research management
findings
Number 37 • March 1994

Food Habits of Wild Turkeys in Southwestern Wisconsin

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Introduction

The re-introduction of the eastern wild turkey *(Meleagris gallopavo silvestris)* to Wisconsin has been a remarkable success. During 1976-85, the Wisconsin Department of Natural Resources (DNR) obtained 334 live-trapped wild birds from Missouri and released them across southern Wisconsin. An in-state program accelerated range expansion by relocating more than 3,000 birds trapped in Wisconsin from 1979-93. As populations increased and large flocks of wild turkeys were observed foraging on croplands, a perception began to develop among rural landowners that turkeys were causing significant damage to agricultural crops.

The need to address landowner concerns about wild turkey crop damage prompted the DNR Bureau of Research to initiate a study in 1987. The study was designed to determine the actual magnitude of crop damage by wild turkeys during the growing season in southwestern Wisconsin. To address this issue, wild turkeys were collected throughout the growing season to determine the principal foods they consumed in this part of the state and, in particular, their use of agricultural crops.

Methods

Cropland collections. Birds observed feeding in agricultural fields for ≥ 20 minutes were shot by DNR Bureau of Research personnel during spring (late April-June) 1992-93 in Iowa, Grant, and LaFayette counties and during summer (July-August) 1988-91 in Crawford county.

In a 1988 mail survey, farmers most frequently reported turkey crop damage to corn, alfalfa, and oats (Craven and Miller 1988). These crops were also mentioned most frequently in communications about turkey crop damage with DNR wildlife managers. We therefore concentrated collection efforts on these crop types. Spring cropland collections were made primarily in corn plantings (pre-emergent and sprouted fields), alfalfa seedings, and established alfalfa stands. Summer samples were collected from established alfalfa stands and mature oat fields. Collections were made at various stages of crop development to document the magnitude of use by wild turkeys.

Hunter collections. Legally harvested birds were provided by cooperating hunters at selected wild turkey registration stations, primarily in Vernon and Crawford counties, during spring hunts (April-May) 1989-90 and 1992-93, and during fall hunts (October) 1989-92.

Food samples were collected by extracting, packaging, and freezing the digestive crop from each collected bird. Samples were then sorted, identified, and measured by volume using a graduated cylinder. Food items were sorted into 6 categories (animal matter, corn, oats, alfalfa, soybean, and wild vegetation), with the primary objective of estimating the proportion of agricultural food items present. Corn was identified as seed, unharvested, or waste (broken and/or soiled kernels). Measurements were rounded to the nearest 5-ml increment, with measurements < 2.5 ml considered trace amounts. Data were summarized by aggregate percentage and frequency of occurrence (Swanson et al. 1974). Samples that contained only trace amounts of individual food items were excluded from the aggregate percentage analysis.

Results and Discussion

Cropland collections reflected the food habits of wild turkeys using agricultural fields, whereas hunter collections reflected overall food habits because those birds were harvested in all habitats.

Cropland Collections

Spring. Agricultural foods accounted for 69% of the diet of wild turkeys collected from agricultural fields (Fig. 1). Corn was the most important food item utilized and represented 54% of all foods consumed. Nearly the entire volume of corn consisted of waste grain that remained from the previous growing season, with only one sample containing seed corn. No corn seedlings were consumed by the sampled birds.

Alfalfa leaves were eaten by about one third of the birds and accounted for 9% of the diet. Oats (seed), commonly planted with alfalfa as a companion crop, made up 6% of the total volume. Two adult gobblers alone accounted for more than one half of the volume of oats consumed. These 2 birds were collected from a small flock observed scratching in an alfalfa seeding. The site appeared to be damaged at the time of collection, but inspection of the field later in the season (post-emergence) showed no noticeable impact. Apparently, the density of oat seed planted was sufficient to withstand this level of seed removal.

Wild vegetation was commonly selected and accounted for more than one fourth of the total volume of foods eaten. Dandelion flower heads accounted for most of the volume in this category and were eaten in relatively large amounts when selected. Other important wild foods included grasses, black medick, and a variety of unidentified wild seeds.

