts should follow *The A.O.U. Checklist of North American Birds (6th Edition)*. Use issues after Vol. 50, No. 1, 1988, as a general guide to style.

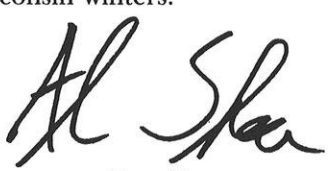
Christmas Bird Counts

The winter season means many things to many people—a time for quiet reflection before the fire, holiday cheer, skiing, skating or ice fishing. For birders, however, the winter season means its time for Christmas Bird Counts. My guess is that most WSO members not only know about this seasonal phenomenon, but participate on one or more counts. However, for those members who haven't experienced a Christmas Bird Count (CBC) this brief plug is for you.

The first CBC was held in 1900 in New York City. Not coincidentally, the count was held on Christmas Day and was designed to give the City's small band of ornithologists something to do during a slow time of the year for birding. Since those humble beginnings, the number of counts has grown to approach 2,000, thousands of people participate, and counts are held in all 50 states, every Canadian Province and Territory and in many Central America countries. Some of the counts have been held consecutively for decades and provide some of the longest-running data on wildlife population trends in the world. In Wisconsin, a few of the counts have 30- to 40-year histories.

The boundaries of a CBC are delineated by a circle with a diameter of 15 miles. The center of the circle is normally a readily identifiable point—the center of a town or a major intersection. Once officially established, the Count circle stays the same. The rigidity in a CBC's boundaries help ensure comparability of data collected over time.

Well enough on the details. Talk to any long time CBCer and you will discover that the reason they do them year after year is because they are just plain fun. Many individuals after doing their first CBC are smitten for life and not only do one CBC each year, but 2 or more. I encourage every member of WSO to become involved in at least one CBC in 1993, either as an active field observer or as a feeder watcher. You will be participating in a time-honored event which yields dividends to both you and the scientific community, and like those early ornithologists in New York City, a CBC will give you something to look forward to during those long Wisconsin winters.



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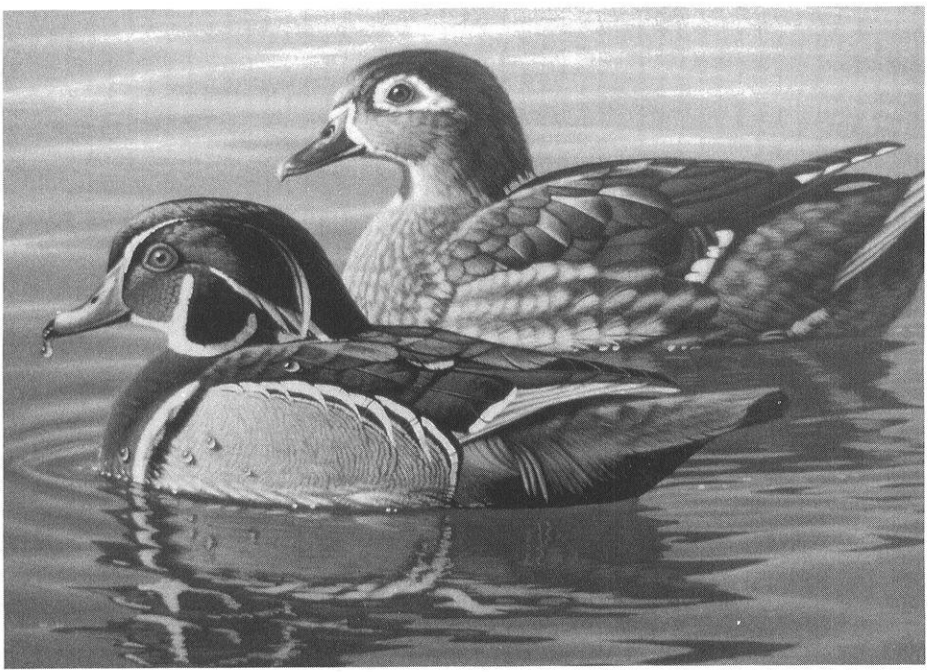

Wood Ducks *by Frank Mittelstadt*
(This painting was selected for the 1993 Wisconsin Duck Stamp)

Response of Grassland Birds to a Large-Scale Prairie Planting Project

In 1984 and 1985, a 200-acre prairie was planted in the Kettle Moraine State Forest—Northern Unit (KMSF-NU) for wildlife habitat. Two adjacent 80-acre sites were seeded to a mixture of prairie grasses and forbs in successive years. In addition, another 40 acres were seeded to a mix of prairie grasses in 1984. Over the years, the developing plant height and structure (density and diversity) attracted a variety of grassland birds. Several of these birds are listed as species of special concern (watch status) in Wisconsin. The increased number of species and their populations, as determined by annual breeding bird surveys at this site, corresponds to the development of the vegetation.

by William K. Volkert

The Northern Kettle Moraine State Forest (KMSF) is a 27,768-acre public property managed for multiple recreation use. It is located in east-central Wisconsin, about 50 miles north by northwest of Milwaukee and 15 miles east of Fond du Lac. The area, known as Jersey Flats Prairie Development Project, is in southeastern Fond du Lac County, in the town of Auburn (T13N— R19E, sec. 2). The site is bordered on the south by County Hwy. SS, on the west by Cty. Hwy. G and on the east by a bridle trail. The area is comprised of two adjacent 80 acre sites, totaling 1/4-mile wide by one mile long. The south 80 acres were seeded to a mix of prairie grasses and forbs in 1984, with the north 80 acres being seeded similarly in 1985. An additional 40 acres of mixed grasses without forbs was seeded in the northeast corner of the project area.

KMSF has been long-recognized for unique geological landforms and features produced by the Wisconsin Ice Age. The Kettle Moraine was formed as an interlobate moraine complex between the Lake Michigan and Green Bay lobes of the last glaciation (Alden 1918, Black 1974). KMSF was the first unit to be developed as part of the Ice

Age National Scientific Reserve. Jersey Flats is located on an outwash plain formed between the corresponding terminal moraines. The site is located in an area of flat topography with a uniform soil type of Fox silt loam.

The project area was designated for habitat development as a dense-nesting cover (DNC) stand for game and non-game wildlife. These projects have traditionally relied on prairie grass monocultures, such as switchgrass (*Panicum virgatum*), or a mix of several grass species, such as big bluestem (*Andropogon gerardi*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*) and switchgrass. However, recent research has demonstrated that these areas are often times no more productive as wildlife nesting cover than stands of brome grass or reed-canary grass (Bartelt 1990). It appears that the dense uniform stands neither lure greater numbers of nesting birds nor deter predators better than other cover types. There is also some evidence that these DNC stands do not provide an adequate food base.

It was, therefore, decided to seed this site to a mixture of 4 prairie grasses, as listed above, and 42 species of prairie forbs suitable to the mesic site conditions. The grasses were purchased as non-local ecotypes of rangeland grasses, while the forbs were hand collected by volunteers and a Wisconsin Conservation Corp. work crew. Much of the forb seed was collected on remnant prairie sites in KMSF as described by Volkert (1984).

Methods

Both the establishment and development of the vegetation and the bird life in the area were monitored over the past 8 years (1984 to 1991). An annual breeding bird census was begun in 1986 as the vegetation developed and the bird populations became well established. In the first few years the vegetation was sparse and birds widely scattered. In 1984 and 1985, surveys were conducted only on the south 80 acres, the first site to be planted. Surveys from 1984 to 1986 were conducted by me. From 1987 through 1990, regular survey transects were established with the same 3 individuals conducting the annual census.

With 3 observers walking the length of the site, approximately 500 feet apart, an attempt was made to count all of the birds present. Nine survey stops have been established along the site, allowing 3 minutes of watching and listening for birds at each site. Birds were identified by sight and call. The more diminutive calls of some species, such as Grasshopper Sparrows and Henslow's Sparrows, do not carry well and are not necessarily a total count, especially in latter years when populations increased. To avoid double counting, each counter was in voice contact with the adjacent counter and could check on which individual birds were being tallied. Due to the open nature of the prairie vegetation, any birds flushing ahead of the counting party were watched and counted only once.

Results and Discussion

As the vegetation developed, there was a direct response by grassland birds. This can be seen in the census data and is well demonstrated by increases in the number of Grasshopper

Sparrows present at the site. In 1984 when the project was first begun, the south 80 acres were plowed, disked, seeded and cultipacted. It remained essentially a bare field early in the season and short, widely dispersed weedy growth emerged by mid-summer. The north 80 acres was mowed as a hay sale, as both fields had been for the previous 20 years. Essentially, grassland cover and height was sparse, with wildlife habitat being minimal.

In the first year of planting, I noticed one lone Grasshopper Sparrow singing from a sparse shrub line that separates the two sites. The following year, the north site was worked up and seeded providing virtually no cover, while the south site was becoming more dense. There were 3 singing males in the south site that year, and at least one successful nest. By the third year of growth on this site, there were 13 Grasshopper Sparrows, plus 12 male and 3 female Bobolinks, and 5 Dickcissels, a species that has never before been recorded in KMSF (Volkert 1992). Each site was burned in its 3rd growing season.

Table 1 lists those grassland species of specific concern or showing significant population numbers. A Northern Harrier nest with 3 young was located in the prairie in 1990, but was counted as only one bird.

Over the years, breeding bird surveys found a significant number of grassland bird species using the site (Table 1). Interestingly, most of the birds were found in the south site. Reasons include earlier establishment and maturity of the vegetation and better development due to more thorough site preparation and less weed competition. It appears that not only were birds drawn to the dense nesting cover, but the greater variety in structure was benefitting and attracting the birds.

In addition to the increase of grassland bird populations at Jersey Flats, other pertinent trends have been noticeable over the years. Grasshopper Sparrows and Henslow's Sparrows are known to favor dense stands of grassland vegetation. Although Grasshopper Sparrows occurred on the site at its initiation and in the first 2 years of growth, the population remained relatively low (from 1 to 13 individuals in an 80 acre area). In the third year of growth, as vegetation height and density increased, populations of these 2

Table 1. Results of Jersey Flats Bird Survey, 1986–1991.

	Number of Individuals Recorded					
Species	1986	1987	1988	1989	1990	1991
Northern Harrier	0	0	0	1	1	0
Sedge Wren	1	5	15	2	32	41
Common Yellowthroat	1	2	0	10	10	0
Dickcissel	5	18	29	4	0	0
Field Sparrow	3	3	2	7	1	13
Vesper Sparrow	5	12	1	8	6	0
Savannah Sparrow	5	8	14	21	10	28
Grasshopper Sparrow	11	30	29	28	48	25
Henslow's Sparrow	0	25	34	36	42	40
Bobolink	15	21	39	27	32	41
Eastern Meadowlark	2	9	35	36	30	36

species increased dramatically; Grasshopper Sparrows increased to 30 birds and Henslow's Sparrows, which did not occur on the site until the third season showed up with 25 individuals counted (Figure 1).

Dickcissels had never been recorded in KMSF until the establishment of Jersey Flats. In 1986, when the site was in its third growing season, the first Dickcissels were recorded here. The population increased over the next 2 years and then declined and disappeared (Figure 2). This species is known to be nomadic within its breeding habits, but it is unlikely that it would have occurred in KMSF at all or in any significant numbers if it weren't for the habitat provided by Jersey Flats. It also demonstrates that even with one such successful grassland habitat project it is not sufficient to maintain populations of this invasionary species. We, therefore, need to consider an entire series of grassland complexes throughout the range of this species to provide alternative sites.

Finally, prescribed burning is a major tool used in establishing and maintaining grassland habitats in the upper midwest. The two 80-acre parcels comprising Jersey Flats were burned after the first 2 seasons of growth. The most recent burn in spring 1991, preceding the most recent breeding bird census may have affected the populations and distribution of several Grassland Sparrows.

The south 80 acres were burned in early April 1991. This site has a greater density of forbs and a greater density of several grassland bird species. Numbers of Grasshopper Sparrows declined to their lowest in the past 5 years, Henslow's Sparrows remained relatively stable, with the majority of birds (30) being found in the north unburned 80 acres, than in the south burned 80 acres, where only 10 birds were found.

There was also a corresponding in-

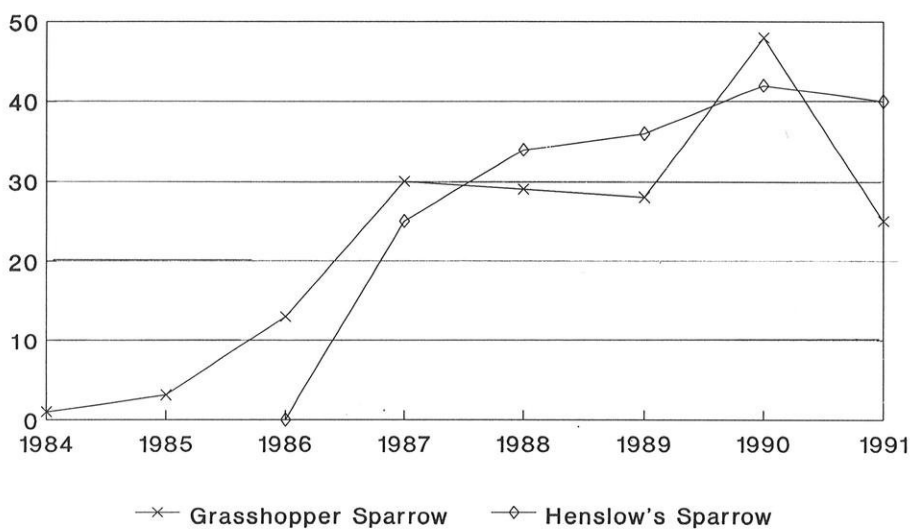

Figure 1. Results of Jersey Flats Grassland Bird Survey, 1984–1991.

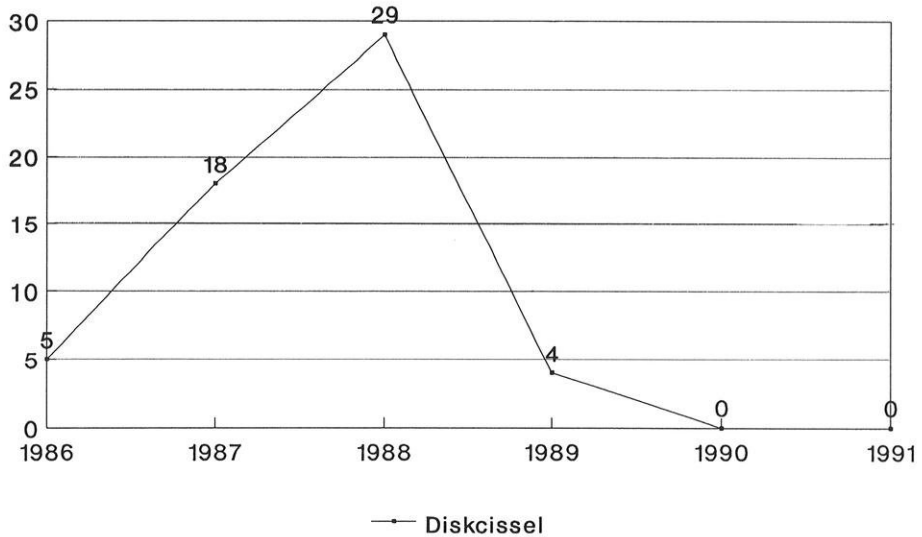

Figure 2. Results of Jersey Flats Grassland Bird Survey, 1986–1991.

crease in Field Sparrows and Savannah Sparrows, both showing their highest densities since the counts began. Again the majority of birds counted were located in the burned section of the site. These are birds that prefer a shorter grass habitat than the previously mentioned species.

This has implications not only for establishing grassland habitat, but also in maintaining these sites through prescribed burning. Just as concerns have been voiced over burning an entire prairie remnant to the detriment of invertebrate species (especially butterflies and moths) dependant on these sites, concerns have been identified over impacts of controlled burns on bird species (Johnson and Temple 1986). If burning these sites temporarily favors grassland species preferring short grass structure (such as Field Sparrows and Savannah Sparrows), while successive years without burning provide habitat preferred by species of dense grass cover (such as Grasshopper Sparrows and Henslow's Sparrows), we then need to maintain a complex of habitats or a burning schedule on large compartmentalized areas which provide a variety of grassland habitat types.

Conclusion

The diverse grassland vegetation that has been established at Jersey Flats may provide an advantage over traditional DNC projects for a host of non-game grassland birds. Because of the diversity of the structure, where the mix of grasses and forbs create bunches and thickets, plus small openings between plant clusters, a sort of "micro-edge" effect is created. In grassland monocultures, grass stems are often too fine to support perching birds. The rigid stems of the forbs provide important singing perches for grassland birds, which protrude above the other leafy growth.

Other benefits may be an increased food base. Grasses are wind pollinated, and with their stems and leaves being very fibrous, they lack insect pollinators and foragers. Insects are readily attracted to the abundant flowers of the forbs and their succulent leaves. The diverse insect population could serve as a tremendous food base for nesting grassland birds. The forbs also produce some large and abundant seeds which serve as an additional food source. Further research could be conducted by assessing the insect population in both grassland monocultures and sites like Jersey Flats.

Another consideration of this project relates to the reduced populations of grassland birds. Many of these birds are currently listed as species of special concern (watch status) in Wisconsin. The listing of several grassland birds has been attributed to the loss of grassland habitat. This however, can be difficult to quantify (e.g., how many bird territories of which species are lost for every acre of grassland habitat, or what is the decline among these birds in relation to the loss of grassland acreage?). The trend in bird use is apparent, but can be difficult to demonstrate empirically, given the site was not surveyed prior to modification. Jersey Flats represents grassland habitat establishment and gain, reflecting the corresponding increases in wildlife populations.

In the future we need to look not only at the benefits of establishing grassland habitat for a variety of game and nongame species, but at the kind of structure that is established and how these sites are maintained. The density and height of grassland habitats favors different species, and this is determined by the plant composition, periodic burning schedule and overall burn plan.

Acknowledgements

I would like to thank Bill Wheeler, WDNR Bureau of Research for review and comments on the manuscript.

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Comparison of Two Wisconsin Waterfowl Census Techniques

Data on breeding waterfowl abundance in Wisconsin are available from the Wisconsin Breeding Waterfowl Survey and the Wisconsin Checklist Project. Comparisons of data from these two projects from 1983–1991 showed good general agreement in the estimates of population size and population trends.

by Arthur E. Smith

A common requirement for successful wildlife management is a measure of population size. For most species, absolute numbers are unknown, so estimated numbers are used for subsequent analysis or reporting. Population size can be obtained in two ways: by estimating absolute abundance, which is usually time-consuming and expensive, or by using measures of relative abundance (a comparison of a population's relative numbers against some standard). Both methods provide useful estimates of animal abundance; however, many errors and biases can affect the reliability of these techniques (Caughley 1974, 1977, Davis 1982, Seber 1982, Krebs 1989). In most situations, the relative abundance techniques produce indices that adequately address most questions regarding population management.

This study will compare estimates of absolute abundance, from the Wisconsin Breeding Waterfowl Survey (WBWS), with measures of relative abundance, from data collected on weekly checklists by amateur birdwatchers throughout Wisconsin as part of the Wisconsin Checklist Project (WCP). Previously, the WCP has been compared to indices from the North American Breeding Bird Survey, the Christmas Bird Count, and migration counts from the Cedar Grove Ornithological Station (Temple and Cary 1990). The WCP provided results that were generally in agreement with the results of the other surveys; however, these surveys were all indices with the exception of the Cedar Grove Ornithological Station migration count, which was an absolute count of migrating raptors that passed a single location in Wisconsin (Temple and Cary 1990).

The WBWS is a state-wide survey which is conducted annually by the

Wisconsin Department of Natural Resources (WDNR), and is based on U.S. Fish and Wildlife Service (USFWS) guidelines (Anon. 1977), but is modified for use within the state (March et al. 1973). The survey is part of the Waterfowl Status Report provided annually by the USFWS and was developed in the late 1940's to measure and monitor waterfowl status. Information contained within the report is used in developing annual population estimates of waterfowl in North America and also is a main tool in developing annual waterfowl hunting regulations. The WBWS was designed primarily to detect changes in total waterfowl observed (Andryk et al. 1991), not changes for individual species of waterfowl.