Although animal matter—mostly earthworms and snails—occurred in over one third of the samples, the total volume consumed was small. Sampled hens consumed the entire volume of animal matter.

Summer. Six adult hens and 39 (3-11 week old) poults were collected from 15 brood flocks observed feeding in agricultural fields during summer. Brood flocks, commonly numbering up to 40 birds, were selected because of their potential for crop damage and because it is relatively easy to collect individuals from these groups.

Animal matter—predominantly grasshoppers—represented 68% of the total volume of foods eaten and occurred in nearly all of the samples (Fig. 2). As expected, poults utilized more animal matter than adults (77% by volume, compared with 4%). Both poults and adult hens utilized animal matter at a high frequency (100% and 83%, respectively).

Oats (mature grain) made up about one fourth of the total volume of consumed food. Adult hens used oats more than poults (65% by volume, compared with 23%); 5 of 6 adult hens (83%) used oats, while 38% of the poults consumed oats. Most of the volume of oats was found in birds collected in or near wind-lodged or harvested fields, although birds collected from undamaged fields also consumed oats.

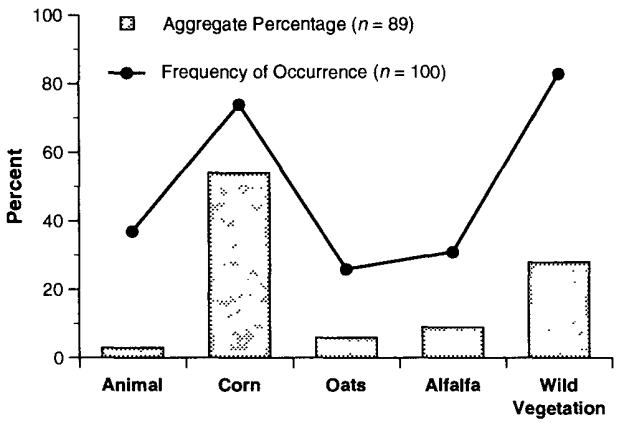

Figure 1. *Crop contents of wild turkeys collected from agricultural fields during spring in southwestern Wisconsin, 1992-93.*

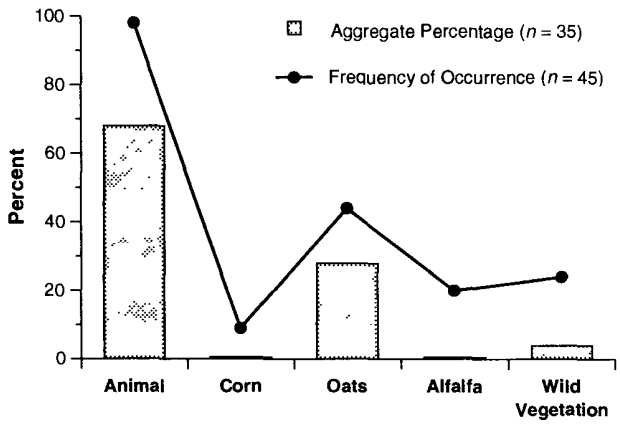

Figure 2. *Crop contents of wild turkey brood flocks collected from agricultural fields during summer in southwestern Wisconsin, 1988-91.*

New-growth corn kernels and alfalfa occurred only in trace amounts in brood flocks during summer. Alfalfa leaves were probably ingested incidentally by birds foraging for grasshoppers in alfalfa stands.

Hunter Collections

Spring. Agricultural crops made up 86% of the foods eaten by harvested wild turkeys (Fig. 3). Corn accounted for 55% of the volume and occurred in one half of the samples. The entire volume consisted of waste corn, with the exception of one sample containing kernels that appeared to be from unharvested corn. Alfalfa leaves represented 21% of the diet, although 2 individuals accounted for 70% of all alfalfa eaten. Oat seed was consumed by one fourth of the harvested birds and made up 10% of the total volume.

Wild vegetation—mostly grasses and dandelion—was commonly selected and made up 14% of the total volume. Animal matter—primarily snails—was present in 11% of the samples in trace amounts.

Fall. Agricultural foods comprised about one half of the foods eaten by harvested wild turkeys (Fig. 4). Corn accounted for 39% of all foods consumed. Over 90% of this volume consisted of waste grain. Corn was utilized in relatively large amounts when selected, reflecting its widespread availability in recently harvested fields. Alfalfa leaves, oats (waste grain), and soybeans were relatively unimportant fall foods (soybean fields were uncommon in the study area).

Wild vegetation appeared in nearly all of these samples and accounted for 39% of the total volume consumed. A wide variety of wild vegetation was used during fall, typical of the wild turkey's opportunistic nature. Primary items included acorns, hickory nuts, fruits of gray dogwood and Virginia creeper, wild grapes, foxtail seed, and various other wild seeds. While hard mast is considered an important food throughout much of the wild turkey's range (Dickson 1992), it represented only 12% of the fall diet for this study. Poor hard mast production during the collection period probably reduced the proportion of this food item in the fall diet.

Animal matter—mostly grasshoppers—made up 12% of the diet. Sub-adults consumed a higher proportion of animal matter than adults (15% by volume, compared with 9%). Crickets, beetles, and leafhoppers were also consumed.

Summary

Wild turkeys utilized a broad range of foods during the growing season. While agricultural foods comprised an important part of the diet (54% overall), most of the volume consisted of waste grain. Waste corn made up 77% of all agricultural foods consumed. Alfalfa leaves, oats, and soybeans accounted for 13%, 8% and 2%, respectively, of the balance. While there was little doubt that some level of crop damage by wild turkeys occurred, results of this study suggest that the overall significance was minimal.

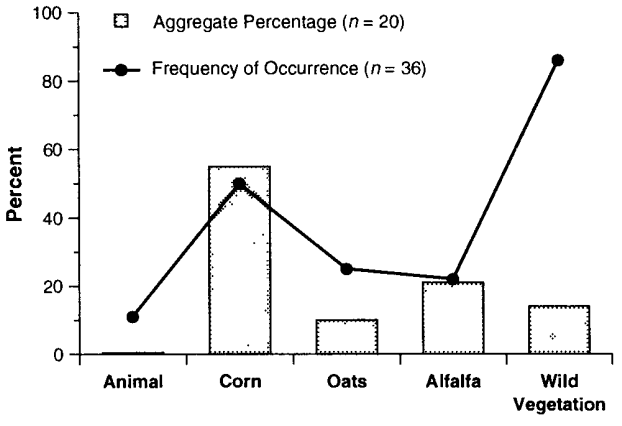

Figure 3. *Crop contents of wild turkeys harvested by hunters during spring hunts in southwestern Wisconsin, 1989-90 and 1992-93.*

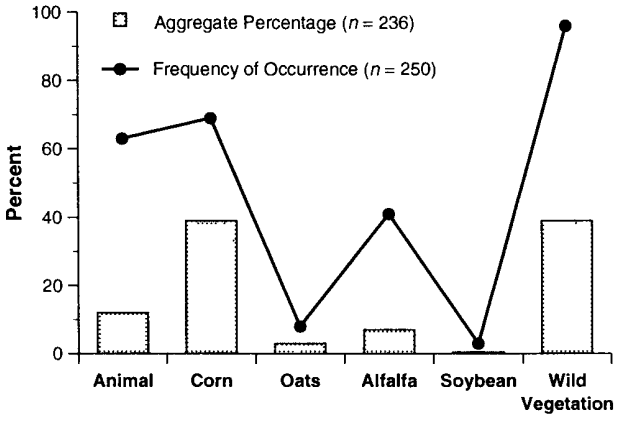

Figure 4. *Crop contents of wild turkeys harvested by hunters during fall hunts in southwestern Wisconsin, 1989-92.*

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Funding for this study was provided by the Federal Aid in Wildlife Restoration Act under Pittman-Robertson Project W-141-R and the National Wild Turkey Federation.

Edited by Wendy McCown
Layout/Figure Preparation by Michelle Jesko

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