Data for the WCP originates from checklists contributed by members of the Wisconsin Society for Ornithology (Temple 1982) and then collected and processed by the WDNR and the Department of Wildlife Ecology, University of Wisconsin-Madison. The checklist data consist of the presence or absence of individual bird species by particular birdwatchers in specific areas. There are a minimum of ten birdwatchers per area (Temple and Cary 1987), so the reporting frequency in each area can be calculated as the percentage of checklists on which the species has been reported. Reporting frequencies are assumed to be primarily a function of the species' relative abundance. Results of this type of analysis have been presented previously by Temple and Temple (1984) and Temple and Cary (1987).

Methods

A large number of checklists have been submitted to the WCP since 1983. For this study I analyzed only the 1983 to 1991 data for both the WCP and the WBWS databases. Aerial surveys for the WBWS were normally conducted during the first 3 weeks of May each year; only WCP checklists for those weeks were used in comparisons.

The WBWS separates Mallards and Blue-winged Teal into separate counts, and includes Black Duck, Wood Duck, Green-winged Teal, Ring-necked Duck, Redhead, Hooded Merganser, Common Merganser and the Red-

Table 1. WBWS and WCP data used for comparisons.

Species catetory	Year								
	1983	1984	1985	1986	1987	1988	1989	1990	1991
	Wisconsin Breeding Waterfowl Survey (in 100's)								
Mallard	1118	954	951	1588	1379	1294	1600	1547	1629
Blue-winged Teal	618	542	656	850	1496	998	1354	1090	616
Other	614	998	1022	883	822	458	1022	1309	1911
Total	2350	2494	2629	3321	3697	2750	3976	3946	4155
	Wisconsin Checklist Project (in %'s)								
Mallard	70.8	71.4	59.2	72.1	74.3	86.7	79.5	73.9	79.7
Blue-winged Teal	41.7	43.1	34.5	29.7	41.3	33.3	55.7	37.8	49.3
Other	62.9	64.3	52.0	48.8	70.3	53.4	109.8	64.5	99.8
Total	175.4	178.8	145.7	150.6	185.9	173.4	245.0	176.2	228.8

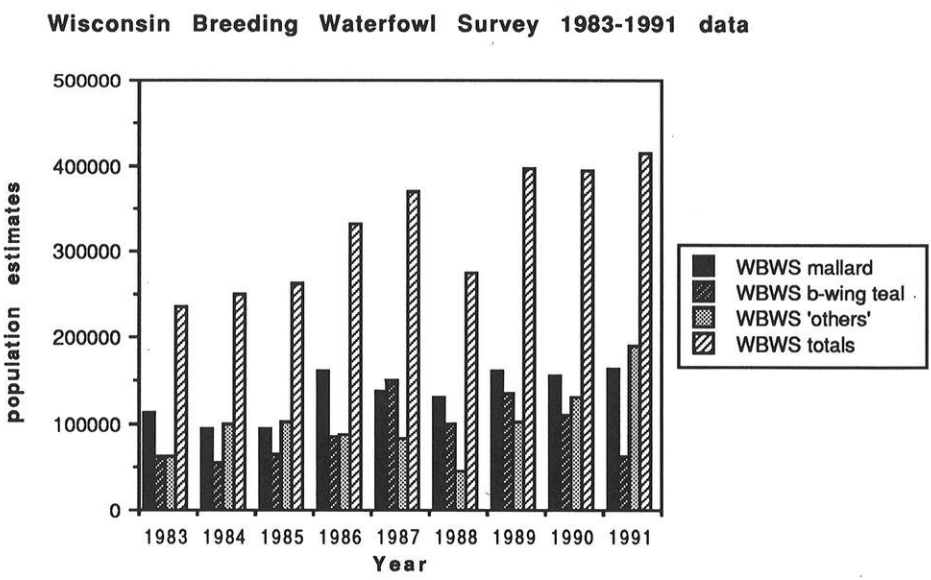

Figure 1. Wisconsin Breeding Waterfowl Survey 1983–1991 data summary.

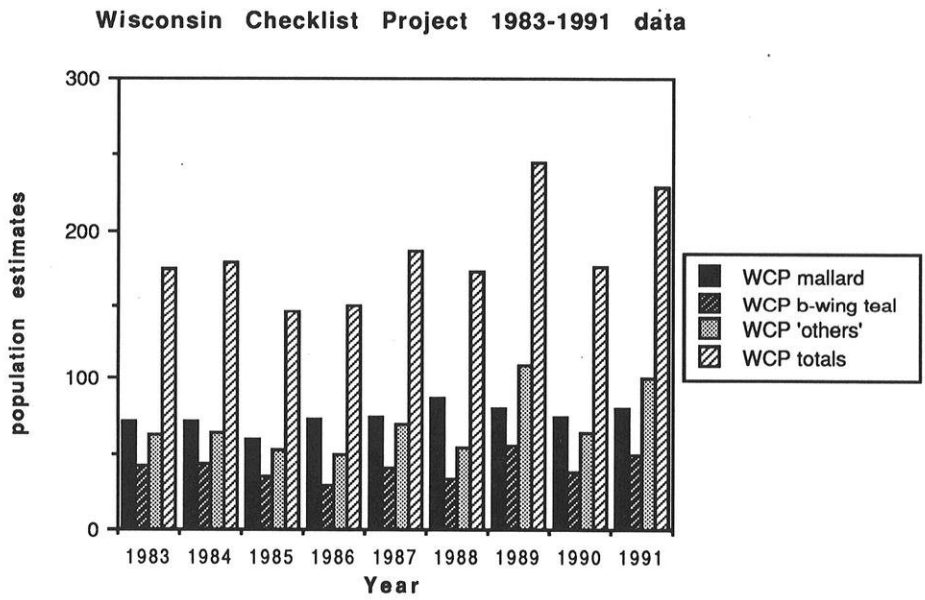

Figure 2. Wisconsin Checklist Project 1983–1991 data summary.

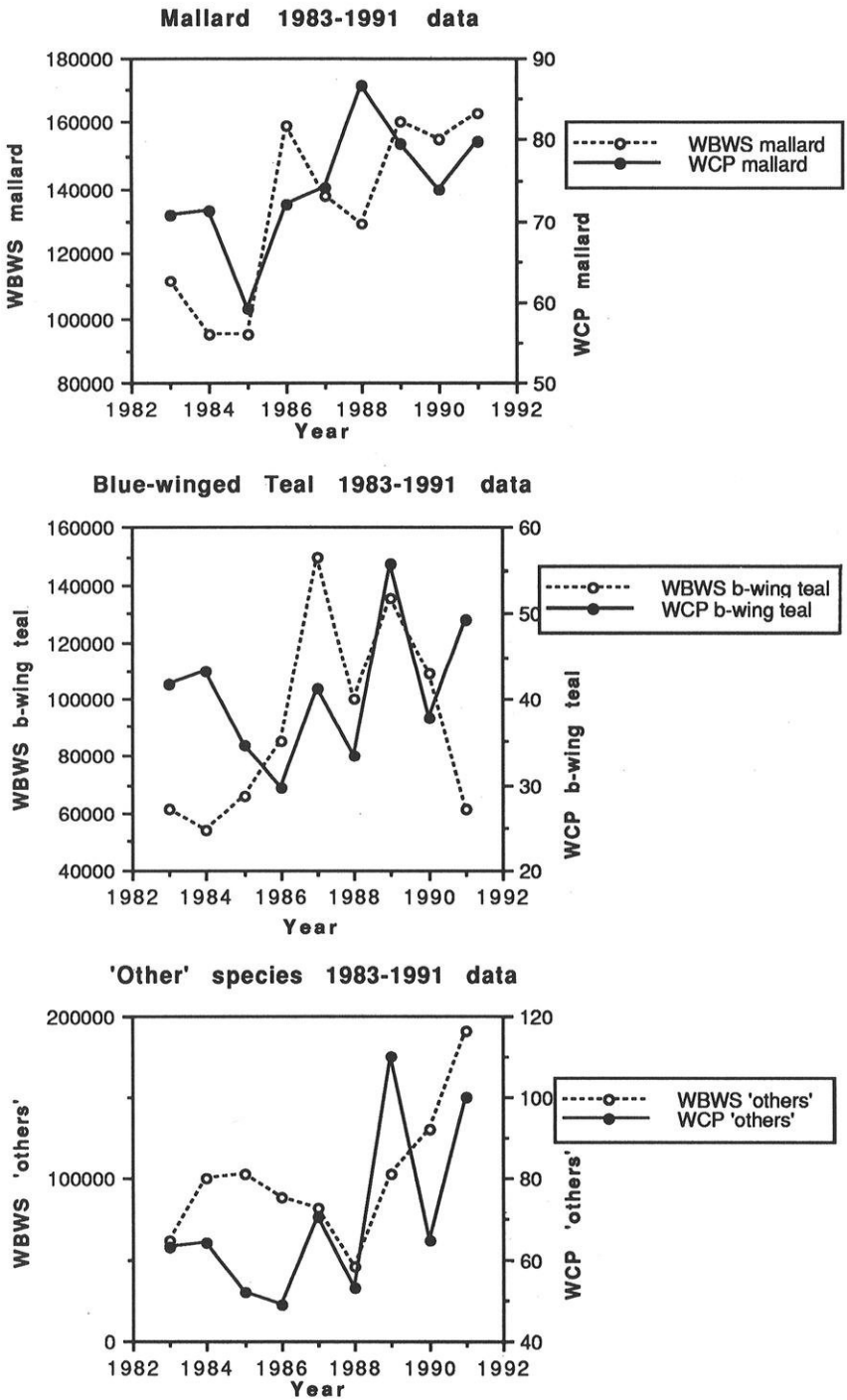

Figure 3. Mallard, Blue-winged Teal and 'other' species 1983–1919 data summaries.

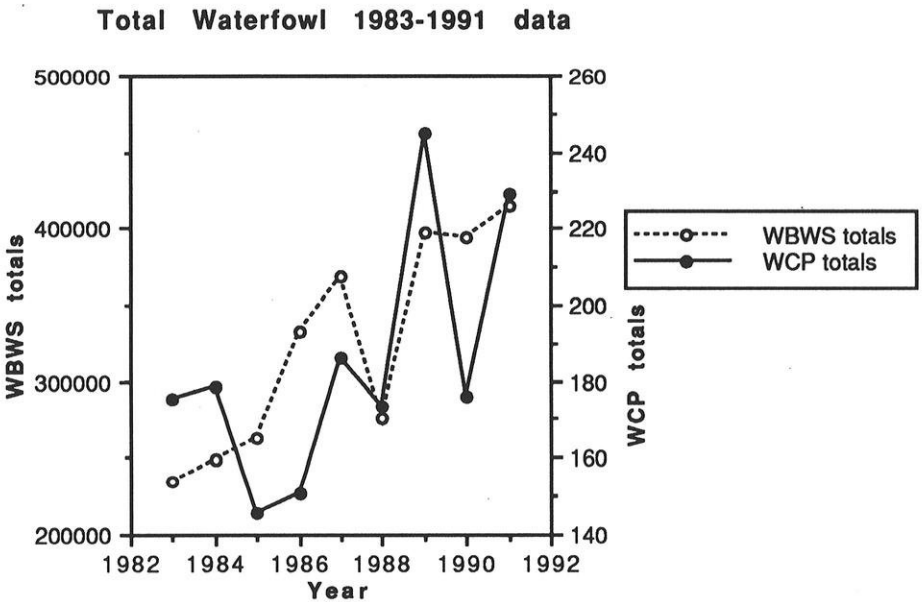

Figure 4. Total waterfowl 1983–1991 data summary.

breasted Merganser in an "other species" category (Table 1, Figure 1). The "total waterfowl" category is the sum of the three subcategories. Similar categories were formed using the WCP data, (Table 1, Figure 2). The population trends for the same categories from each database were then compared, looking for evidence that the WCP index was concordant with the WBWS count.

Results

An assumption of many statistical analyses is a normal distribution of the data. A normal distribution is present when the data are plotted along a line in ascending order, and the resulting distribution is "bell"-shaped. Both the WBWS and WCP data were found to exhibit a normal distribution. Tests for correlation between the databases for each of the individual species categories (Mallard, Blue-winged Teal, and 'others'), were performed. The correlations were strong (high values of r), but their statistical significance was only moderate. Total waterfowl from both databases do show a similar relationship as the species graphs (Figures 3 and 4).

Conclusions

Although the sample size (number of years) for these comparisons was low (1983–1991, n = 9), results suggest that the two databases produce similar general trends in total waterfowl measurements. Through various comparative tests, both in this study and in Temple and Cary (1990), the WCP data have been proven to show general agreement with other databases. The usefulness of the WCP data

transcends the simple correlation to an absolute abundance measurement, however. The WBWS data is collected only once per year, is limited to waterfowl only, and requires much more money and equipment to carry out the survey. With substantial checklists being contributed voluntarily from throughout the state, the WCP data can indicate trends in many groups of birds (including waterfowl), indicate rare sightings, track and time migration and invasion movements across the state, and can provide year-long survey coverage for the birds throughout the state.

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Blue-winged Teal *by Frank Mittelstadt*

Peck-Order Formation in Decoy-Reared Trumpeter Swans

A population of Trumpeter Swans has been reintroduced at the George W. Mead Wildlife Area in central Wisconsin. Peck order characteristics and formation in a brood of 10 decoy-reared Trumpeter Swan cygnets were studied. Older, more developed cygnets were more aggressive and higher in the peck order. Understanding of this behavior may explain why swans stay either together as a family group or split up during migration.

by Scot T. Nauertz

The Wisconsin Department of Natural Resources' Bureau of Endangered Resources has been reintroducing Trumpeter Swans (*Cygnus buccinator*) to Wisconsin through a decoy-rearing program. This involves the collection of eggs from Alaska which are incubated at the Milwaukee County Zoo. The cygnets are imprinted on a decoy of a Trumpeter Swan which is then manipulated in suitable wetland habitat by personnel in a camouflage float tube and blind. The cygnets are lead to aquatic food patches and loaf sites. They are also taught, with recorded alarms, to be aware of predators and danger. The cygnets are placed in a predator-proof cage when not attended until they are old enough to roost at night on their own. Close proximity to the cygnets allowed me to study the social behaviors of aggression and peck order.

Peck-order formation and maintenance is an important part in the social behavior of animals. Peck order is defined as a group of animals in which the highest animal in order pecks and is not pecked in return, while that at the extreme bottom is pecked without pecking in return. Those in between are pecked and peck in return (Tinbergen 1970). Each individual knows its own place. A peck order reduces the amount of stress and fighting within the group. Each individual learns by experience which of its companions are stronger and must be respected and which of its companions are weaker and can be intimidated. The total amount of aggression in the group is minimized (Colgan 1983). Those

that do not learn quickly to avoid superiors are at a disadvantage; they receive more beatings and are easier prey to predators during fights (Tinbergen 1970).

Peck orders form rapidly and for several reasons. Social discrimination develops quickly after a few hours of cohabitation in young chicks, and juvenile Canada Geese recognize siblings at a few days of age. Recognition and appearance are factors in peck order formation (Colgan 1983). Older, more developed birds with matured body strength are usually more dominant (Masure and Allee 1975). Dominant animals gain priority access to resources such as food, mates, and loafing sites. Subordinates benefit from belonging to a group in terms of social feeding and defense (Colgan 1983).

The objectives of this study were to determine the peck order in a brood of 10 decoy-reared Trumpeter Swan cygnets. Factors examined included aggression, weight, feather development, and how they were interrelated in the formation of the peck order. I hypothesized that the birds with the greater weight and feather development would become the more dominant birds in the brood.

Study Area

The study was conducted on Rangeline Flowage at the George W. Mead Wildlife Area in Central Wisconsin. This wildlife area is managed by the Wisconsin Department of Natural Resources. The 617.75-ha flowage was created by a system of dikes. The depth ranges from 15.25 cm to 152.4 cm (6–60 in.). The flowage is supplied by the Little Eau Plaine River and subject to periodic drawdowns. Aquatic vegetation includes pondweeds (*Potomageton* spp.), arrowhead (*Sagittaria* spp.), burreeds (*Sparganium* spp.), cattails (*Typha* spp.), and sedges (*Carex* spp.). The flowage is bordered by willow (*Salix* spp.), trembling aspen (*Populus tremuloides*), and reed canary grass (*Phalaris arundinacea*).

Methods

All cygnets in the decoy-rearing program are banded with standard plastic leg bands. Individual birds are identified by which leg the band was on, the color, and the number on the band. A 2-letter symbol identifies each bird with the first letter being the band color and the second letter the leg location.

Observations were made on 36 days from 3 July to 29 August 1991 while I was in the blind manipulating the decoy. When aggression occurred, the aggressor and the recipient of the aggression were recorded. Aggressive acts included head postures, vocals, chases, fighting, or any combination of these. Weight measurements in grams were recorded 11 times, 7 while the cygnets were in the zoo and 4 when they were on the flowage. Weights on the flowage were done with hand-held scales when leg bands were changed. Feather development was recorded by visual estimation and comparison of the amount of feathers present, starting 30 July when feathers first appeared. Five observations were made ending 29 August.

Results

The data recorded from daily aggressive acts among the cygnets were compiled, ranked, and a peck order

constructed (Table 1). Comparison in the number of aggressive acts and who they were directed at formed the basis of this peck order. The birds with the more aggressive acts were the most dominant birds.

The recorded weights were compared to the established peck order (Table 2). Hatch dates caused the difference in starting weights from 21 June to 24 June. Weights generally decrease with decreasing rank in the peck order.

Feather development was also compared to the established peck order (Table 3). The 5 oldest birds had the greatest feather development and were ranked the highest of the 10 birds.

Discussion

The results illustrate that a linear peck order was established in the brood of cygnets, but it was not exclusively one-way because reverse pecking occurred. Subordinates that pecked dominant birds usually pecked those that were only 1 or 2 positions higher than themselves. These subordinate birds seemed to test their position and jostled for a higher position. The peck order in the top 5 dominant cygnets was easier to distinguish then the lower 5 subordinates. The difficulty in determining the order of the bottom five cygnets was to do with the occurrence of subpeck orders in the lower ranked birds which I was not able to determine with limited data.

Cygnet weight correlated with their position in the peck order only in its early formation. The first 7 weights have little bearing on order formation, since observations of peck order were not taken during the imprinting process. Weights increased dramatically once the cygnets were placed on the flowage, and this is where the peck order developed. By mid-July the order was established because weights at this time correlated well with the established peck order. By late August, weights had little affect and caused no change in the order. The extreme subordinates were often heavier in weight than their dominant siblings a few positions higher, but no change in rank occurred because the order was already set.

Feather development proved difficult to estimate, and comparing birds was a challenge because precise meas-

Table 1. Determination of peck order by aggression of 10 decoy-reared Trumpeter Swans, Rangeline Flowage, George W. Mead Wildlife Area, 1991.

	Number of cases in which indicated bird was dominated:											
Bird	RR	WR	GR	BR	YR	PR	YL	WL	GL	BL	Total	Rank
RR		9	31	10	12	6	3	5	3	3	91	1
WR	0		33	5	5	11	4	4	4	3	69	2
GR	1	4		21	20	8	9	11	6	1	81	3
BR	0	2	6		3	12	3	6	7	3	42	4
YR	0	1	0	4		1	6	5	1	0	18	5
PR	0	0	1	0	3		6	1	0	2	13	6
YL	0	0	0	0	0	0		2	16	10	28	7
WL	1	0	2	0	0	2	2		2	2	12	8
GL	0	0	1	1	1	2	3	2		3	13	9
BL	0	0	0	0	0	5	0	2	1		8	10

Table 2. Weights of decoy-reared Trumpeter Swan cygnets in comparison to their peck order, Rangeline Flowage, George W. Mead Wildlife Area, 1991.

	Weights of cygnets (g) arranged in peck order sequence:									
Date	RR	WR	GR	BR	YR	PR	YL	WL	GL	BL
6/21	201.00	210.00	200.30	212.40	210.50					
6/22	187.20	190.00	181.40	197.70	196.10	257.00			240.00	258.40
6/23	171.00	201.00	193.10	206.00	181.70	239.20	220.10		226.30	242.50
6/24	202.40	229.80	217.30	226.10	198.50	217.70	202.80	217.30	220.50	237.50
6/25	211.20	248.30	236.80	246.70	207.70	220.30	201.70	188.20	220.80	226.70
6/26	231.40	270.00	257.20	273.80	227.70	211.70	190.60	180.20	224.80	219.30
6/27	270.00	300.00	286.30	303.30	245.60	235.50	207.10	200.90	245.30	238.40
7/08		950.00	925.00	950.00	800.00	650.00	700.00	700.00	750.00	800.00
7/15	1,500.00	1,500.00	1,525.00	1,550.00	1,250.00	1,100.00	1,100.00	1,400.00	1,250.00	1,400.00
7/22	2,250.00	2,000.00	2,225.00	2,125.00	1,850.00	1,750.00	1,875.00	2,175.00	1,950.00	2,100.00
8/01	3,150.00	2,800.00	2,750.00	2,800.00	2,400.00	2,350.00	2,550.00	2,650.00	2,475.00	2,550.00

urements could not be taken. Data suggest a relationship, but it is inconclusive. Feather development is correlated with age and growth. Older cygnets develop their feathers before the younger cygnets. Feather development had little or no affect on position. Most cygnets did not rank into place with their feather development order but were within 2 or 3 positions. For example, cygnet "BL" was more developed than 4 of its siblings, but it was still the most subordinate. The peck order was established before 30 July when feather development began.

Several other interesting notes on peck order were observed. Most fighting occurred within the first 30 minutes after the birds came off their loafing and preening sites. They reinforced their positions in the peck order at this time.

Increased fighting occurred when cygnet "YR" was removed from the brood for 4 days. Increased aggression occurred on the day after it was removed and on the day it was returned. This caused a disruption in the peck order, but no changes in position occurred.

When fighting occurred between 2 lesser ranked birds, the most dominant birds observing the fight would reinforce their own position by engaging the more dominant of the 2 cygnets fighting.

The peck order of the 10 decoy-reared Trumpeter Swan cygnets was established early. The older, more developed, and more aggressive cygnets reached a higher rank. Age and weight played a role in peck order development because the older birds were nat-

Table 3. Feather development by visual estimation from most to least in decoy-reared Trumpeter Swan cygnets in relation to peck order, Rangeline Flowage, George W. Mead Wildlife Area, 1991.

Date	Cygnets arranged in feather development sequence (most to least):									
7/30	GR	BR	RR	WR	YR	PR	GL	BL	WL	YL
8/05	RR	BR	GR	WR	YR	PR	GL	BL	WL	YL
8/17	RR	BR	GR	WR	YR	BL	GL	PR	WL	YL
8/24	RR	BR	WR	GR	YR	BL	PR	GL	WL	YL
8/29	RR	BR	WR	GR	YR	BL	PR	GL	WL	YL

urally more mature. Dominance occurred early in a brood because cygnets soon reached weights that were comparably close. Once positions are established in a peck order, physical characteristics played little or no role in changing ranks. Recognizing and understanding this behavior may explain other behavior in Trumpeter Swans. It may help explain why family groups stay together or why they split apart during and after migration. Peck order may have an effect on who gets the best habitat or mates. Survival rate may coincide with dominant and subordinate ranks in peck orders. Aggression and peck order studies may be important in understanding a species life-style when reintroduction of a species is pursued.

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Tundra Swans over Lake Monona *by Frank Mittelstadt*

Snapping Turtle Attacks on Trumpeter Swan Cygnets in Wisconsin

Snapping turtle attacks on Trumpeter Swan cygnets have been documented during reintroduction programs on three Wisconsin lakes. Mortality and injury were recorded.

by Becky Abel

Snapping turtles (*Chelydra serpentina*) have been implicated as major predators of waterfowl, but there is a paucity of information on their role as a predator. Most food habits studies of snapping turtles have not confirmed that waterfowl, or any birds, comprise a significant part of their diets, concluding that the diet of snapping turtles is largely herbivorous (Pell 1940, Alexander 1943, Lagler, 1943, Hammer 1969, Punzo 1975). These conclusions have been based on stomach and gastrointestinal tract analyses. While some authors (Lagler 1943, Pell 1940) point out that their results may have been biased by the lower digestibility and subsequent higher retention time of plant material, only one offers information on the availability of waterfowl as a food source (Lagler 1943). Lagler (1943) concluded that snapping turtle attacks on waterfowl were insignificant, although only one of 89 bodies of water where he collected snapping turtles had nesting waterfowl. Only Coulter (1957) looked at the incidence of waterfowl in turtle stomachs in relation to the known density of ducklings on the wetland. This paper will present information on injuries and mortality of Trumpeter Swan (*Cygnus buccinator*) cygnets in Wisconsin attributed to snapping turtles and will describe observations of attacks by turtles.

Methods

Beginning in 1987, the Wisconsin Department of Natural Resources undertook to reintroduce the Trumpeter Swan to the state. Cross-fostering Trumpeter Swan eggs to feral Mute Swans (*Cygnus olor*) was experimented with in 1987 and 1988 at Lower Phantom Lake in Waukesha County in southeastern Wisconsin. Observations of the families were taken from a canoe during daylight hours. An attack on one cygnet was observed directly from the canoe. When cygnets disappeared overnight, we canoed the territory that had been frequented by the families to locate signs of predation. We trapped and relocated snapping turtles from

the territories of 3 foster families between 8 May and 28 July. Turtles were trapped using single-door live turtle traps baited with fresh carp. The largest turtle trapped weighed 18 pounds.

In 1989, a new method for rearing and releasing the birds was begun, which involved imprinting hatchlings on life-sized swan decoys. This method for releasing birds was used at the Crex Meadows Wildlife Area in Burnett County in northwestern Wisconsin in 1989, 1990 and through 14 July 1991. The same method was used at the Mead Wildlife Area in Marathon County in central Wisconsin beginning 14 July 1991. Observers in floating blinds towed the decoy around marshes during the day, leading cygnets to feeding and loafing areas and into predator-proof cages at night. The close observation (within 15 cm) afforded by the blinds allowed us to record the circumstances surrounding snapping turtle attacks. During attacks, we made every effort to secure the birds from the turtles with as little injury as possible; therefore we cannot say whether mortality would have occurred had we not intervened. Turtles were not trapped at the Crex and Mead study sites.

Results

In 1988, 9 Trumpeter Swan cygnets were accepted by Mute Swan foster parents at 433-acre Lower Phantom Lake. There was strong evidence that at least 3 were predated by snapping turtles (described below); 3 more disappeared from unknown causes within 3 days after leaving the nest; 2 birds survived to fledging; and 1 bird was removed to captivity.

In the 2 years that swans were raised at Crex Meadows (1989 and 1990) there were no losses to snapping turtles, and 46 birds were raised to fledging. In 1991, the rearing of 42 birds was initiated at Crex, but the project was moved to the Mead Wildlife Area on 14 July. The birds ranged in age from 2–4 weeks at the time that they were relocated. We witnessed attacks on cygnets shortly after moving them to Mead. Five attacks were recorded between 17 July and 18 August.

All observations of turtle attacks, as well as a description of an injury that we attributed to a snapping turtle, are listed below:

Lower Phantom Lake—At 8:00 P.M. on 6 June 1988, I saw a female Mute Swan hiss at something in the water and begin treading water vigorously, while the pair fed with their four 2-day-old Trumpeter Swan cygnets. I paddled over in the canoe and heard peeping as I approached. I arrived about 30 seconds later to see only 3 cygnets. A cygnet's head emerged from the water and the bird was pulled under again, crying. When the head emerged again, I grabbed the cygnet and pulled up what I estimated to be a 15-pound snapping turtle. The turtle released the cygnet when it was pulled from the water. One foot was nearly severed, and the leg was skinned as far as the femur. The bird was euthenized. By 5:00 A.M. the next morning (7 June), another cygnet from the nest was missing and a third was gone when the brood was checked at 5:30 A.M. on 8 June. Both days, I found pieces of cygnet down with skin attached floating in areas frequented by the birds, suggesting further predation by snapping turtles.

Mead Wildlife Area—At 6:15 P.M. on 15 July 1991, a 3-week-old, 1100-gram cygnet was feeding in 1.5 feet of water on a 550-acre flowage when it began screaming. The observer, seeing that something had ahold of its left leg, rapidly moved the float tube and blind over to the cygnet and tried to lift it from the water. The cygnet could not be moved so the observer slid her hand down the bird's leg and floated the blind over the area where she believed the turtle to be. The turtle released its hold and was seen swimming under the float tube. The bird limped and swam with one leg for the remainder of the day but suffered only minor cuts on its foot.

At 2:30 P.M. on 17 July, 1991, a 3.5-week-old, 1500-gram cygnet, was pulled underwater in 3 feet of water on the same 550-acre flowage. The cygnet emerged from the water, giving loud distress calls, and the observer attempted to pull the cygnet away from the turtle. The turtle was pulled partway out of the water before it released its grip on the cygnet, which was injured in the struggle. All skin was stripped from the right leg and abdomen to the midline, leaving an 8 × 10 cm open wound on the body wall. Skin grafts were attempted on the bird, but it was not considered to be a releasable bird. It eventually died in captivity as a result of an accident unrelated to its injury.

At 3:00 P.M. on 6 Aug 1991, I was with a brood in 5 feet of water on an 11 acre flowage when I noticed a snapping turtle's nose protruding from the water about 15 feet from where the birds and I were. Within 2 minutes, a turtle grabbed a 6-week-old, 3500-gram cygnet. Most of the bird's left side was underwater and the bird was screaming. Because I was concerned that I might cause injury to the bird by pulling on it, I held the bird with two hands at the water's surface and kicked underwater. My foot struck the turtle, and it released the cygnet. (The turtle seemed large from the solid hit, but all that was seen was its nose). Injuries to the bird were minimal, including superficial cuts on the web and outer toe of the left foot.

At 12:00 P.M. on 18 August 1991, a 7.5-week-old, 4000-gram cygnet was feeding subsurface in 3–4 feet of water on the above 11-acre flowage when it pulled its head out of the water, crying and splashing frantically. It ran across the water to the swan decoy. The bird sustained two 1/2″ long cuts terminated by punctures on the ventral surface of the mandible directly opposite each other at the edges of the bill. No northern pike were present in this small flowage and the bite was attributed to a snapping turtle.

In addition to these attacks, we suspect that a snapping turtle bit the tip off the bill of an 8-week-old, 6850-gram cygnet on 10 September 1991. The brood had been released from its cage and were roosting outside by this time but were still unable to fly. We found the cygnet at 10:30 A.M., sitting on the dike of a 10-acre flowage, covered in blood. The distal 1 cm of its bill was missing, and pulp tissue was exposed. The injury was a symmetrical, conical cut from the bill. The apex was punctured, resulting in a break similar to what the strong jaws and sharp beak of a snapping turtle might produce.

Discussion

Snapping turtles are found in virtually all types of freshwater wetland

habitats and their diets vary accordingly: Pell (1940) found that crayfish made up 100% of the diets of 3 turtles taken from pebbly streams but found that plant material comprised 80% of the material found in 10 turtles taken from marshy lakes. Alexander (1943) found 82% animal material, by volume, in 70 turtles trapped from lakes and only 35% from 137 turtles trapped from streams. Coulter (1957) studied areas with known high turtle and waterfowl abundance and found that up to 13% of the duckling population was lost to snapping turtles in 25 days. Lagler (1943) found that waterfowl comprised 27.5%, fish 10.3%, and plant material 53.5% of the stomach volume of 13 turtles taken from a wetland with known waterfowl broods; the 88 other lakes he investigated, which were not known to have waterfowl, contained 35.4% fish, 1.1% "other vertebrates," and 36.3% vegetable matter in 281 turtles.

With this high degree of variation in diet composition, seemingly related to food availability, it is difficult to generalize about what turtles eat. Little information is available from the cross-fostering work that was done in Wisconsin in 1987, but 11 cygnets are known to have hatched, and none survived beyond the age of 2 weeks. Lumsden (1986) also reported losses of Trumpeter Swans to snapping turtles in Ontario, and Willey (1968) attributed the losses of 26 Mute Swan cygnets on one pond in Rhode Island to snapping turtles. Given the frequency of attacks on swans, it would follow that a high number of ducklings are lost to snapping turtles. Lagler (1943) found 10 of the estimated 100 ducklings on one lake as remains in trapped turtles. Undoubtedly, the actual number of ducklings taken was much higher, given that he trapped only a portion of the resident population.

We were surprised that snapping turtles attacked such large cygnets, with one as large as a Canada Goose, and although many of the attacks might not have proven fatal, snapping turtles likely cause injuries to many birds that later become infected or otherwise render the birds incapacitated. We have observed foot and toe injuries on many Mute Swans banded in Wisconsin. Willey (1968) reported numerous observations of Mute Swans with toes, webs and feet missing as well. Stomach and gastrointestinal analyses on turtles cannot take such injuries and losses into account. The 6850-gram cygnet whose bill was bitten off could not have survived in the wild because it lost a great deal of blood and it was unable to eat. Similarly, the 3500-gram cygnet was a large bird for a turtle to handle, but considerable damage could have been done. Snapping turtles often feed by holding prey in their strong jaws and simultaneously tearing with their front claws (Punzo 1975). In this manner, the leg of a large bird could be shredded. Snapping turtles are opportunistic predators that very likely grab at the feet or bills of waterfowl when they encounter them. Where animal prey is not available, snapping turtles may be largely herbivorous; but where waterfowl are abundant, it is probably not uncommon for turtles to eat and injure them.

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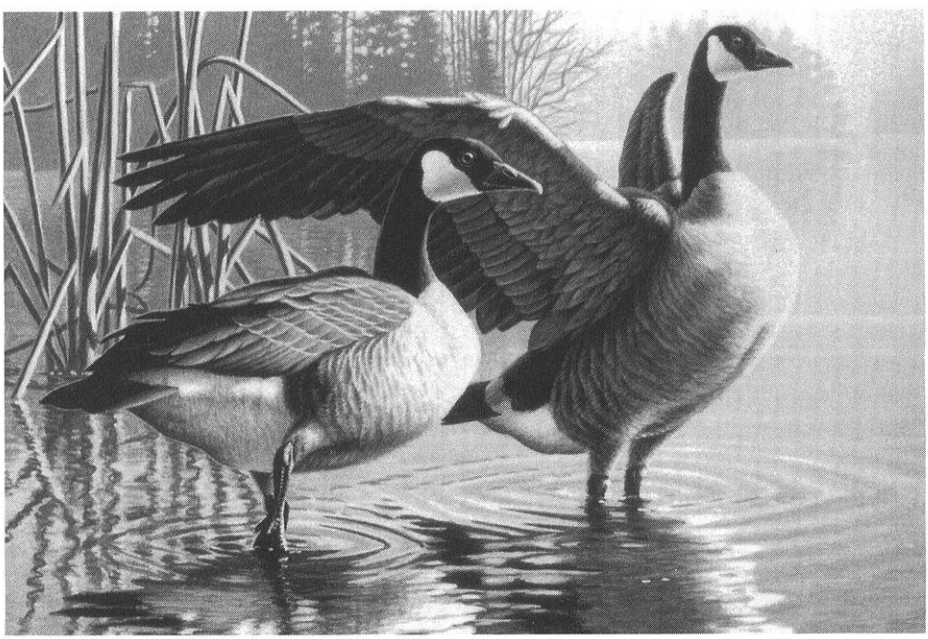

Canada Geese *by Frank Mittelstadt*
(This painting placed 5th in the 1993 Federal Duck Stamp competition)

Observations of a Lead Poisoned Trumpeter Swan

Subtle behavior changes were observed in a lead-poisoned Trumpeter Swan. Early detection may lead to more successful treatment.

by Becky Abel and Ilene Grossman

The Wisconsin Department of Natural Resources initiated a program to reintroduce Trumpeter Swans (*Cygnus buccinator*) to the state in 1987 with a recovery goal of 20 breeding pairs by the year 2000 (Matteson et al. 1988). Trumpeter Swans are listed as a state endangered species. Lead poisoning is a major cause of mortality in adult Trumpeter Swans. Although lead shot has been banned in most states, it persists for many years in the bottom sediments of lakes and marshes. Because swans often feed by tipping up and grubbing through muck, they are especially prone to ingesting lead shot, and the ingestion of just one lead pellet can kill a Trumpeter Swan (Blus et al. 1989). Additionally, lead fishing sinkers have been a cause of lead poisoning in swans.

Clinical treatment of lead poisoning is possible, but the treatment itself may be harsh. Treatment includes chelation and physical removal of lead from the gizzard (Degernes et al. 1990). The earlier that lead poisoning is noted in a swan the better the chances are that the bird can be successfully treated. The final stages of lead poisoning in waterfowl are well documented and include drooping wings, green feces, green staining of the vent, and erratic flight or flightlessness (Friend 1987). However, by the time these signs are noted, the disease has often progressed beyond the point where recovery is possible.

In 1989, we were able to spend many hours observing a lead-poisoned Trumpeter Swan (identified by its neckcollar code, 04KU) at the Crex Meadows Wildlife Area in Burnett County. The yearling male swan was the lone survivor of a Mute Swan (*Cygnus olor*)/Trumpeter Swan cross-fostering experiment undertaken at Phantom Lake in Waukesha County in 1988. 04KU had been treated for lead poisoning in November, 1988 and subsequently released at Crex with a 2-year-old captive-reared bird (02KU) in April, 1989. The pair were joined in late June by another 2-year-old bird (03KU) which walked from its release flowage. The 3 birds had been released

with clipped wings. Following the moult in August, they were able to fly. The 3 birds remained on North Fork Flowage throughout the summer, but began flying around the Crex Meadows/Fish Lake areas in September.

Prior to 28 October, the 3 swans acted as a group over all behavior categories: they generally ate, slept and preened at the same time. Additionally, the birds performed an elaborate series of calling and head-bobbing before flight. Usually one bird initiated head-bobbing, and the others soon joined in. Only after all birds were calling and head-bobbing together would the birds take flight. This involved lining up and facing the same direction (usually into the wind), running across the water and rising from the water together, and flying in close formation. We did not see instances of one bird taking flight without the others or of birds sleeping for long periods of time while others fed.

On 28 October, the behavior of 04KU changed slightly from that of his cohorts. We watched the 3 birds for a few hours on the small flowage at the Fish Lake Wildlife Area and noted: "04KU did not enter the water to feed with 02KU and 03KU after one of the loafing sessions. 02KU and 03KU fed 10–15 meters from where he slept. All 3 birds were observed flying together around the Fish Lake Wildlife Area on 2 occasions earlier today and nothing abnormal was noted."

On 1 November, all three birds returned to North Fork, 10 miles northeast of where they had spent the previous day. By 2 November, 02KU and 03KU were seen flying without 04KU at the Fish Lake and Crex areas. This was the first time that the group was seen on separate wetlands, and they had never been observed flying separately, not even for short flights around the marsh.

On 3 November, we arrived at North Fork to find it 75% frozen. 04KU loafed on the ice alone. While we watched 04KU, 02KU and 03KU flew in from the south and landed next to 04KU on the ice. They faced 04KU and head-bobbed, seemingly in an attempt to encourage him to fly. He did not respond by bobbing, but after 15 minutes of coaxing he flew with them for about ½ mile before dropping down and landing on ice. 02KU and 03KU circled back and landed beside him. Again, 02KU and 03KU encouraged 04KU to fly by facing him and bobbing. Ten minutes later, without bobbing, he took 6 steps across the water and was airborne. 02KU and 03KU also left the water, taking 10 and 15 steps, respectively. We trailed the birds in the car as they flew, just above treeline, back to Fish Lake Wildlife Area. 04KU did not lag behind the others during the flight, and all birds flew in synchrony. All 3 birds were observed feeding together on Grettum Flowage at Fish Lake Wildlife Area later in the day. 04KU's behavior appeared normal for the rest of the day.

On 4 November, we arrived at Grettum Flowage early in the morning and observed 04KU feeding with a group of swans. There was no sign of 02KU and 03KU and, in fact, they were never again observed with 04KU. On this day we noticed for the first time that, when loafing, 04KU crooked his neck a little. Because many reintroduced Trumpeter Swans were on Grettum Flowage, we observed the swans there from dawn to dusk. We were able to record all flights and their durations as well as the daily behavior of swans. Thus, once

04KU moved to Grettum Flowage, he was watched for virtually all the daylight hours every day.

On 5 November, 04KU was observed feeding with other swans throughout the day, and all behaviors seemed normal.

On 6 November, we watched 04KU fly with other swans, circling the wetlands once, but on another occasion they flew and he did not join them. Rather, he waited until they had landed and swam over to greet them. He swam with his neck crooked slightly when swimming alone, but held it erect when swimming in a line with other swans.

We noted on 7 November that 04KU drank a great deal of water throughout the day, although he still did not eat. He sought out the companionship of other swans at all times, swimming among them while they fed and preening with them on the loaf site. We attempted to capture 04KU by canoe to take him in for medical examination, but all birds ran across the top of the water as we approached. 04KU showed no difficulty keeping up. The other swans flew later in the day, but he made no effort to follow. After they landed, he swam to where they were (about 1/4 mile away), calling to them as he approached; he continued to swim and loaf among them as they fed. He swam with his neck leaning forward, similar to the way that a person leans forward when climbing a hill. Again, he drank frequently throughout the day.

On 9 November 04KU swam with his neck in a normal posture most of the day. He followed the other swans throughout the day as they fed. He still drank lots of water, and on this day was observed shaking his head after drinking. He was also observed gaping occasionally. We checked his loaf site for green feces but saw no abnormal feces.

On 10 November, we tried to catch 04KU again, but he and all the other swans flew within minutes after we put a canoe in the water. 04KU lifted off the water quickly, circled the wetland for one minute, and although he was the first bird to land, he appeared to be a strong flier. He preened with the other swans throughout the day, but did not follow them as closely as he had prior to this day. He did not seem as aware of the other swans or of his surroundings as he had been, and we could see through the spotting scope that his eyes were only partially open.

The morning of 11 November 04KU slept on a muskrat house while the other swans fed. He fed with the swans for 30 minutes in the afternoon—the first time since 5 November. Late in the afternoon, he slept alone on the muskrat house while the other swans fed.

Grettum Flowage froze over that night. On the morning of 12 November, we again attempted to catch 04KU, assuming that he would have difficulty taking off from ice. We put the canoe in and all the birds flushed except 04KU, who flapped across the ice. This was the first time we noted that, at rest, his wings drooped. We netted him with little effort and noted green feces on the ice. He struggled following capture, biting at us and kicking. He was taken to the Raptor Rehabilitation Center in St. Paul, MN, where he weighed in at 8905 grams (he had weighed 11,880 grams in April). 04KU died at the Raptor Rehabilitation Center on 13 November. His blood contained 2.37 parts per million

lead. (The staff at the Raptor Center consider .4 ppm or greater to indicate lead poisoning).He had a large tear in his intestine and 6 lead and 2 steel pellets were found in his gizzard.

Although it was emotionally trying to watch a swan waste away from lead poisoning and be unable to catch it, we were able to gather some new information on lead poisoning. The behavioral changes exhibited by 04KU were subtle but were apparent before the more classic signs of lead poisoning (drooping wings, green feces, and an inability to fly). Feeding slightly less than the other birds, drinking slightly more, and not responding to head-bobbing were earlier signs that we may not have detected had we not spent so many hours observing the swans. This bird was able to fly until at least 3 days before he died. Also, he did not isolate himself from conspecifics as has been reported in some lead poisoned birds. Swans are extremely social animals, and behavior among broodmates, pairs and cohorts is highly synchronous. The ability to detect slight behavioral differences among swans may lead to early diagnosis of lead poisoning and may increase the likelihood that an individual bird can be successfully treated. Although in many cases it may be difficult to capture a swan that is in the early stages of lead poisoning, in others it is entirely possible, e.g., when swans are flightless during the summer molt, or when some individuals become relatively tame during winter months. Additionally, many of the birds in Wisconsin's program were raised with decoy models and can be incited to follow the decoys into pens until they are a year or more old. Thus, there are situations when one could catch swans and provide treatment if lead poisoning were detected in its early stages.

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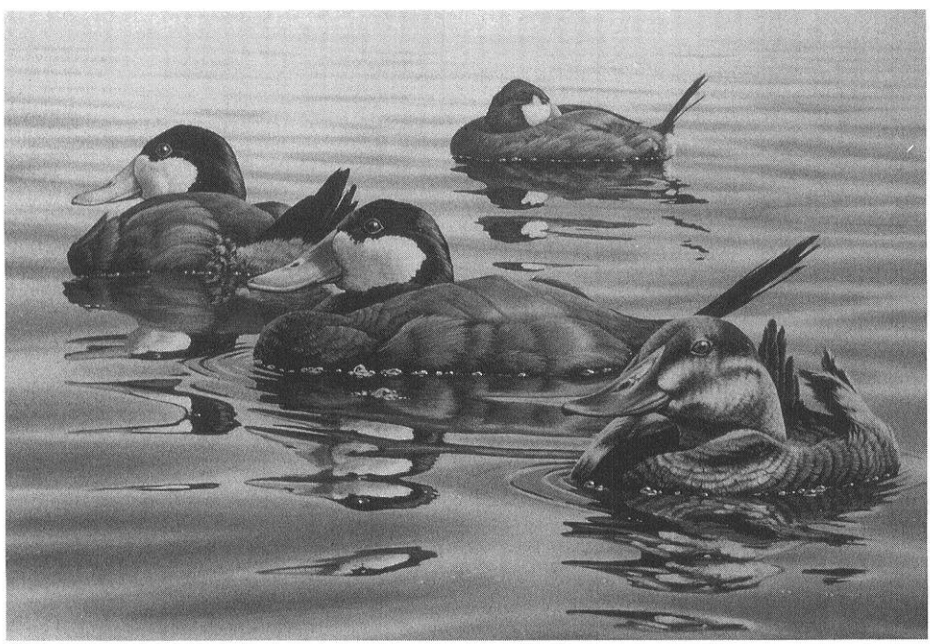
50 Years Ago in *The Passenger Pigeon*

"C. H. Thordarson recently has moved his library from Chicago to his home on Rock Island (Door County), Wisconsin. This library is known to be the best private collection on the development of English science in the country and includes over 50,000 original prints of flowers and birds with such items as the complete elephant folio or Audubon's *Birds of North America* as well as Gould's 29 volume folio of the *Birds of Australia*. Wisconsin should be proud to have so fine a library located within its borders.

In an article by Owen Gromme, "A Method of Starling Control," he describes how all of his bird homes are arranged with a trapping arrangement whereby his wife can pull strings that lead to the kitchen window from the bird houses and allows a bar to fall across the entrance hole. Gromme states, "So far she has caught every Sparrow and Starling that went into any of the houses. It does not take them long to realize the neighborhood is extremely unhealthy." You can use your imagination on the humane way Gromme handled the trapped birds. (Excerpts from Volume 4)



Ruddy Ducks *by Frank Mittelstadt*

The Winter Season: 1991–92

by Kenneth I. Lange

What was the winter of 1991–92 like? Generally mild, with less snow than usual. Much of the time it was cloudy and overcast ("gray and dismal"), so it was understandable that field note contributors would describe the period "In one word: BORING" (Karen Etter Hale in Jefferson County) and call it a "weird winter" (Eric Epstein in Monroe County). For northwestern Wisconsin, a snow cover persisted throughout the period, but after November the temperatures were generally above normal. In Douglas County, for example, as noted by Larry Semo, although 82 inches of snow had fallen by 2 December, with 40 inches on the ground, only another 16½ inches fell during the period, and most daytime temperatures were in the 20s.

At the beginning of the period, there was a snow cover of 6 inches or more in northwestern Wisconsin, whereas it was open or virtually so elsewhere in the state. December was generally mild. January was variable with cold weather in the middle of the month, and February was at first mild and then variable with snowfalls.

The generally mild winter was caused by an El Nino, which had been growing in the equatorial Pacific since last summer; in the last decade El Ninos have also occurred in 1982–83 and 1986–87 (*Passenger Pigeon* 1983, Volume 45, Number 4, pages 132–135, and 1987, Volume 49, pages 184–186). These massive climatic upheavals are caused by oscillations in the ocean and atmosphere, pushing warm water from the western Pacific to the eastern. The name El Nino (Spanish for "the child") refers to the tendency of the warm water to appear off the coast of South America around Christmas, ruining the region's anchovy harvest. The current El Nino may mitigate the global cooling expected from the May 1991 eruption of Mt. Pinatubo in the Philippines. It should run its course by the end of 1992. Earth's average temperature in 1991 actually ranked as the second highest on record, continuing a pattern of global warming that emerged during the 1980s (*Science News* 18 January 1992, Volume 141, page 37).

Did the mild and open winter cause some birds to linger and survive more

readily? Recall that the winter of 1990–91 also was mild and open. It is a question impossible to answer with absolute certainty, of course, but certain species, for example Great Blue Heron, Northern Harrier, Northern Bobwhite, and Carolina Wren, are especially suspect. See the species accounts for details.

Gulls in winter continue to be noteworthy. California Gull, a species new to Wisconsin, was discovered in Sheboygan County by Robert Hughes of Chicago on 29 November 1991; he again found it on 7 December 1991. The bird was documented by one other person, Charles Sontag, who noted it on 8 December 1991. The period also included Wisconsin's second documented winter Ivory Gull, an immature discovered by Richard Fleishmann in Ozaukee County; the bird was noted on 2–3 December. For the Lake Michigan shoreline, an additional 9 species of gulls were reported for the period, and 6 species were found in Lake Superior in Douglas County. Wondering when to make that winter trip to the Great Lakes to look for gulls? Mark Korducki of Milwaukee County made this observation: "Once the harbors finally froze, the gulls were more concentrated and easier to observe as they spent more time closer to shore."

Nine species of owls were reported for the period. The Snowy Owl staged a major invasion, at least in northwestern Wisconsin, where in Douglas County Semo documented "over 50." There were records for 18 counties, south to Racine, Dane, Taylor, and Pierce Counties. In the Ontario region, the Snowy Owl flight last fall was the heaviest in at least a decade, while the Northern Hawk Owl irrupted for the second successive autumn in what appeared to be the heaviest flight in 30 years (*American Birds,* Volume 46, Number 1, page 83, 1992). For the 1991–92 winter in Wisconsin, the latter owl was reported from 4 northwestern counties: single localities in Sawyer, Ashland and Bayfield Counties, and 3 places in Douglas County. The bird in Bayfield County was discovered by John F. and Marilee Radloff while they were cross-county skiing! The Great Gray Owl was represented by at least 2 birds, both adults, in Douglas County.

Diurnal raptors were represented by 13 species. Notable were Northern Harrier in 9 counties (not including migrants) after the Christmas Bird Counts, Northern Goshawk in 12 counties after the Counts, and 4 species of falcons.

Winter finches were relatively scarce in southern Wisconsin, but more numerous in the northern half of the state, especially Common Redpoll and Pine Grosbeak. Maybelle Hardy in Price County reported that Pine Grosbeaks fed on fruits of winterberry and high bush cranberry in the fall, then switched to black sunflower seeds at feeders. These reports of Pine Grosbeak and Common Redpoll correlate with high numbers of these species moving south in the Ontario region last fall (*American Birds,* Volume 46, Number 1, page 85, 1992).

Wisconsin's boreal element—the lure of the north woods—was illustrated by a snowshoeing trip into the Blackjack Springs Wildlife Area northeast of Eagle River, Vilas County, on 22 February by Kay Burcar and Robert C. Domagalski. They found two Spruce Grouse and a male and female Black-backed Woodpecker, then, while

watching the female woodpecker, "... a Northern Goshawk glides directly overhead, causing commotion in the Spruce Grouse tree ... All this time there were flocks of Gray Jays, Boreal Chickadees, and White-winged Crossbills around us." The day was overcast, relatively mild, and calm; these are the special moments that can touch the heart.

The Northern Shrike was generally in normal numbers in northern Wisconsin, and below normal in the western and southern parts of the state. Much the same pattern was noted for the Red-breasted Nuthatch—normal to above normal numbers in the north, generally low numbers in the south. After the Christmas Bird Counts, the Brown Creeper was reported from 5 counties, all northern, and the Golden-crowned Kinglet from 13 counties, including Vilas (3 January), Oconto (5 January), and Door (18 January).

The Red-bellied Woodpecker ranged north to the following counties: Ashland (near Butternut), Marathon, Oconto, and (Washington Island) Door. After the Christmas Bird Counts, the Red-headed Woodpecker was reported from 8 counties, and the Northern Flicker from 9.

For the second consecutive winter there were no records for Townsend's Solitaire. This species was regular in Devil's Lake State Park, Sauk County in winter in the 1980s, but has not been found here for several years. The Varied Thrush, in contrast, continues to appear in winter; for this winter, it was found in Dane, Door, and Taylor Counties. The American Robin was reported for the entire period in approximately 12 counties, north to Bayfield, Ashland, and Oconto Counties; maximum counts were in Milwaukee County (40) and Dane County (70). There were 2 records of solitary Hermit Thrushes after the Christmas Bird Counts, one in Milwaukee County and another in Dane County. The Eastern Bluebird was likewise found in 2 counties after the Christmas Bird Counts, namely a group of 3 in Dane County on 21 January and 2 males feeding on the fruits of swamp holly in Waupaca County on 25 January.

The only large group of Lapland Longspurs after the Christmas Bird Counts was a flock of 75 on 16 January in Dane County. Snow Buntings were reported in 17 counties after the Christmas Bird Counts; large flocks (75–250) were found in Winnebago, Outagamie, and Pierce Counties.

Northern limits for the House Finch were Bayfield, Ashland, Taylor, and Oconto Counties. Sparrows, other than the American Tree Sparrow, were represented after 1 January by the following species: Fox Sparrow, Song Sparrow, Swamp Sparrow, White-throated Sparrow, and White-crowned Sparrow.

For at least the second consecutive winter, as reported by Domagalski, hundreds of Red-winged Blackbirds (at least 750) spent the entire period in the Horicon Marsh area, Dodge County, with Brewer's Blackbird (maximum 22), Common Grackle (maximum 67), and Brown-headed Cowbird (maximum 300+). The birds foraged in fields and farmyards adjoining the marsh, then, at dusk, flew into the marsh to roost. The wintering birds were joined by migrants in late February. For a discussion of birds in Horicon Marsh in past winters, see *Passenger Pigeon,* 1985, Volume 47, Number 4, pages 53–59.

Red-wings and grackles also over-

wintered in other counties; see the species accounts for details.

Late fall migration was reported for the Tundra Swan, Snow Goose, and Canada Goose. Spring migration was reported for the following species: Tundra Swan, Snow Goose, Canada Goose, at least 3 species of puddle ducks and 9 species of diving ducks, Bald Eagle, Northern Harrier, Sharp-shinned Hawk, Cooper's Hawk, Red-tailed Hawk, Rough-legged Hawk, American Kestrel, Sandhill Crane, Killdeer, Ring-billed Gull, Herring Gull, Belted Kingfisher, Horned Lark, Cedar Waxwing, American Robin, Song Sparrow, Red-winged Blackbird, Rusty Blackbird, Common Grackle, and Brown-headed Cowbird. See the species accounts for details.

A total of 69 people contributed records covering 55 counties. The counties with the most extensive coverage (8–11 reports) were Dane, Douglas, Milwaukee, Ozaukee, and Sheboygan. The following 17 counties, scattered throughout the state, were not covered: Adams, Burnett, Calumet, Clark, Florence, Fond du Lac, Iron, Kewaunee, Lafayette, Langlade, Marinette, Marquette, Menominee, Rusk, St. Croix, Washburn, and Wood.

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

Abbreviations used in the species accounts: BOP—beginning of the period, EOP—end of the period, TTP—throughout the period, m. obs.—many observers, and CBC—Christmas Bird Count(s).

Reports (1 December 1991–29 February 1992)

Common Loon.—After the CBC, this record: 2 on Green Lake, Green Lake County, 28 December–11 January (Schultz).

Pied-billed Grebe.—After the CBC, these records: Oconto County, through 19 January, 1 (Smiths), and Dane County, 17 February (Burcar).

Double-crested Cormorant.—Apparently TTP in Brown County (mouth of the Fox River in Green Bay by the power plant, maximum 5, adults and immatures; Mead, Tessen) and Winnebago County (Fox River in Menasha, 4 immatures, some if not all with damaged or deformed wings; Nussbaum).

Great Blue Heron.—After the CBC, records for 11 counties, north to Polk, Monroe, Dodge, and Outagamie Counties (m. obs.).

Tundra Swan.—Fall migrants (38) on 2 December in Dodge County (Burcar and Domagalski), solitary wintering birds in Walworth and Vernon Counties (Tessen, Dankert), and spring migrants (4) on 23 February in Crawford County (Dankert).

Trumpeter Swan.—A neck-collared bird on Green Lake, Green Lake County, 16 December until 28 January, when it was captured by DNR personnel after the lake had frozen on 25 January (Schultz).

Mute Swan.—Racine, Milwaukee, Dane, Shawano, and Douglas Counties (m. obs.).

Snow Goose.—Fall migrants (13) on 2 December in Dodge County (Burcar and Domagalski) and 4 December (45) in Walworth County (Parsons); TTP in Milwaukee County (m. obs.) and (a lone bird) Winnebago County (Nussbaum); and spring migrants (1–3) on 22 February in Walworth, Columbia, and Dane Counties (Tessen, Martin, Hansen).

Canada Goose.—Fall migration in the first half of December. TTP in at least 15 counties, from se Wisconsin to Ashland and Bayfield Counties (and Douglas County?). Spring migration mainly on 22–23 and 27–29 February,

north to Trempealeau, Jackson, Monroe, Columbia, Dodge, and Sheboygan Counties, but in Dane County (Ashman) as early as 3 February (12 January?).

Wood Duck.—TTP (m. obs.) in Walworth, Milwaukee, Winnebago, and Waupaca Counties (1–4 birds), with one in LaCrosse County, 19 February (Dankert).

Green-winged Teal.—Milwaukee County, 1–10 January (m. obs.), and a migrant in Walworth County, 23 February (Tessen).

American Black Duck.—TTP in 12 counties scattered throughout the state (m. obs.).

Mallard.—TTP in 16 counties scattered throughout the state (m. obs.). Migrants by EOP in Douglas County (LaValleys).

Northern Pintail.—Milwaukee County, apparently one TTP (m. obs.). Migrants (22) in Dane County, 29 February (Burcar).

Northern Shoveler.—TTP in Sheboygan County (Brassers), also Dane County, maximum 25, 20 January (Tessen).

Gadwall.—TTP in Milwaukee, Sheboygan, Manitowoc, and Dane Counties (m. obs.), also (Parsons) Walworth County, 3 February, 1.

American Wigeon.—TTP (1–5 birds) in Milwaukee, Sheboygan, Outagamie, and Dane Counties (m. obs.).

Canvasback.—TTP (1–4 birds) in Walworth, Dane, and LaCrosse Counties (m. obs.). Migrants on 26 February in Vernon County (Dankert).

Redhead.—TTP (1–2 birds) in Walworth County (Parsons, Tessen), and one on 1 January in Winnebago County (Tessen). Migrants on 23 February in Dane County (Burcar, Tessen) and Vernon County (Dankert).

Ring-necked Duck.—One TTP in Walworth County (Parsons) and Waupaca County (Nussbaum, Tessen). Migrants on 23–29 February in Dane County, maximum 9 (Burcar), and on 29 February in Walworth County, maximum 12 (Parsons), and Vernon County (Dankert).

Greater Scaup.—TTP in Walworth County, also Lake Michigan, north to Door County (m. obs.). Migrants on 23 February in Vernon County (Dankert).

Lesser Scaup.—TTP in Walworth County, maximum 250, 20 January (Parsons) and Milwaukee and Ozaukee Counties (m. obs.). Through 5 February , 1, Manitowoc County (Sontag).

Harlequin Duck.—Milwaukee County, 14 December–29 February (m. obs.), also a male in the Fox River in Kaukana, Outagamie County, 25 December–29 January (Hammen, Tessen).

Oldsquaw.—Lake Michigan, north to Manitowoc County; Tessen estimated a total of 800 in Sheboygan County, 22 February. Ashman found 6 in Dane County, 1 December, and Schultz found a female on Green Lake, Green Lake County, 28 December–11 January.

Black Scoter.—One in Racine County, 10–11 January (Korducki, Peterson).

Surf Scoter.—One in Milwaukee County, 6–25 January (m. obs.).

White-winged Scoter.—Racine County, 10 January (Korducki), and Sheboygan County, 22 February, 10 (Tessen).

Common Goldeneye.—TTP in Walworth County; Lake Michigan, north to Door and Oconto Counties; Winnebago and Outagamie Counties; the Wisconsin River, Dane and Sauk Counties; Polk County; and Douglas County. Migrants, 12 February-EOP, in Dane, Dodge, Waupaca, Crawford, and Vernon Counties, and the Ashland area (m. obs.).

Bufflehead.—TTP in Walworth County, also Lake Michigan, north to Door County. Migrants on 23 February in Vernon County (m. obs.).

Hooded Merganser.—TTP in Walworth, Milwaukee, Outagamie, and LaCrosse Counties. Migrants, 22 February–EOP, in Vernon, Sauk, and Iowa Counties (m. obs.).

Common Merganser.—TTP in Lake Michigan, north to Brown and Oconto Counties;

Winnebago and Outagamie Counties; the Wisconsin River, Dane and Sauk Counties; Polk County; and Douglas County. Migrants, 20 February–EOP, in Dodge, Dane, Crawford, LaCrosse, and Pierce Counties (m. obs.)

Red-breasted Merganser.—TTP in Milwaukee, Ozaukee, and Manitowoc Counties (m. obs.).

Ruddy Duck.—TTP in Milwaukee County (m. obs.). Migrants in Winnebago County, 17 February–EOP, 1 (Nussbaum), and Rock County, 23 February, 12 (Tessen).

Bald Eagle.—TTP in Douglas, Polk, Pierce, Dunn, LaCrosse, Sauk, Winnebago, Outagamie, and Door Counties. Peak numbers, e.g. approximately 75 on 29 February in LaCrosse County, in the last 2 weeks of the period (m. obs.).

Northern Harrier.—After the CBC, records for these counties: Dunn, Oconto, Portage, Waushara, Manitowoc, Ozaukee, Dodge, Jefferson, and Dane. Migrants, 22–28 February, in Kenosha, Ozaukee, Jefferson, and Iowa Counties (m. obs.).

Sharp-shinned Hawk.—After the CBC, records for 13 counties, north to Douglas (9 January), Marathon, Oconto, and Door Counties. Migrants, 15–29 February, in Walworth, Dane, Outagamie, Monroe, and Taylor Counties (m. obs.).

Cooper's Hawk.—After the CBC, records for 14 counties, north to Monroe, Marathon, Oconto, Brown, and Manitowoc Counties. Migrants by 16 February in southern Wisconsin, e.g. Dodge County (m. obs.).

Northern Goshawk.—After the CBC, records for the following counties: Douglas, Vilas, Oconto, Door, Polk, Dunn, Taylor, Lincoln, Marathon, Monroe, Sauk, and Dane (m. obs.).

Red-shouldered Hawk.—After the CBC, one in Dane County, 4 January (Robbins), and an adult, 4 and 18 January, in floodplain forest in Monroe County (Epstein).

Red-tailed Hawk.—Northward to these counties: Douglas, TTP; Price, 11 January; Oneida, 12 January; and Oconto, TTP (m. obs.). Migrants in Trempealeau County, 23 February (Hunter).

Rough-legged Hawk.—The usual late winter migration. The Smiths noted a maximum of 51 on 23 February in Oconto County.

Golden Eagle.—After the CBC, these records: Monroe County, through 7 February, 2 (Epstein), and Buffalo County, 29 January, an immature (Burcar and Domagalski).

American Kestrel.—Northward and at least into January in the following counties: Douglas, Taylor, Marathon, and Door. Migration most pronounced, 19–23 February, north to the Ashland area (m. obs.).

Merlin.—After the CBC, these records: one in Eau Claire, Eau Claire County, 18 January (Betchkel), and one in Manitowoc County, 14–17 February (Belter).

Peregrine Falcon.—Milwaukee County, TTP, released birds (m. obs.); Dane County, 1–2 by the state capitol TTP (Ashman); and Dodge County, 20 December-19 January (Burcar).

Gyrfalcon.—Douglas County, 28 December–EOP (m. obs.).

Gray Partridge.—Grant, Columbia, Juneau, Ozaukee, and Oconto Counties (m. obs.).

Ring-necked Pheasant.—Northward to these counties: Douglas, 9 December; Taylor, TTP; and Door, TTP.

Spruce Grouse.—Excluding the CBC, records for Vilas and Price Counties.

Ruffed Grouse.—Low numbers in southern Wisconsin, e.g. Monroe and Sauk Counties.

Greater Prairie-Chicken.—Taylor County (Armbrust), Marathon County (Belter), and Portage County (Belter).

Sharp-tailed Grouse.—Taylor, Price, and Douglas Counties (m. obs.).

Wild Turkey.—Dane, Iowa, Grant, Sauk,

Richland, Monroe, Trempealeau, Pierce, Green Lake, and Sheboygan Counties (m. obs.).

Northern Bobwhite.—After the CBC, records for these counties: Taylor, TTP; Columbia, 12 February, 2; and Sheboygan (m. obs.).

American Coot.—TTP in these counties: Walworth, maximum 350, 13 January (Parsons); Milwaukee, maximum 20, 1 January (Korducki); Dane, maximum 100, 20 January (Ashman); and Eau Claire, 2 (Polk).

Sandhill Crane.—Robbins found this species in Dane County, 25 February.

Killdeer.—Migrants, 23–26 February, in Dane, Vernon, Monroe, and Trempealeau Counties (m. obs.).

Purple Sandpiper.—One in winter plumage in Sheboygan County, apparently TTP (m. obs.); the second successive winter for this species here.

Common Snipe.—TTP in Dane County (Burcar) and Sauk County (Lange).

Bonaparte's Gull.—Milwaukee County, 1 December (m. obs.).

Mew Gull.—At least 2 in Milwaukee County, 4 January–10 February (m. obs.).

Ring-billed Gull.—TTP in Lake Michigan, north to Manitowoc County, but reduced numbers after the cold weather of mid January. Also TTP in Winnebago County. Migrants, mainly 17–29 February, in Winnebago, Dane, Crawford, and LaCrosse Counties (m. obs.)

California Gull.—Wisconsin's first was an adult in winter plumage in the mouth of the Sheboygan River, Sheboygan County, 29 November–8 December (Hughes, Sontag).

Herring Gull.—TTP in Lake Michigan, north to Door County, also TTP in Winnebago and Outagamie Counties, and Douglas County, where Johnson reported a maximum of 400 on 1 January. Migrants, 19–25 February, in Dane, Sauk, and Vernon Counties (m. obs.).

Thayer's Gull.—Milwaukee Co., 4 January–EOP, at least 3 (Korducki, Boldt); Port Washington harbor, Ozaukee County, 27 December–23 February, 1 (Korducki, Domagalski); Sheboygan County, 4 January–22 February, 1 (Korducki, Boldt); Prairie du Sac dam, Sauk County, 5–6 December, 1 (Burcar); and Douglas County, 2–23 January, at least 2 (Burcar).

Iceland Gull.—Milwaukee County, 2 December–14 February, at least 2 (Boldt); Two Rivers, Manitowoc County, 11 February, 1 (Peterson); Prairie du Sac dam, Sauk County, 28 November–6 December, 1 (Burcar); and Douglas County, 5 January–22 February, 1 (Johnson, Burcar, Semo).

Lesser Black-backed Gull.—Single birds in Milwaukee County, 13–20 February; Sheboygan County, 1 February; Manitowoc County, 3 December; and Douglas County, 2–22 January (m. obs.).

Glaucous Gull.—Milwaukee, Ozaukee, Sheboygan, Manitowoc, and Brown Counties, 3 December–EOP (m. obs.); Winnebago County, 7 December–25 February, maximum 3 adults and 2 immatures, 21 February (Nussbaum); Columbia and Sauk Counties, 1–5 December (Burcar); and Douglas County, TTP, maximum 35, 1 January (Johnson).

Great Black-backed Gull.—Milwaukee County, 14 February, 1 (Korducki); Ozaukee County, a first year bird, 25 January (Gustafson); Sheboygan County, 1–22 February, 2 (Korducki, Brassers); Manitowoc County, TTP, at least 3 (m. obs.); and Douglas County, 5 January–27 February, 1 (m. obs.).

Ivory Gull.—Wisconsin's second winter record, an immature in the Port Washington harbor, Ozaukee County, 2–3 December, initially discovered by Fleischmann.

Rock Dove.—Northward to Douglas, Oconto, and Door Counties, where TTP (m. obs.).

Mourning Dove.—Northward to Douglas, Price, Vilas, and Door Counties, where TTP (m. obs.).

Eastern Screech-Owl.—After the CBC, records for these counties: Milwaukee, Ozaukee,

Dodge, Columbia, Winnebago, Shawano, Taylor, Crawford, Vernon, and LaCrosse (m. obs.).

Snowy Owl.—A major invasion, at least in northwestern Wisconsin, where in Douglas County Semo documented "over 50." Records for 18 counties, south to Racine, Dane, Taylor, and Pierce Counties (m. obs.).

Northern Hawk-Owl.—Reported from 4 northwestern counties: Sawyer, T38N R5W, Section 11, 5 December (Lowell Tesky via Lauten/Castelein); Ashland, 1–1½ miles south-southeast Glidden, 1 January–EOP (Spreeman, Peterson); Bayfield, Telemark Resort, 29 December (Radloff); and Douglas, 3 localities, 1 December–16 February (Semo, Burcar and Domagalski).

Great Gray Owl.—At least 2, both adults, in Douglas County, 22 December and 2–3 February (Semo, Burcar and Domagalski).

Long-eared Owl.—After the CBC, reported from Vernon Marsh, Waukesha County, maximum 9, probably TTP (Boldt).

Short-eared Owl.—TTP in Ozaukee County, at least 2 (Boldt), and Oconto County, maximum 3, 2 February (Smiths).

Northern Saw-whet Owl.—After the CBC, records for Milwaukee, Dane, and Crawford Counties (m. obs.).

Belted Kingfisher.—After the CBC, records for Vernon, Monroe, Trempealeau, Oconto, Dane, and Milwaukee Counties. Migrants (?) in Dodge and LaCrosse Counties, 23 February (m. obs.).

Red-headed Woodpecker.—After the CBC, records for these counties: Vernon, Monroe, LaCrosse, Trempealeau, Taylor, Oconto, Green Lake, and Dane (m. obs.).

Red-bellied Woodpecker.—Northward to the following counties, where TTP: Ashland (near Butternut), Marathon, Oconto, and (Washington Island) Door (m. obs.).

Yellow-bellied Sapsucker.—After the CBC, one record: Douglas County, through 3 January, 2 (LaValley).

Black-backed Woodpecker.—After the CBC, reported in Douglas and Vilas Counties (m. obs.).

Northern Flicker.—After the CBC, records for these counties: Monroe, Sauk, Dane, Columbia, Winnebago, Shawano, Brown, Oconto, and Ozaukee (m. obs.).

Horned Lark.—TTP in southern and central Wisconsin, e.g. north to Pierce, Taylor, and Winnebago Counties. Migration most pronounced in February, mainly the last 2 weeks (m. obs.).

Gray Jay.—Excluding the CBC, records for these counties: Douglas, Ashland, Vilas, Oneida, Forest, Taylor, Price, and Lincoln (m. obs.).

Common Raven.—Southernmost records for Monroe County, TTP (Kuecherer), and Shawano County, 4 January (Tessen).

Boreal Chickadee.—Excluding the CBC, records for these counties: Bayfield, Vilas, Oneida, Forest, and Lincoln (m. obs.)

Tufted Titmouse.—Excluding the CBC, records for these counties: Monroe, Vernon, Crawford, Grant, Iowa, Dane, Sauk, Columbia, and Ozaukee (m. obs.).

Red-breasted Nuthatch.—Throughout the state, normal to above normal numbers in the north, generally low numbers in the south (m. obs.).

White-breasted Nuthatch.—Northward to Douglas, Price, Vilas, and Door Counties, where TTP (m. obs.).

Brown Creeper.—After the CBC, northernmost reports from these counties: Douglas, 25 January, 2 (Johnson); Price, TTP (Hardy); Vilas, TTP (Baughman, Korducki); Oconto, 9 February, 1 (Smiths); and Door, TTP (Dee).

Carolina Wren.—One in Bayside, Milwaukee County, 18 December–19 February (Bontly); 2–3 in Madison, Dane County, through 21 January (m. obs.); 2 at a feeder TTP in Brown County (Mead); 1 at a feeder TTP on Washington Island, Door County (Dee); and one on the

Three Lakes CBC, Oneida County, 27 December.

House Wren.—One in Madison, Dane County, 20 December (Robbins).

Winter Wren.—Latest date, 26 December, one in Columbia County (Burcar).

Marsh Wren.—TTP in Horicon Marsh, Dodge County (Burcar).

Golden-crowned Kinglet.—January records for 8 counties, including Vilas, Oneida, Oconto, and Door Counties; February records for LaCrosse, Green Lake, Winnebago, Manitowoc, and Dodge Counties (m. obs.).

Eastern Bluebird.—After the CBC, these reports: Dane County, 21 January, 3 (Burcar), and Waupaca County, 25 January, 2 males feeding on the berries of swamp holly (Tessen).

Hermit Thrush.—One TTP in Milwaukee County (Domagalski), and one in the University of Wisconsin Arboretum in Madison, Dane County, 1 and 28 January (Ashman, Hansen).

American Robin.—TTP in at least 10 counties, north to the Ashland area; high numbers were 70 in Dane County and 40 in Milwaukee County. Migration, 22–28 February, in Walworth, Milwaukee, and Polk Counties (m. obs.).

Varied Thrush.—A male at a feeder in Madison, Dane County, BOP-22 January (m. obs.); a male at a feeder in Gilman, Taylor County, 10 December–18 January (Armbrust); and one in Door County, 3–20 December (Lukes).

Gray Catbird.—One in Dodge County, 23 February (Burcar and Domagalski).

Brown Thrasher.—After the CBC, one record, a bird in Green Lake County, 5 January (Schultz).

Bohemian Waxwing.—Reported from 10 counties, south to Monroe, Marathon, and Shawano Counties (m. obs.); maximum numbers 197 (Ashland area, 15 January, Verch) and 150 (Shawano County, 1 January, Peterson).

Cedar Waxwing.—Relatively few records-8 counties after the CBC; northernmost reports from Shawano and Oconto Counties (m. obs.).

Northern Shrike.—Generally normal numbers in northern Wisconsin, below normal in the western and southern parts of the state (m. obs.).

Loggerhead Shrike.—One at a feeder in Price County, 20–21 December (Vincent).

European Starling.—Northward to these counties, where TTP: Douglas, Price, Vilas, and Door (m. obs.).

Yellow-rumped Warbler.—1–2 TTP in Dunlap Hollow near Mazomanie, Dane County (Burcar).

Northern Cardinal.—Northward to the Ashland area (Verch), Shawano County (Peterson), and Door County (Washington Island, Dee), where TTP.

Rose-breasted Grosbeak.—One lingered in the Ashland area through 5 December (Verch).

Rufous-sided Towhee.—After the CBC, these records: one in Dodge County through 14 February (Diehl), and a male TTP at a feeder in the Brule area, Douglas County (Perala).

American Tree Sparrow.—Northward to these counties: Price, 1 December (Hardy); Taylor, TTP (Armbrust); Shawano, TTP (Peterson); and Door, TTP (Lukes). Tessen found a flock of 175 in Kenosha County, 1 February.

Chipping Sparrow.—1 December, Dane County (Burcar).

Savannah Sparrow.—After the CBC, this record: one in Milwaukee County, 1 January (Korducki).

Fox Sparrow.—After the CBC, this record: 2 in the University of Wisconsin Arboretum in Madison, Dane County, 15 January–3 February (Ashman, Burcar).

Song Sparrow.—TTP in Milwaukee, Dane,

Sauk, and Dodge Counties, and probably TTP in several other southern counties (m. obs.). Migration, 22 February–EOP, in Walworth (Tessen) and Monroe (Richter) Counties.

Lincoln's Sparrow.—One in Milwaukee County, 1 January (Korducki).

Swamp Sparrow.—TTP in Milwaukee County (Boldt), maximum 5, 1 February (Domagalski), and the University of Wisconsin Arboretum in Madison, Dane County, 1–2 (Ashman).

White-throated Sparrow.—Walworth County, through 19 February, 2 (Parsons); Milwaukee County, TTP, 1–2 (m. obs.); numerous in the University of Wisconsin Arboretum in Madison, Dane County, e.g. 14 on 4 January (Hilsenhoff); and Chippewa County, 1 January (Robbins).

White-crowned Sparrow.—After the CBC, these records: Milwaukee County, an immature, apparently TTP (Boldt), and Kenosha County, 3, 1 February (Tessen).

Dark-eyed Junco.—Northward to these counties: Douglas, 29 December (Burcar); Price, 25 January (Hardy); Taylor, TTP (Armbrust); Shawano, TTP (Peterson); and Door, TTP (Lukes).

Lapland Longspur.—After the CBC, reported from these counties: Walworth, Dodge, Outagamie, Dane, Sauk, Monroe, and Taylor (m. obs.). All reports were of 1–3 birds, except for a flock of 75 in Dane County, 16 January (Burcar).

Snow Bunting.—Records from 17 counties after the CBC; large flocks (75–250) in Winnebago, Outagamie, and Pierce Counties (m. obs.).

Red-winged Blackbird.—TTP in Dodge County, where at least 750 fed in fields and farmyards adjoining Horicon Marsh and roosted in the marsh (Domagalski). Also TTP in Manitowoc County, 1 (Sontag), Outagamie County, maximum 5 (Nussbaum), Dane County (m. obs.), and the Ashland area, one at a feeder (Verch). Migrants, 22–23 and 28–29 February, in 12 southern counties (m. obs.); approximately 50,000 in Horicon Marsh, Dodge County, by EOP (Burcar and Domagalski).

Yellow-headed Blackbird.—At least one through 19 January in the Horicon Marsh area, Dodge County (Domagalski).

Rusty Blackbird.—After the CBC, these records: Outagamie County, TTP, 1 (Nussbaum); LaCrosse County, 26 January, 3 (Dankert); and Taylor County, 14 January (Armbrust). Migrants (Dankert) in Crawford County, 23 February, and Vernon County, 28 February.

Brewer's Blackbird.—A total of 22 in 2 flocks, Horicon Marsh area, Dodge County, 2 February (Burcar); may have overwintered (Domagalski).

Common Grackle.—TTP in the Horicon Marsh area, Dodge County, maximum 67 in early February (Domagalski). Also TTP in Outagamie, Dane, Sauk (?), and Trempealeau Counties. Migrants, 21–22 and 26–29 February, in Walworth, Milwaukee, Jefferson, Dane, Columbia, Sheboygan, and Winnebago Counties (m. obs.). One in Taylor County, 19 February, could have been a wintering bird or an early migrant.

Brown-headed Cowbird.—A flock of 25–150 roosted near the state capitol in Madison, Dane County; they were dispersing by early February (Ashman). Also TTP in the Horicon Marsh area, Dodge County, maximum 300+, early February (Domagalski). Tessen reported a group of 5 migrants in Ozaukee County, 22 February.

Pine Grosbeak.—Only in northern Wisconsin, where it was reported from 8 counties, TTP, with maximum flocks of 9–10 individuals (m. obs.).

Purple Finch.—Relatively uncommon; maximum numbers, 24–32 (m. obs.).

House Finch.—Northward to Bayfield, Ashland, Taylor, and Oconto Counties (m. obs.). Zehner heard this species singing in Fox Point, Milwaukee County, 24 December, and Lange heard it in Baraboo, Sauk County, 21 January.

Red Crossbill.—Douglas County, TTP (LaValley), and Dane County, 10 January (Burcar).

White-winged Crossbill.—After the CBC, records for these counties: Douglas, TTP;

Vilas, through 22 February; Oneida, 3 January; Price, 25 January; Lincoln, 11 January; Marathon, 4 January; and Shawano, 8 January. Maximum numbers, 8–12 (m. obs.).

Common Redpoll (including Hoary Redpoll).—Widespread in northern Wisconsin, but only reported from Dane and Milwaukee Counties in the southern 3 tiers of counties. Flocks of 100 and more noted in 6 counties: Price, Taylor, Lincoln, Marathon, Outagamie, and Monroe. Hoary Redpolls (1–2) were found in Price, Lincoln, Shawano, and Milwaukee Counties (m. obs.).

Pine Siskin.—Mainly in northern Wisconsin; also Dane, Jefferson, and Milwaukee Counties (m. obs.). Maximum number, 40, 28 January, Marathon County (Belter).

American Goldfinch.—Northward to the Ashland area, TTP, and these counties: Vilas, through 16 December; Oconto, TTP; and Door, TTP (m. obs.).

Evening Grosbeak.—Widespread in northern Wisconsin (m. obs.), but in the southern 3 tiers of counties only reported from Racine County, 1 January, 1 (Gustafson).

House Sparrow.—Northward to these counties, where TTP: Douglas, Vilas, and Door (m. obs.).

Eurasian Tree Sparrow.—One at the David R. Lindsley feeder on County Highway W in Pierce County for the 5th consecutive winter; observed by Burcar and Domagalski, 29 January.

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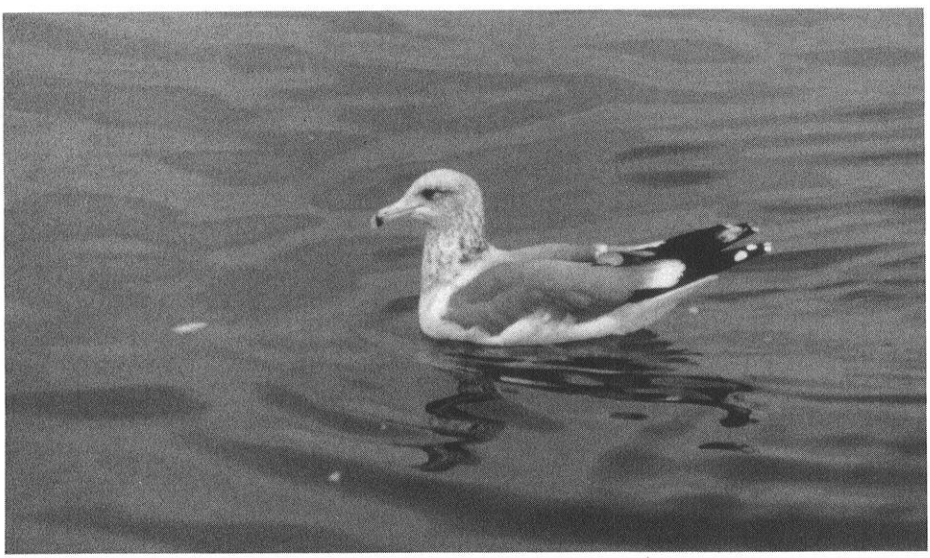
Mew Gull (4 January 1992, Milwaukee Co.) *photo by T. R. Schultz*



California Gull (29 November 1992, Sheboygan Co.) *photo by Robert Hughes*

"By the Wayside"

Accounts of unusual behavior involving Common Loons, Green-winged Teal, Bald Eagles, Rough-legged Hawk, American Crow and Rufous-sided Towhee. Records of Gyrfalon, American Avocet, Purple Sandpiper, Mew Gull, California Gull, Thayer's Gull, Iceland Gull, Lesser Black-backed Gull, Great Black-backed Gull, Ivory Gull, Least Tern, Northern Hawk-Owl, Great Gray Owl, Carolina Wren and Loggerhead Shrike.

Common Loon Aggression Toward River Otters and a Beaver

25 May 1985, Iron County—Aggressive behavior by Common Loons (*Gavia immer*) toward waterfowl has been well documented (Sperry, Common Loon attacks on waterfowl, *Journal of Field Ornithology* 58:201–205, 1987, Kirkham and Johnson, Interspecific aggression in loons, *Journal of Field Ornithology* 59:3–6, 1988). Barklow (The use of the tremolo call during mobbing by the Common Loon, *Journal of Field Ornithology,* 1984) reported Common Loons mobbing a coyote (*Canis latrans*) during which time the coyote drowned. However, excepting humans, there is no documentation to date of aggressive interactions between Common Loons and mammals during the loon's incubation period. I describe 3 occurrences of aggression between Common Loons and river otters (*Lutra canadensis*) and a beaver (*Castor canadensis*).

On 25 May 1985 on a 24-ha lake, I observed an aggressive, physical interaction between a loon and an otter. The otter was observed swimming along shore toward a member of a pair of nesting loons. The loon splash dove (McIntyre, *The Common Loon: spirit of northern lakes,* University of Minnesota Press, Minneapolis, MN, 1988) and surfaced within 1 m of the otter. Both immediately dove, spraying water. Although my view was partially obscured by spraying water, physical contact between the loon and otter was apparent. The loon and otter rolled together repeatedly at the surface. The physical encounter lasted about 8 sec. The otter surfaced 15 m from the site and swam toward shore. The loon remained at the site, wingflapped (McIntyre, *op. cit.,* 1988), and began preening.

A second aggressive encounter involving a loon and an otter was on the

same lake on 31 May 1985. An otter moving along shore dove into the water about 20 m from a drifting loon. The loon immediately splash dove, and the animals surfaced about 3 m apart. The otter dove, spraying water; the loon peered (McIntyre, *op. cit.,* 1988) twice, either to observe the otter or as displacement behavior. The loon splash dove and surfaced 40 m away. The otter surfaced about 30 m from the loon and swam toward it. The loon peered, splash dove, and surfaced 5 m from the otter. The otter dove and reappeared within 3 m of shore. The loon, now about 25 m from the otter, responded with a wail call followed by a tremolo call (McIntyre, *op. cit.,* 1988). The otter dove and was no longer observed. The loon peered several times, then wingflapped. The interaction lasted approximately 6 min. No physical contact was observed.

On 21 May 1985 on a 20-ha lake, an aggressive encounter occurred between a loon and a beaver. The beaver entered the water approximately 80 m from a pair of territorial loons which then assumed head straight posturing (McIntyre, *op. cit.,* 1988). Both loons dove, 5 sec apart. Water disturbance caused by a loon swimming near the surface indicated that a loon approached the beaver. When the loon approached within 5 m, the beaver slapped its tail against the water and dove. The beaver surfaced approximately 30 m away and swam toward shore. The beaver swam along shore away from the loon pair which had surfaced where the beaver initially dove.

I believe the interspecific aggression observed resulted from territorial behavior; all encounters occurred within 150 m of the nest sites. Otters have been suggested as predators of loon eggs (Olson and Marshall, *The Common Loon in Minnesota,* University of Minnesota Press, Minneapolis, MN, 1952). Although beaver are not considered a predator, many rodent species have been reported to eat meat if they encounter it.

These observations were witnessed coincident to a larger study of Common Loon ecology funded by the University of Wisconsin-Stevens Point, Wisconsin Society for Ornithology, Wisconsin Project Loon Watch, and Swartz-Hart Foundation.—*Jerrold L. Belant, College of Natural Resources, University of Wisconsin, Stevens Point, WI 54481, (Present address) U.S. Department of Agriculture, Denver Wildlife Research Center, 6100 Columbus Avenue, Sandusky, OH 44870.*

A Common Loon Nest Containing Four Eggs

20 May 1985, Iron County—Common Loons (*Gavia immer*) typically have a clutch of two eggs (McIntyre, *The Common Loon: spirit of northern lakes,* University of Minnesota Press, Minneapolis, MN, 1988, Yonge, *The breeding cycle and annual production of the Common Loon in the boreal forest region.* M.S. Thesis, University of Manitoba, Winnipeg, 1981). Few records of 3-egg clutches exist (Henderson, The Common Loon in Alberta, *Condor* 26:143–145, 1924, Vermeer, Some aspects of the nesting requirements of Common Loons in Alberta, *Wilson Bulletin* 85:429–435, 1973, Yonge *op. cit.,* 1981), and only two records of nests containing 4 eggs have been reported (Nelson, A Common Loon nest from New Hampshire containing four eggs, *Wilson Bulletin* 95:672–673, 1983, Zicus et al., A Common Loon

nest from Minnesota containing four eggs, *Wilson Bulletin* 95:671–672, 1983). McIntyre (*op. cit.*, 1988) suggested that 3-egg clutches can be laid, incubated, and hatched; however, it is not known if 3 young have fledged successfully from one nest Nelson (*op. cit.*, 1983) and Zicus et al. (*op. cit.*, 1983) were unable to determine whether the 4-egg clutches they observed were from one or more breeding cycles, although the 4 eggs in one nest described by Zicus et al. (*op. cit.*, 1983) appeared to be at similar stages of incubation. I describe herein an observation of a Common Loon nest containing 4 eggs.

I located the nest on 20 May 1985 on a 19-ha lake 6.8 km WSW of Mercer, Iron County, Wisconsin. The nest was 6 m offshore on a partially submerged log and contained 2 eggs. A single pair of breeding loons occupied the lake. On 21 May, I approached the nest after I determined that no loons were incubating. The eggs were cold, wet from dew, and appeared in the same position as the previous day, appearing abandoned. Addition, two instances of courtship behavior (see McIntyre, *op. cit.*, 1988) were observed on 23 and 24 May, further supporting abandonment. On 28 May, I observed a loon on the nest. I flushed an incubating loon from the nest on 29 May and 3 eggs were present. The exposed sides of two eggs, presumably those discovered on 20 May, were faded. On 2 June, the submerged log used for nesting had turned and was blown into shore; however, the pair continued incubation. On 3 June, I flushed an incubating loon from the nest; 4 eggs were present. All eggs appeared similar in shape and size. The 2 eggs discovered on 20 May were extremely faded, putrefied, and 1 had a fracture about 2 cm in length. All 4 eggs were found destroyed on 7 June. No additional nesting attempts were observed.

The interval between abandonment of the first clutch and renesting was at least 8 days, which is similar to time intervals reported by McIntyre (*op. cit.*, 1988), Olson and Marshall (*The Common Loon in Minnesota,* Minnesota Museum of Natural History Occasional Paper 5, 1952), and Sutcliffe (*Aspects of the nesting ecology of Common Loons in New Hampshire,* M.S. Thesis, University of New Hampshire, Meredith, 1980). Yonge (*op. cit.*, 1981) determined that the time interval between nesting attempts increased as the breeding season progressed. The laying interval between eggs in the replacement clutch I observed was at least 4 days. This is at least 1 day longer than the laying interval between eggs in the same clutch reported for other studies (McIntyre, *op. cit.*, 1988, Yonge, *op. cit.*, 1981).

No more than 2 loons were observed on the lake at any time during the observation period. The possibility of the female or pair being replaced by another female or pair is highly unlikely. The only plausible explanation is that the original two-egg clutch was abandoned by the loon pair and the same female laid 2 more eggs in the same nest.

These observations were made coincident to a larger study of Common Loon ecology which was partially funded by the University of Wisconsin-Stevens Point, Wisconsin Society for Ornithology, Wisconsin Project Loon Watch, and Swartz-Hart Foundation.—*Jerrold L. Belant, College of Natural Resources, University of Wisconsin, Stevens Point, Wisconsin 54481, (Present*

address) U.S. Department of Agriculture, Denver Wildlife Research Center, 6100 Columbus Avenue, Sandusky, Ohio 44870.

Possible Early Spring Plumage Acquisition in Juvenile Male Green-Winged Teal

October 17 and 23, 1992, Mud Lake Marquette Co.—On the two mornings indicated I hunted ducks on this small, marl-bottomed, bog lake in west-central Marquette County, WI, as I have each fall for the last 25 years. What made these dates unique was that I shot male Green-winged Teal (*Anas crecca*) in similar stages of spring plumage, rusty red heads and green eye stripes, grey vermiculated sides and vertical white bar on the side of the body in front of the wing. These were, I was fairly sure, the first of this species so marked that we have ever gotten in all the years we hunted here. I referred back to the hunting journal for our farm, a log of species, numbers and weights of animals taken, kept since fall of 1972. A careful review indicated that 81 Green-winged Teal were taken in the last 20 years by my father-in-law, my wife and myself. Of all those taken, only these two were obvious males with the eye stripes and spring body color. A quick calculation of probability (based on an assumed 50:50 sex ratio for the species, using 40 males as a basis—two in spring plumage) indicated a 1/20 (0.5%) chance of getting each male. The chance that they would both be killed in the same year, on the same lake, only days apart, is 1/400 or .0025% probability, making it highly unlikely that it was chance alone. Had they been taken from the same flock, I would have thought it just the result of a single early hatch, but they were not.

I went to my bird reference collections and tried to determine the timing of plumage change in this species. Most references referred to eclipse plumage for adult males, but without dates. I finally found the specifics of molt timing and plumage descriptions in *The Ducks, Geese and Swans of North America* (F. H. Kortright, 1960, p. 198–199). He indicated a continuous molt toward spring plumage begins in September for adult males and is complete by the end of October except for black outer scapulars. Juvenile males have female-like appearance until October and begin a rapid change to adult male appearance such that they are "except for wing, practically fully adult by December."

Were these adults or juveniles we had gotten? Adult males of this species are thought to move south very early in fall (Moisan, G., R. I. Smith and R. K. Martinson. The Green-winged teal: Its Distribution, Migration and Population Dynamics. Fish and Wildlife Service Special Scientific Report No. 100, 248p., 1967). And, juvenile males (still in juvenile plumage) are disproportionately represented in hunter kills in Wisconsin (Jahn, L. R. and R. A. Hunt. Duck and Coot Ecology and Management in Wisconsin. Wis. Cons. Dept. Tech Bull. 33. 212p, 1964) making it most likely that these were juvenile males. In a phone call to R. A. Hunt he said he had seen males in spring plumage brought to the DNR office at Horicon for identification, but only rarely during the many years he worked there. He felt that two in a week was highly unlikely for any individual to acquire. He further suggested that checking for a cloacal bursa

would confirm age of the birds. Presence of a cloacal bursa indicated that both these males were juveniles.

Could the two have been nest mates? Green-winged Teal are primarily a far northern nesting species with only a few lightly used nesting areas in Wisconsin. It is most probable that these birds were in migration when harvested. Each one flew in as part of flocks of 3–5 birds coming from other bodies of water and circled the lake before decoying. That, coupled with the six days between their demise make me think it reasonable to assume that these two teal were not nest-mates. One has to look for other explanations. Were these perhaps very late kills for the species—therefore farther along than usual in plumage change? Again, I referred to the hunting journal and calculated the median date for our harvest of this species as October 11.8 (rounded up to Oct. 12). Thirty seven of the teal listed were killed after this date (some as late as Nov. 14 and 15th), and 23 of those were killed within +/− 2 days of the dates at which the spring plumage males were killed. Yet none of them had ever been in this plumage before. Again, this tends to indicate that something unusual was probably responsible for early shift in feather patterns. Perhaps the cooler than average summer and fall, or the lower light levels brought on by the atmospheric dust from the volcano, Pinatuba, had some influence on the molt or timing of migration by juvenile males. I don't claim to know the answers. But I do believe there is probably a common cause behind these two highly improbable birds being taken only days apart in the same fall.—*Dr. Philip C. Whitford, Biology Department, University of Wisconsin-Whitewater, 800 W. Main St., Whitewater, WI 53190.*

Fisher seen climbing Bald Eagle nest-tree

25 June 1992, Bayfield County—A fisher (*Martes pennanti*) was observed climbing an active Bald Eagle nest-tree in northern Wisconsin on 25 June 1992. The nest (BY-15a) was approximately 35 m high in a large white pine located in a white pine stand on Fish Creek in southeast Bayfield County, 3 km W of Chequamegon Bay. Two young had hatched during the week of 27 April–1 May, but one had disappeared between 21 May and 28 May; the cause of death was unknown.

On 25 June 1992, the nest contained one eaglet, age 9 weeks. At 7:19 A.M., one adult eagle delivered a prey item to the nest and perched on a branch in the nest tree, while the chick began feeding. At 7:39 A.M., the adult began to "squawk," and the observer noticed the fisher climbing the trunk of the nest tree, "just under the nest." The adult eagle left the perch and flew away from the nest, vocalizing, while the fisher remained at its position. At 7:40 A.M. the eagle circled back toward the nest, and the fisher ran down the tree trunk. The adult returned to its perch on the same branch in the nest tree.

At 7:39 A.M., when the adult eagle began squawking, the chick stopped feeding; it stood still throughout the disturbance, and finally resumed feeding at 7:50 A.M.

The fisher population has increased dramatically in northern Wisconsin since they were reintroduced in 1956. Although fisher predation on an eagle nest has not yet been documented in

northern Wisconsin, there is speculation that it does occur, and that it is increasing with rising fisher numbers. Supported by a grant from the Great Lakes Protection Fund.—*Cheryl Dykstra, Department of Wildlife Ecology, 226 Russell Labs, Madison, WI 53706, D. Keith Warnke, Department of Fisheries and Wildlife, University of Minnesota, Michael W. Meyer, Wisconsin Department of Natural Resources.*

Rough-legged Hawk (*Buteo lagopus*)

18 June 1992, Milwaukee County, Milwaukee—At 10:30 A.M. on June 18, I was monitoring the progress of three immature Peregrine Falcons from the roof of the 411 East Wisconsin Center in downtown Milwaukee. I heard "kakking" calls from both adults and witnessed them teaming up on a large hawk just north of me. When the female peregrine stooped it, the hawk tilted, underside facing me. I immediately recognized it as a Rough-legged Hawk (*Buteo lagopus*).

I then observed the incident through my 7 × 35 binos. The adult peregrines stooped it several times, but never connected solidly. The hawk was about one fourth larger than the adult female peregrine. The dark carpal patches were prominent against the very pale, lightly marked underside. Once the peregrines drove it towards the First Wisconsin Center, they let up on their attack. The hawk then started to soar and circle a bit, catching an updraft from the First Wisconsin. At this time, I noticed a dihedral to its flight. As the hawk circled, the sun was shining so as to highlight its wide, black subterminal band. Also, on its last circle, I was able to detect a dusky belly band.

The two adult peregrines circled high over the hawk as it circled. The hawk flew southeast towards Lake Michigan, out of sight. Once east of the First Wisconsin, the two adult peregrines returned to the area where the immatures remained (about four blocks west of the First Wisconsin Center). The entire episode lasted about one minute.—*Jim B. Marks, W67 N387 Grant Ave., Cedarburg, WI 53012.*

Gyrfalcon (*Falco rusticolus*)

24 December 1991, Bayfield County—Located a large, dark raptor perched on a grain elevator. Almost immediately the bird flew as it pursued a flock of Rock Doves. In flight, the long pointed wings and powerful wing beats identified this bird as a falcon. The broad wings and larger size separated this bird from the smaller falcons. We relocated the bird on the Duluth side of the river and make the following observations at much closer range. The color of the back was a dark grayish-brown. Underparts were white and moderately streaked with brown. Dark malar streaks, similar to a Prairie Falcon, were noted. Two white superciliary lines were present. These streaks extended to the back of the head where they met to form a V-pattern separating a slightly darker crown from the nape. The tail was quite long and the wings extended about halfway down it when they were folded. The head seemed proportionally small for the stocky body giving the bird a "pin-headed" appearance. Heavy feathering almost completely covered the legs. The bill and cere were bluish gray, terminating in a black tip. In flight, the

heavily barred underwings without black axillaries were noted. We observed this Gyrfalcon as it made a couple of unsuccessful stoops on Rock Doves for about 20 minutes. It then flew back into Superior and disappeared over the Highway 53 Bridge.—*Mark Korducki, 4410 So. 21st Street, Milwaukee, WI 53221.*

American Avocet (*Recurvirostra americana*)

10 July 1992, Kenosha County—On 10 July at approximately 12 noon, I was driving south on 100th Street near the Pleasant Prairie Power Plant in Kenosha County. As I passed a pond on the west side of 100th St. near the intersection of 100th St. and 88th Ave., I spotted a large shorebird standing on the shore of the pond. As I slowed down, I noticed the rust colored head and neck and the striking black and white plumage of the body.

Stopping the car, I motioned to Jim Marks who was following me, to quickly get the field glasses from his truck. A view through the glasses gave us both a detailed look at the adult (head was fully rust colored with no presence of gray anywhere) in breeding plumage.

According the Robbins (*Wisconsin Birdlife* pg. 257) only 81 (April thru October) observations have been recorded for Wisconsin since 1961. Avocets are also listed as casual summer residents but none have been recorded in Kenosha County.

Marks inspected the pond again the following two days but the Avocet was not seen again.—*Greg Septon, Milwaukee Public Museum, 800 W. Wells St., Milwaukee, WI 53233, Jim Marks, Wisconsin Peregrine Society, P.O. Box 1148, Milwaukee, WI 53201–1148.*

Purple Sandpiper (*Calidris maritima*)

1 February 1992, Sheboygan County—The lone individual was found in its usual area immediately north of the Sheboygan Yacht Club. It entered from the south and began feeding among the rocks and turf where the ducks and gulls area often feed. The bird appeared similar to a dark dunlin in winter plumage; dark above with streaking on the sides and a light coloured belly. The long, slightly decurved bill was bicoloured, dark outer half and orangish at its base. The eye ring was not easily evident in any lighting, but was at close range. This is somewhat bothersome as the eye ring is often used as a field mark, but seems evident on the birds I have seen only when they are quite close. The Orangish coloured legs, however, are much more diagnostic and a readily observed field mark. The leg colour and the appearance of the bill seem to be sufficient to distinguish this bird from the Rock Sandpiper. The bird appeared to be rather stocky, almost as if it were over fed.—*Charles Sontag, 801 N. 4th Street, Manitowoc, WI 54220.*

Mew Gull (*Larus canus*)

4 January 1992, Milwaukee County—When we initially discovered the bird, it was perched on top of a wooden post on one of the piers, about 150–200 feet away. We had several minutes to observe the bird in spotting scopes, and make easy comparisons with the numerous Ring-billed Gulls that were standing nearby. Compared with the

Ring-bills, the Mew Gull (which was in adult plumage—winter) was noticeably darker in the mantle, making it stand out from the other gulls. It had a smaller bill—slightly thinner throughout its length, and the bill was yellowish throughout, with no trace of a dark ring near the tip. The basal 2/3 or 3/4 was grayish yellow, with the tip being slightly brighter. The bill appeared to be about the same length as the Ring-bills', perhaps a little shorter. It had dark eyes, that were accentuated by a bordering ring of dark feathers, making them even more noticeable. The bird had a fairly dark "hood" that was formed by the dark feathers of the winter mottling—giving the bird a rather distinctive appearance. (It also made the bird easier to spot later when it started flying with the other gulls.) The legs and feet were a gray/green color. Easy to notice were the white tertial and scapular crescents, which were somewhat broader than those of the Ring-bills, and seemingly brighter by contrast with the darker mantle.

In flight, the white in the wings was more pronounced than on the Ring-bills—there was a broader white trailing edge, and more white in the wingtips—giving the bird a "flashy" appearance. It was attracted by bits of bread being tossed into the water. In overall size, this bird was just a bit smaller than the Ring-bills nearby.—*Thomas Schultz, N6104 Honeysuckle Lane, Green Lake, WI 54941.*

4 January 1992, Milwaukee County—While checking through the gulls for a Mew Gull that had been seen earlier on the WSO Field Trip, I located *two* Mew Gulls. Both were adults in typical winter plumage. These birds could be differentiated from the many Ring-billed Gulls by their darker gray mantles. Both gulls had very thin, unmarked yellow bills. The heads were small and rounded and covered with brown streaks, giving a hooded appearance. One bird had much more streaking on the head. These gulls were just slightly shorter than the Ring-billed Gulls. In flight, large white spots were noted on the black primaries. Their eyes were dark and seemed to be quite large. On several occasions during January and through Feb. 10, I located either one or two Mew Gulls which appeared to be these same individuals at various locations in the Milwaukee Harbor.—*Mark Korducki, 4410 So. 21st Street, Milwaukee, WI 53221.*

California Gull (*Larus californicus*)

29 November 1992, Sheboygan County—This bird was intermediate in size between a Ring-billed and a Herring Gull, lacking the heavy build and structure of the latter species. The gray mantle was darker than the mantles of Herring Gulls it was with, and the underparts were white. The black on the primaries was more extensive than a Herring Gull's, appearing to be cut straight across the wing. The head, nape, neck, and sides of the upper breast were streaked and mottled. The head itself was very round, appearing at times high-domed. The yellowish bill was rather long but slim, lacking the terminal swelling of the larger larids, with a red and black spot on the gonys, the black extending to a comma on the upper mandible. The legs were dull yellow with a hint of green, and the eyes were dark.—*Robert Hughes, 696 W. Irving Park Road, Chicago, IL 60613.*

8 December 1992, Sheboygan County—At the beckoning of the Hot Line, I found the adult bird in the Sheboygan River at the Shopping Boutique and Fishing Shanty area after considerable searching. I had given up and was returning to the car when the bird was found swimming in the river. The bird was in the presence of Herring Gulls mostly, but some Ring-billed Gulls were also present in the immediate area. My attention was drawn to the bird that was smaller than the Herring Gulls and with a darker mantle. The birds immediately began to fly around the Fish Shanty area, but it was easy to find the California Gull by its smaller size. The bird would alight on the water and then immediately pick up and fly. During this time, it was quite easy to approach the bird to within 100 feet, so many of the details of the head and bill were easily observed. While the bird was swimming, it was determined that the iris was dark (brown?), but no evidence of the reddish eyelids that is found on breeding birds was observed. The head sported a full hood that was not uniform in appearance, but rather was more heavily streaked on the back of the head, nape and side of the neck. The forehead was lighter in colour. The bill was yellow with the characteristic black and red spotting on the lower mandible. The black (outer) spot seemed to extend into the upper mandible, especially on the photo that was submitted. The legs were greenish but had a yellowish/grey cast in certain lighting. While swimming, the folded wings were held such that the tertial crescent was quite evident, similar in character to the Thayer's Gull.—*Charles Sontag, 801 N. 4th Street, Manitowoc, WI 54220.*

THAYER'S GULL (*Larus thayeri*)

4 January 1992, Milwaukee County—Some variation, but all these adult birds had heads that were smudged with brown streaks. The head was rounder than a Herring Gull's and came to a slight peak posterior to the eye. The eyes were dark brown and this was a feature noted at close range in good light. Mantle was slightly darker than Herring Gull's and much darker than Iceland's. However the color fluctuated greatly with lighting. The same was noted for the leg color which was pinker than Herring Gull's but subject to variation. The tips of the primaries were dark gray to black above and pale gray below. This feature easily separated them from Herring Gulls and was evident in flight and at rest. The bill seemed less bulky than that of the Herring Gull's and was more uniformly proportioned throughout its length (no bulbous end). Tertial crescents were more prominent as they appeared whiter than the Herring Gulls.—*Mark Korducki, 4410 South 21st Street, Milwaukee, WI 53221.*

28 January 1992, Milwaukee County—Bird was first seen in flight; gray undersides of primaries. Bird landed in the water near me. Dark eye and dark feathering around the eye noted. The bird gradually made its way over to the shore. The bill was dull yellow, slight greenish cast except tip, which was brighter yellow above with red gonydeal spot. The bird was smudged with gray streaks over entire head, with streaks extending onto belly below the waterline when the bird was swimming. Streaking was sparse on the side of the head, except as noted above in the immediate vicinity of the eye.

Streaking was finer on top of the head. Mantle was darker than any nearby Herring Gull but could have passed for a dark Herring. Legs did not appear in any way brighter pink than a Herring's. Shape of the head was very rounded, not quite as heavy as a Herring's. In flight, more extensive light area in primaries was noted. Again, gray undersides of primaries seen, just slightly darker than rest of underwing. Bird landed in the water again, and when sitting offered a glimpse of the underside of the outermost primary on the side of the bird which was away from me. It appeared grayish, with a white spot near the tip, though this could have been the upper surface showing through. Bird flew again, robbing a Ring-billed Gull of a piece of bread it had gathered.—*Brian Boldt, 1832 Jeffery Lane, Waukesha, WI 53186.*

Iceland Gull (*Larus glaucoides*)

5 January 1992, Douglas County—After scanning a large group of Herring and Glaucous Gulls for anything unusual and coming up empty, I was walking away when I saw Karl and Dorothy Legler coming up the hill. I stayed to visit. Karl had had his scope up only a few seconds when he found an Iceland Gull. Through my scope I could see a uniformly whitish gull, lightly and evenly mottled tan. The bird was smaller than nearby Herring and Glaucous Gulls with a rounder head and a proportionately smaller less "predatory" bill (not thickened). The bird looked like a petite 1st winter Glaucous Gull with a dainty bill. The bill was nearly all dark with a tiny white mark on the tip and a small area of flesh color at the very base. Primaries were pure, unmarked white. As we watched, the bird stretched a wing, giving excellent looks at the wing tip. We did not see the bird in flight and were unable to see the tail.—*Robbye Johnson, 2602 N. 28th Street, Superior, WI 54880.*

11 February 1992, Manitowoc County.—I stopped near the Susie-Q fish market in Two Rivers to look at the many gulls on the river. One of the closer gulls on the river appeared to be almost pure white. It was approximately the same size as the nearby Herring Gulls. Its bill was pale yellow with a dark tip and was narrower than the bills of the nearby Herring Gulls. When the bird flew away, the white wing tips and white tail could clearly be seen. I could not relocate this bird, but saw 3 second-year Glaucous Gulls that day which were much larger than the Herring Gulls and had much larger and thicker bills than the Herring Gulls that were next to them.—*Mark Peterson, Box 53, Caroline, WI 54928.*

Lesser Black-backed Gull (*Larus fuscus*)

2 January 1992, Douglas County—Scanning the lake with spotting scopes, we soon found a gull that vividly stood out from the numerous Herring Gulls because of its dark slate-gray mantle. Focusing on this gull, I saw that it had a brown mottled head, a yellow bill (not noticeably more massive than that of the Herring Gull), and that the primaries were a shade darker than the mantle. The mantle was very dark in color but not black as I have seen on Great Black-backed Gulls. Comparing this bird in size with the surrounding Herring Gulls, I found it to be slightly smaller than the Herring.

I turned away from the gull a short while to again notice the Northern Hawk-Owl, which had just perched on a tree to our right. When getting back to the gulls, I saw them flying away far over the lake—chased into flight by a Bald Eagle. They were already too far away for me to see the flight pattern on the wings of the Lesser Black-backed Gull.—*Robert C. Domagalski, W140 N8508 Lilly Road, Menomonee Falls, WI 53051.*

13 February 1992, Milwaukee County.—After hearing reports of a Lesser Black-backed Gull several places north of Milwaukee along Lake Michigan, I have been checking the Milwaukee lakefront regularly. On this afternoon, I noticed several hundred gulls sitting on ice behind the Pieces of Eight restaurant. These birds were in fairly close, making all field marks easily visible through my scope at 20–30 power. Almost immediately I noted a white gull with a very dark back near one edge of the group. Its mantle was a dark slaty gray color. Its white head was heavily streaked with brown down to its nape in back and with a slight "necklace" of streaks in front. There was also a dark smudge around the eye which had a pale yellow iris. The bill was slimmer than adjacent Herring Gulls; yellow, with a larger than expected reddish spot on the lower mandible near the tip. Its legs were not the bright yellow I expected, rather a difficult to describe fleshy color, not pink but not yellow either. I later found a photograph of an adult with this same leg color in the Audubon Soc. series "Master Guide to Birding." Its wings were the same slaty gray of the mantle on top, separated from the black on the end of the primaries, more extensive on the first few. The wings had a thin white trailing edge on top, broken up into a few white spots on the tips of the primaries, most noticed when the wings were folded. I had few looks at the wing extended, and do not remember if any white windows were present. The wing did seem long and narrow in flight and extended beyond the all white tail when folded. The underside of the wing was pearly gray with much darker gray along the first few primaries, extending outward along the trailing edge of the secondaries as a narrowing bar of dark. After checking as many field marks as possible, I called Bill Cowart, who called other birders. Several others did later find this bird, which I last saw a week later in the same place.—*Dennis K. Gustafson, 15440 Linfield Lane, New Berlin, WI 53151.*

Great Black-backed Gull (*Larus marinus*)

22 February 1992, Sheboygan County—The bird was easy to pick out because of its large size (larger than any of the other gulls on the same ice floe) and because of its blackish mantle. After several minutes the bird took flight, and we again noted its blackish wings and back. When it settled down on the water, we noted the same field marks: large size and dark back. The other gulls present were Ring-billed Gulls and Herring Gulls. (Although it was too far away for us to see other field marks, those who previously saw the bird much closer in the harbor positively identified it as a third winter Great Black-backed Gull.)—*David and Margaret Brasser, 813 Logan Ave., Sheboygan, WI 53083.*

IVORY GULL (*Pagophila eburnea*)

3 December 1991, Ozaukee Co., Port Washington Harbor—I was scanning the piers from the end of the iron grid walkway when I spotted the bird. It was standing about 75 yards from me among a group of Herring Gulls. I observed the bright white plumage speckled with black spots on the wing coverts, the black bill, dark legs, the dark eye, and a blackish smudge on the face between the base of the bill and the eye. The bird was about two-thirds the size of the adjacent Herring Gulls. I watched the bird as it preened and just stood for approximately 15 minutes. It then tucked its bill into its wing and slept. I never saw the bird fly as it remained at the same spot the entire viewing time.—*Kay Burcar, 5136 Enchanted Valley Road, Cross Plains, WI 53528.*

3 December 1991, Ozaukee Co., Port Washington Harbor—We went looking for an all white gull smaller than a Ring Bill. After searching the water and shoreline we started looking along the boat slips and docks. At almost the same time we both saw a nearly all white gull—something different—sitting on one of the docks. Using the scope we saw black legs, duskiness around the head near the eyes. It flew after about 5 min.—then we picked it up again at closer range about 150 feet using a 20 × 25 scope. At this sitting we *clearly* saw black spots on the folded wings—we counted six. After consulting the books we were certain—Ivory Gull—and could also see the fainter black spots on the wings—the light was behind us and adequate for a cloudy day at that distance. It moved again and after landing again at about the same distance (we moved) we went over all the same marks. My friend left and I turned up the power to see if there was any color to the bill. I decided that it was slightly yellowish (this before checking the book). I left and came back 1 hour later; it was still there! A 3rd person saw it and agreed on all marks. I called the "hot" line that P.M. to find it had already been reported.—*Robert Green, 249 Prairie Run, Grafton, WI 53024.*

3 December 1991, Ozaukee Co., Port Washington Harbor—After about one hour of searching, the Ivory Gull was located on a pier in Port Washington Harbor. The bird was about 150 feet away from me and its head was tucked into its back as if asleep. Had a good look at breast area and the right side of the gull. Breast was white with some minor speckling of black by shoulder of wing, legs and feet were black, terminal black band on white tail, black at tips of primaries on the folded wings. Although from 4:00 P.M. until 4:30 P.M., the gull remained in this resting position (head tucked onto the back), I could easily see the large black eye. Finally, as dark closed in, the bird lifted its head. I saw the dark eye and a small dusky colored bill. A thin smudgy area extended from the eye to the bill. At 4:40 P.M., as it became too dark to see more of the bird, I left it standing alone on the pier. Except to move its head from the resting position, it had not moved in the 40 minute viewing time.—*Robert C. Domagalski, W140 N8508 Lilly Rd., Menomonee Falls, WI 53051.*

LEAST TERN (*Sterna antillarum*)

25 July 1992, Buffalo County—While leading a birding and natural history

tour of the Mississippi River bottoms near Winona, Minnesota, as part of the Winona State University Elderhostel Program, we used the WSU pontoon boat to navigate the backwaters and connecting channels in search of birds. In a large shallows about 3 miles northeast of Winona, (about one half mile to the Wisconsin side of the main channel which separates Wisconsin and Minnesota) near the southwestern border of the Trempeauleau National Wildlife Refuge, we came upon an exposed mud/sand bar of roughly 125 × 60 feet. Upon the bar were three Black Terns, 15–20 Common Terns and 4 Ring-billed Gulls. Most of the thirty people on board were equipped with binoculars of various makes. As we scanned the sand bar and I explained the species and markings, someone asked if the small pair of terns to the side were young of the year. I had not noticed originally, but there were two terns that were much smaller than the Common Terns, and somewhat smaller than the Black Terns. These birds were in sleek, full adult plumage, black heads with black extending well down the back of the neck, a band of white from the beak to above the eyes, yellow bills, and grey bodies and wings with white neck and long white tail feathers. I referred to Peterson's *Eastern Birds* to confirm my recollection that young Common Terns were different in color than adults and to determine the species as Little Terns. All those present who saw the picture and heard the descriptions of relative size of the various tern species agreed that this pair must be Little Terns. They remained on the bar until we tired of watching them and went off in search of other birds so that we never saw them fly to compare speed of wing beats with the other tern species.—*Dr. Philip C. Whitford, Biology Department, Winona State University, Winona, MN 55987.*

NORTHERN HAWK-OWL (*Surnia ulula*)

29 December 1991, Bayfield Co.—When I first spotted the bird I thought it was a Sharp-shinned Hawk. As I approached closer I noticed what appeared to be a white collar or bib under chin and above chest. I also noticed length of tail. As bird turned its head and looked at me I realized then and there it was an owl. I checked color of its eyes and they were yellow! I also noticed the amount of white in facial area. The chest was heavily barred, barring coloration was dark brown to black, which contrasted with white feathering on underside of body. The face (besides white disks around eyes) had a very distinct black border. Wings and back were dark with white spotting. No ears!!

The owl allowed me to approach it directly under the tree. As I was watching the bird it dropped out of the perch flew along the ground and plunked in the snow. My wife thought it was injured but the owl came up with a mouse; flew along the ground and rose to the top of a balsam tree and devoured the mouse. The owl then flew back to the same tree along the ski trail and began to search again.

I said to my wife the owl could only be a Hawk-Owl as it was too small and sleek to be a Barred Owl, plus it had yellow eyes.—*John F. Radloff, 401 Beaser Ave., Ashland, WI 54806.*

1 January–4 March 1992, Ashland Co., south of Glidden—The bird was first seen by me on Jan. 22. I looked

at a bird about crow-size, with a long tail and large head, facing away and flicking its tail like an American Kestrel. Binocs revealed a bird with a black back with white spots, large head and a long tail. The bird was perched forward at the top of an aspen tree. When the bird's head turned toward me I noticed large yellow eyes and a yellow bill with white strips along the top of the head. After looking at Peterson's I felt the face was greyer and the sideburns were wider than his. On Jan 24 the owl was perched at the top of an aspen tree next to a crossroad off Highway 13 and I was able to photograph the owl and see the breast and belly-white streaked with black. It also had a long tail and was unafraid of your approach. Three times a week I visited the owl and it was never more than 50 feet away from its original perch, always at the top of an aspen tree overlooking a snow-covered field. My last sighting was March 3rd. Forest Service biologist Dean Granholm saw the owl March 4th. Subsequent visits twice a week have failed to see the owl.—*Michael Spreeman, 722 Atwood Ave., Park Falls, WI 54552.*

1 December 1991–16 February 1992, Douglas Co.—On Dec. 1, while driving west of Solon Springs in Douglas County, I observed a Northern Hawk-Owl. The bird was smaller than a Barred Owl, about the same size as a Broad-winged Hawk. It had a slim profile, with a long tail and long wings. The head was round with white speckling on the forehead. Two black streaks began at the base of the eyes and progressed dorso-posteriorly. The breast was broken up with many rusty horizontal bars. The back was brown with white splotches throughout. The tail was banded brown and white. The bird was perched atop a spruce tree and was apparently hunting. On January 5, 1992, while inspecting the bird, Kimberly Fry and I determined the bird to be an immature but the sex could not be determined. The habitat was not that which is typically described for Northern Hawk-Owls in winter. Only one small opening (approximately 10 acres) was present, but adjoining this was a selective cut area in which we did notice foraging to occur. Due to the inability of observation areas in which to observe the owl, the bird seemed very non-reliable. It was only seen by ourselves 3 times but it did remain at least until February 16.—*Larry Semo, Rt. 2 Box 435, Superior, WI 54880.*

Great Gray Owl (*Strix nebulosa*)

22 December 1991–2 February 1992, NW Douglas Co.—This winter's intensive evaluation of the status of great grays in Douglas County was not incredibly productive. Optimism soared when news spread of the major invasion northeastern Minnesota was receiving. However, I hereby document the occurrence of only two great grays that managed to trickle into Wisconsin.

On December 22, 1991, Kimberly Fry, Loren Ayers, and myself were surveying a portion of Douglas County when we spotted the first great gray. The gray plumage, yellow eyes, white bow-tie, lack of eartufts and large size were all identified. Also noted was the large facial disks with concentric rings radiating outwards from the eyes. The bird was captured to help determine the age and sex structure of birds wintering in Wisconsin. The bird was an adult and measurements suggested it to be female.

The second bird was spotted on Feb-

ruary 2, 1992. This bird was also an adult but the sex could not be estimated. While subsequent surveys determined that the first owl had traveled on, the second bird did remain on site for a few days.—*Larry Semo, Rt. 2 Box 435, Superior, WI 54880.*

American Crow Captures House Sparrow in Flight

16 June 1992, Madison, U.W. Campus.—American Crows (*Corvus brachyrhynchos*) are well known predators on the eggs and nestlings of many birds. They also regularly mob and harass larger birds in flight (Bent, *U.S. Nat. Mus. Bull.* no. 191, 1946). While American Crows exhibit a wide variety of foraging techniques they have not been observed capturing flying birds while they themselves are in flight. I describe an American Crow capturing a fledgling House Sparrow (*Passer domesticus*) while both were in flight.

On 16 June 1992 at 9:40 A.M. I was riding my bicycle slowly along Mills Street on the University of Wisconsin-Madison campus. My attention was drawn a group of 3–4 crows and several House Sparrows on the ground when one of the crows flew off carrying a gray and brown object in its bill. The object appeared to be part of a nest but may have been a sparrow. I stopped to watch, without the aid of binoculars, the group and subsequent events from a distance of 5–6 m. I include two related observations of crow behavior made the preceding winter.

Seconds after stopping to watch this group of crows and sparrows, a fledgling sparrow took flight. This bird was slightly smaller than an adult female in the group and had a shorter tail and thickened yellow commissures. Immediately after this sparrow took flight a crow flew after it. The sparrow had only attained a height of 2 m before the crow caught up to and seized the sparrow in its bill. Holding the sparrow by the back half of its body, the crow continued flying and landed 5 m up in a locust tree. The crow perched there for about 20 seconds while the sparrow called. During this time another crow and a female House Sparrow flew into the same tree and perched nearby. The crow, still holding the fledgling in its bill, flew 6 m to the ground. Once landed, the crow placed the sparrow on the ground and lifted its head several times. Most of the time the crow's bill was near the sparrow. Twice I was able to see that the crow had pinned the sparrow to the ground with its right foot. The sparrow called intermittently but later was silent, having apparently been dispatched by the crow. Shortly after the sparrow ceased calling, the crow lifted its head with sparrow feathers at the tip of its bill. After a half minute on the ground, the crow took the fledgling in its bill and flew up Mills Street. I lost sight of the crow after it had flown < 200 m.

The previous winter I observed crows on campus behaving similarly. I once saw 2 American Crows pursuing a Rock Dove (*Columba livia*) in flight. After several turns the dove escaped with an added burst of speed.

On 15 December 1991, while sitting in a parked car, I observed several crows searching through trash on Mills Street. One bird in particular was probing a wadded bag with its bill. As I exited the car, this bird flew up with the bag held in its bill. After rising several meters into the air the crow lowered its head beneath its body and simultaneously raised its feet towards

its head. Still flying, the crow grasped the bag with its feet and then lowered them beneath its body and raised its head. The bird made several more flaps, lost its grip on the bag and then flew off without it.

While American Crows have been reported with freshly killed birds and to swoop at smaller birds by Kilham (*The American Crow and the Common Raven,* Texas A&M Univ. Press, 1989) I have found no references to American Crows capturing birds in flight. Kilham (1989) reports an American Crow in flight, banking and dropping onto a young Cotton Rat (*Sigmodon hispidus*) "in the manner of a Northern Harrier" (*Circus cyaneus*). He also reports American Crows sallying from perches after a variety of prey as well as exhibiting a wide repertoire of maneuvers when pursuing flying insects.

Other corvids are reported to capture avian prey while in the air using either their bills or feet. Carrion Crows (*Corvus corone*) are reported to have captured a European Starling (*Sturnus vulgaris*) (Smout, *Bird Study* 23:146, 1976) and young House Martins (*Delichon urbica*) (Yapp, *Brit. Birds* 68:342, 1975) in the air with their bills and to have stooped unsuccessfully at Barn Swallows (*Hirundo rustica*) (Hanford, *Brit. Birds* 62:158, 1969; Radford, *Brit. Birds,* 63:428–429, 1970). While in flight, Carrion Crows have mortally wounded with their bills a flying Eurasian Lapwing (*Vanellus vanellus*) (Tinbergen, *Brit. Birds,* 46:377, 1953) and a Gray Heron (*Ardea cinerea*) (Walters, *Brit. Birds* 76:459, 1983). A Scrub Jay (*Aphelocoma coerulescens*) has captured a Hermit Thrush (*Catharus guttatus*) with its bill while in flight (McLandress & McLandress, *Wilson Bull.* 93:550–551, 1981).

The Carrion Crow has also captured a European Starling with its feet while in flight (Warren, *Brit. Birds* 62:237–238, 1969). Other corvids reported to have captured, or to have momentarily grasped, birds in flight with their feet include the Common Raven (*Corvus corax*) (Elkinns, *Brit. Birds* 57:302, 1964), Northwestern Crow (*Corvus caurinus*) (James, *Canadian Field-Naturalist* 95:473–474, 1981), Pinyon Jay (*Gymnorhinus cyanocephalus*) (Goodwin, *Crows of the World,* 2nd ed., Brit. Mus. (Nat. Hit.), 1986), Blue Jay (*Cyanocitta cristata*) (DuBowy, *Prairie Nat.* 17:40, 1985) and Stellar's Jay (*Cyanocitta stelleri*) (Carothers, et al., *Wilson Bull.* 84:204–205, 1972). Common Ravens and Northwestern Crows have aerially pursued Rock Dove and Song Sparrow (*Melospiza melodia*) respectively (Maser, *Wilson Bull.* 87:552–553, 1975; James 1981).

A number of corvids are reported to capture insects with their bills while on the wing: Pinyon Jay, Blue Jay, Gray Jay (*Perisoreus canadensis*), Clark's Nutcracker (*Nucifraga columbiana*), Yellow-billed Magpie (*Pica nuttalli*) (Bent 1946 and references therein), Mexican Jay (Goodwin 1986), and New Caledonian Crow (*Corvus moneduloides*) (Orenstein, *Auk* 89:674–676, 1972). The House Crow (*Corvus splendens*) is reported to hover and plunge into water after insects (Dodsworth 1911 *fide* Goodwin 1986). While various corvids capture insects with their bills while flying, the capture of flying birds seems to be more commonly effected with the feet than the bill and seems to have been previously reported only for the Carrion Crow and Scrub Jay.

Most passerine birds carry food in their bills while flying and only corvids and shrikes (*Lanius* spp.) in North

America regularly carry food in their feet (Clark, *Bird-Banding* 44:91–99, 1973). The mid-air transfer of a bag from bill to feet may have resulted from the bag having obstructed the crow's vision or from an effort to attain better aerodynamics. My observation of the crow holding the sparrow to the ground with its foot conforms to similar observations of many other corvids securing prey with their feet (Ehrlich & McLaughlin, *Condor* 90:503–505, 1988).

My observations of 2 American Crows aerially pursuing a Rock Dove is similar to the successful joint pursuit of a Rock Dove by 2 Common Ravens (Maser 1975). Previous reports of North American corvids preying on the House Sparrow include a Blue Jay which captured one while it was dust-bathing (Master, *Wilson Bull.* 91:470, 1979). These observations of the aerial pursuit and capture of avian prey with the bill expand the list of foraging behaviors employed by the versatile American Crow.—*Michael S. Putnam, Department of Zoology, University of Wisconsin, Madison, WI 53706.*

Carolina Wren (*Thryothorus ludouicianus*)

5 February 1992, Southern Outagamie County—The sun was shining, wind was calm, temperature was about 30 °F., time: 8:00 A.M. I was sitting at the kitchen table eating breakfast. The inside door was open and I was watching my bird feeder through the windows of the storm door. A small brown sparrow-sized bird was hopping on the ground at the base of a 55-gallon drum with a board on top that I use for a feeder. At first I thought it might be one of the many White-throated Sparrows that come to the feeder, but the actions of the bird and the upright angle at which it held its tail were different. The bird then flew to the board on top of the barrel and I got my 10 × 50 binoculars to observe the bird at a distance of 50 feet. The bird's actions were quick and wren-like, with tail held higher and with more movement than a sparrow's. The bird then flew to a sunflower feeder on the garage and perched on the edge at a downward-facing angle. The rusty brown back, buff breast and white stripe over the eye and down-curved bill were very noticeable through the binoculars. After several jerky movements of the tail, it flew down to a red-stemmed dogwood at the corner of the garage and then to a brushy row of scotch pines at the back of the garage. The wren was not seen eating any of the seeds, but just seemed to be checking things out. The most memorable features of this bird were the long pure white strip over the eye from the upper mandible to the nape, and the buff-colored breast.—*Carlton Mahn, 1140 Hillcrest Drive, Kaukauna, WI 54130.*

Loggerhead Shrike (*Lanius ludovicianus*)

20–21 December 1991, Price Co., SW of Park Falls—A shrike flew from a maple tree very fast across yard and away. I knew it was not the usual one. It was smaller and brighter. Dec. 20 was Christmas Count day—a bird flew into the big maple tree about 28′ from big picture window. I took out my binoculars and saw it very clearly—it was facing me. I saw clearly black band all across head. The bird stayed about 5 min and was being mobbed by chickadees. Then bird flew to aspen tree in

back of trailer. Then seen about 15 feet from side window. It was facing and looking down at feeder. Watched it for about 10–12 minutes. Noted how dark the gray on head and back was. That was what had made it seem such a bright bird yesterday. Noted with binoculars that the bill was all black. Bird again mobbed by chickadees and finally flew off. Final check with bird book—Loggerhead Shrike—I knew they were much more rare than northern—but did not know they were endangered. Went for trailer for next 3 or 4 afternoons but did not see bird again.—*Alice Clare Vincent, 463 3rd Ave., Park Falls, WI 54552.*

Rufous-sided Towhee (*Pipilo erythrophthalmus*)

24 December 1991–21 February 1992.—Arborvitae, oak trees, and Colorado blue-spruce, border our west lawn of our home in Lake Geneva. Bird feeders and suet holders hang from six separate metal yokes mounted on the ends of one-inch by three-foot wooden dowels fitted into the tops of aluminum tubes one-inch by six-feet long. Squirrel guards plus disk feeding platters are attached at these junctions.

The bird feeders stand at appropriate distances from each other, with flag-stone paths leading to them. In the center, a bird-bath made from a child's aluminum saucer-sled, is situated on a low mound of rocks, guarded by poultry fencing.

Southwest of the bird-bath stands a Black-Hills spruce, northwest an oak tree, in the foreground, a Colorado blue spruce. Around a small space beneath each tree, there is a six-inch poultry fence to discourage stalking cats.

Last Christmas eve I spread rolled corn and safflower seeds under the boughs of the Black Hills spruce and at 3:00 P.M. a beautiful guest flew in! Viewed through mounted Bausch and Lomb binoculars 7 × 50, from the solarium, I saw a Rufous-sided Towhee, as large as a robin, deep reddish-brown tail, back, wings, head, neck, and a slightly V-shaped bib on a dazzling white breast and belly, with startling rufous-red sides. The tail is edged in white at the farthest end. The tail is held up and quivers while she pecks at seeds.

From there, towhee flew into the lower branches of the Colorado blue spruce, dropping to snow-covered oak leaves at its base; hopped backward, kicking with both feet together, finding something to eat that had fallen from the tree.

She returned the day after Christmas, at 8:30 A.M. with six Common Redpolls, one male and five females. She came again at thirty past noon, with three European Tree Sparrows. She came again on Monday and Tuesday, December 30 and 31, with two Mourning Doves, her tail twitching as she fed on seed fallen from the platters. On New Year's Day she arrived with four Black-capped Chickadees and two White-breasted Nuthatches, and while she fed under the boughs of the Black Hills spruce, the other birds flew to the feeders.—*Arthur J. M. Edrop, 1140 Lake Geneva Blvd., Lake Geneva, WI 53147.*

1992 Silver Passenger Pigeon Awardees

JOHN H. IDZIKOWSKI

This well known Wisconsin birder joined WSO in 1971 and first served the Society as Fall Field-Note Compiler from 1977 through 1979. He then joined the Society's Board as Vice President in 1985 and 1986 and served as President of the Society in 1987 and 1988. His birding expertise led to his appointment to the Society's Records Committee in 1986 through 1988, serving as Records Committee Chairman in 1987 and 1988. Following his term, he continued to serve on the Committee as non-voting secretary and records custodian. He was instrumental in establishing the special 50th Anniversary Art print to commemorate the Society's 50th Anniversary. Since 1989 he has continued to serve on the Board as Chairman of the Grants committee. He also assisted in procuring and maintaining the Society's hot-line recording equipment. He contributed several area descriptions for the Society's book, *Wisconsin's Favorite Bird Haunts.* In addition to his Society service, his professional accomplishments, and his bird-banding skills, he frequently leads birding walks and gives talks. He also advances the Society's aims when he is called on by the media as a resource on bird related subjects. The Wisconsin Society for Ornithology gratefully recognizes his significant service to the Society and is pleased to award the Society's Silver Passenger Pigeon to John H. Idzikowski.—*Mary F. Donald, Awards Committee.*

STEPHEN J. LANG

This recipient of the Silver Passenger Pigeon Award joined the Society in 1975 and shortly contributed examples of his excellent photography to the Wisconsin bird-slide inventory being assembled by the Society. This interest led to acceptance of the Chair of the Committee on Education & Loan of Slides in 1979, with the overall responsibility for developing an educational Wisconsin slide set with accompanying cassette narrative. Under his direction, this 80-slide set has evolved into an outstanding educational presentation of Wisconsin's birdlife. Available in both elementary school and general public versions, it is utilized by many Wisconsin schools. Since its inception in 1980 over 425 slide sets have been sold. Recognizing that many Wisconsin birds were not represented in the slide set, he continued to develop the WSO slide inventory to include the best available photographic examples of these species. Through the

years his bird photography skills have become well recognized in the state, and his works are extensively published. His photographs help significantly in promoting interest in the birds of Wisconsin. He continued to chair the Committee on Education & Loan of Slides through 1985 and has continued to serve as chair of the Loan of Slides Committee. The Wisconsin Society for Ornithology gratefully recognizes the outstanding service to the Society and is pleased to award the Silver Passenger Pigeon to Stephen J. Lang.—*Mary F. Donald, Awards Committee.*

Mark A. Peterson

This recipient of the Silver Passenger Pigeon has been an enthusiastic birder for many years. He enjoys chasing birds throughout the state, as well as other parts of the country. In fact, when a Rosy Finch appeared near Menominee at the time the birth of his son was to occur, he went to see the Rosy Finch. In his area of the state, Shawano County, he has rekindled a local interest in birding, so that several Christmas counts and a May Day count are now conducted annually for the Society. He contributed area descriptions to the Society's book *Wisconsin's Favorite Bird Haunts.* He has served the Society since 1982 as Fall Field-Note Compiler and, in addition, has recently accepted a 5-year term, starting in 1992, on the Society's Records Committee. He frequently helps in leading Society field trips. It is with great pleasure that the Wisconsin Society for Ornithology recognizes this service to the Society and is pleased to award the Silver Passenger Pigeon to Mark A. Peterson.—*Mary F. Donald, Awards Committee.*

Thomas K. Soulen

Awards offer the opportunity to recognize special individuals and their contributions. Organizations such as WSO exist only through enlightened and dedicated service from its members. This citation recognizes a member and stands as evidence of his commitment to WSO and his excellence. He joined WSO in 1953 and in 1961 assumed the role of Spring Field-Note Compiler and May Day Count Compiler. He served in this role until 1966. His active participation as a Field-Note Compiler began again in 1982 when he became the Summer Field-Note Compiler—a role he continues to hold. Beyond his official contributions to WSO, he has served WSO through participation in Christmas Bird Counts, May Day Counts, and Breeding Bird Surveys, more numerous than perhaps he would care to admit. Through acute observation and thoughtful

insight, Thomas K. Soulen explores the world of birds and shares the gifts of his labors with the Society; he is a worthy recipient of a Silver Passenger Pigeon Award.—*Mary F. Donald, Awards Committee.*

Recipients of Certificates of Appreciation

Dr. Howard F. Young

Whereas Howard Young has published many articles in *The Passenger Pigeon,* beginning with his first article on Cardinals in 1941, only one year after first joining the Society, followed in later years by articles on the Robin, Downy Woodpeckers, Hairy Woodpeckers, White-breasted Nuthatches, Red-breasted Nuthatches, Tufted Titmouse, and additional articles in other publications, and

Whereas he served the Society as Membership Chair in 1949, as the first Research Chair from 1957 through 1959, as Vice President in 1962 & 1963, and President in 1965, and as Publications & Awards Chair from 1979 through 1989, and

Whereas he served as La Crosse Convention Chair in 1967 & 1982 and assisted with the 1990 La Crosse Tri-State Convention, and

Whereas his contributions to the Society were recognized in 1967 as recipient of the Society's Silver Passenger Pigeon Award, and

Whereas the board has benefited by his judgment and input on various issues that have surfaced during his tenure on the board, and

Whereas in addition to his many contributions to the Society and Wisconsin birds for over 50 years, he has always been a precise and fair-minded thinker, a friend to many, well known for his congenial manner, his witty word play, his wry sense of humor and not the least of all, for his artwork and crafts,

Now, therefore, the Wisconsin Society for Ornithology takes great pleasure in presenting this certificate to Dr. Howard F. Young in recognition of his exceptional and long service to the Society.—*Mary F. Donald, Awards Committee.*

Carl G. Hayssen, Jr.

Whereas he has an extended and commendable record of diligent service to the Wisconsin Society of Ornithology since joining in 1952, and

Whereas he has served on the Society Board of Directors from 1966 until 1972 as Endowment & Advertising Chair, and

Whereas from 1972 he continued to serve on the Society Board of Directors in the position of Secretary, and

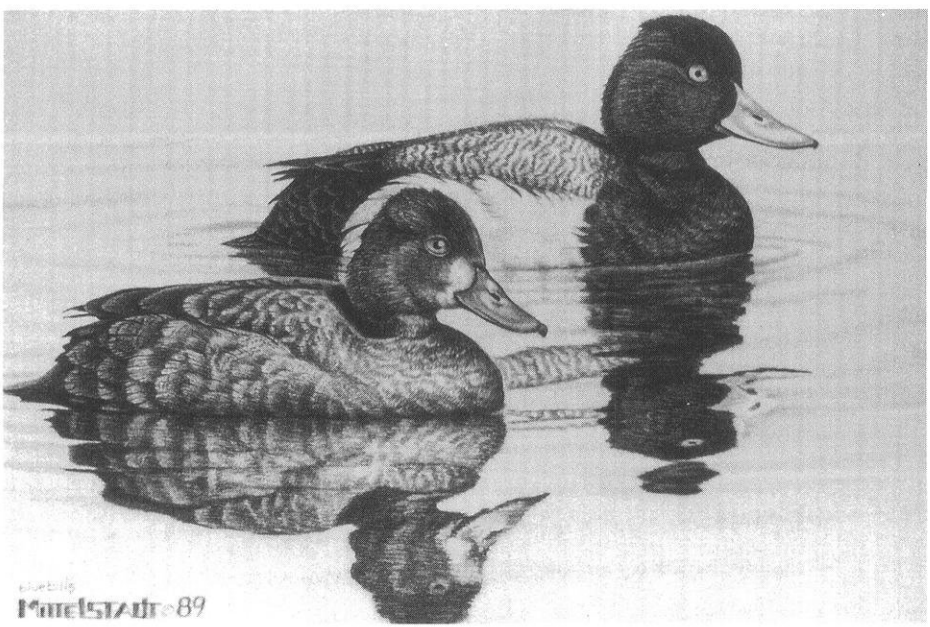
Whereas his past service to the Society was recognized in 1981 with the award of the Society's Silver Passenger Pigeon Award, and

Whereas his perspective and counsel on many issues coming before the Board in the past 26 years has grown and strengthened the Society, and

Whereas he generously contributed equipment and supplies to the Society for its membership and mailing functions, and

Whereas this long and dedicated service to the Society deserves acknowledgement,

Now, therefore, the Wisconsin Society for Ornithology takes great pleasure in presenting this certificate to Carl G. Hayssen, Jr. in recognition of his exceptional services to the Society.—*Mary F. Donald, Awards Committee.*



Lesser Scaup *by Frank Mittelstadt*

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Kenneth I. Lange has been the Naturalist at Devil's Lake State Park since 1966. He has a master's degree from the University of Arizona. Ken has been a frequent contributor to WSO publications: as a field-note compiler and author of articles and the book, *Breeding Birds of the Baraboo Hills.* He formerly worked at the Smithsonian Institution's U.S. National Museum.

Frank Mittelstadt is a native of Beaver Dam. Winner of the 1993 Wisconsin Waterfowl Stamp, 1992 Wisconsin Trout Stamp and Great Lakes Salmon and Trout Stamp competitions, he is represented by Eagle Publishing, Beaver Dam, WI 53916.

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Allen K. Shea is our current President and the Spring Field-Note compiler. He is the Assistant to the Director of the DNR's Bureau of Water Resources. He has his M.S. degree in Water Resources Management from the UW-Madison's Institute for Environmental Studies.

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