

## American Woodcock on Fort Drum Military Installation, New York

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**Abstract** - American Woodcock singing-ground surveys (SGS) have been conducted annually on Fort Drum Military Installation since 1992 (excluding 1993 and 2000). These SGS indicate Fort Drum has a stable to slightly increasing breeding woodcock population, with average numbers of males heard per route ranging between 13.00 and 22.58 birds. These numbers are significantly higher, and in stark contrast, to many parts of the American Woodcock's range, where numbers have been in decline for over 30 years. We suggest that current forest management practices and military training create favorable successional regimes that satisfy all necessary life-history requirements and help sustain these densities of breeding woodcock at Fort Drum.

### Introduction

*Scolopax minor* (Gmelin) (American Woodcock) is a unique and popular migratory game bird throughout eastern North America. Woodcock require a mix of forest openings, clearings, or abandoned fields; dense, early successional hardwood stands (preferably *Alnus* spp. [alder] or *Populus* spp. [aspen]) on moist soils; and young, open, second-growth hardwood stands to meet all specific life-history requirements (Cade 1985, Dessecker and McAuley 2001, Keppie and Whiting 1994). However, in large portions of its range, these requirements are increasingly absent due to changing land-use practices and habitat loss through succession or development (Straw et al. 1994). Combined with possible decreased survival on wintering grounds in the southeastern United States (Krementz and Berdeen 1997, Krementz et al. 1994), woodcock populations have exhibited steep declines over the past 30 years (Kelley 2004).

Concern over population declines prompted the United States Fish and Wildlife Service (USFWS) to include woodcock on the list of National Species of Special Emphasis in 1982 (Cade 1985); and in 1985, the USFWS imposed more restrictive hunting regulations in certain localities in an attempt to alleviate population declines (Straw et al. 1994). Nonetheless, woodcock still provided recreational hunting opportunities of approximately 135,400 and 366,100 days afield in the Eastern and Central Woodcock Management Regions in 2004 to 2005, respectively (Kelley and Rau 2005). Partners in Flight (PIF) identified the American Woodcock as a species of high overall or global priority (Rosenberg 2000), and

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the International Association of Fish and Wildlife Agencies has created a Woodcock Task Force to develop a woodcock conservation plan in an effort to halt these declines (J.R. Kelley, USFWS Division of Migratory Bird Management, Fort Snelling, MN, pers. comm.). Despite these efforts, singing-ground surveys (SGS) in the East have shown a woodcock population decline of 2 to 3% annually since the late 1960s (Dessecker and Pursglove 2000, Kelley 2004). Only recently has there been any indication of stabilization of the population.

Woodcock surveys were conducted annually on Fort Drum Military Installation between 1992 and 2005, excluding 1993 and 2000. Based on survey results, it was noted that the woodcock population was stable to slightly increasing over the past decade. Here we present survey results and possible reasons for these contrasting trends on Fort Drum.

### Methods

Nineteen woodcock SGS transects were randomly established by the USFWS (Claypoole et al. 1994) within or along the boundaries of Fort Drum in 1992 (Fig. 1). Encompassing 43,442 ha, Fort Drum Military Installation is located in northern New York in Jefferson and Lewis counties (44°00'N, 75°49'W; Fig. 1). The installation includes a cantonment area,

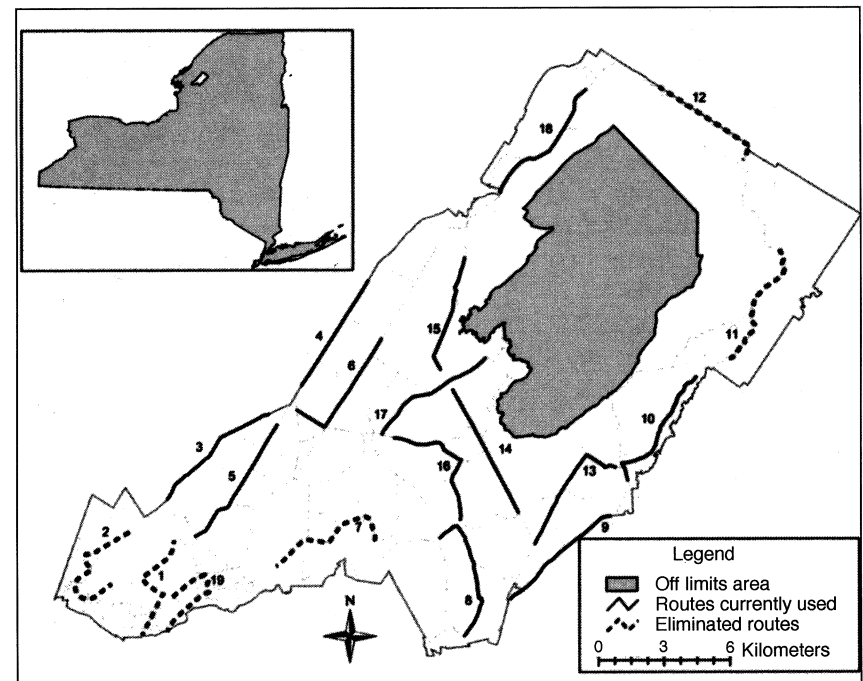


Figure 1. Fort Drum Military Installation, Fort Drum, NY, with locations of woodcock singing-ground survey routes.

an impact area, an airfield, and 18 training areas. Training areas comprise the majority of available woodcock habitat, including 5577 ha of rangeland and grassland, 24,683 ha of forest and woodlands, and 7897 ha of wetlands and open water.

Beginning in 1992, eight to fifteen 5.4-km transects have been surveyed each year by Fort Drum natural resources personnel. Eight transects were surveyed in 1992; 11 in 1997, 1998, and 1999; 12 in 2004 and 2005; 13 in 1996, 2001, 2002, and 2003; 14 in 1995; and 15 in 1994. The number of transects surveyed each year depended on personnel and budget constraints as well as military training activities. Six survey routes (1, 2, 7, 11, 12, and 19) were eliminated because of continual military training and/or traffic creating a high disturbance level annually. Surveys followed USFWS protocol beginning 15 or 22 minutes after sunset (depending on cloud cover), and were conducted between 25 April and 15 May. Observers stopped 10 times (every 0.6 km) and recorded all individual male woodcock heard peenting. All efforts were made to allow no more than two min to lapse between stops. Surveys were not conducted in inclement weather (i.e., heavy precipitation, high winds, or temperatures below 5 °C) or during periods of sustained disturbance (e.g., military training, continual traffic noise, etc.)

We report average number of males recorded per route (excluding routes 1, 2, 7, 11, 12, and 19 as noted above) and the estimated population trends. Numbers reported are total numbers heard; we did not incorporate "acceptable" stops, as noted on the official USFWS data form. Comparisons to the official USFWS SGS results utilize the same criteria (i.e., total numbers heard, with no incorporation of "acceptable" stops). Table 1 notes any known or potential biases associated with data collection.

### Results

Counts were generally stable to slightly increasing on the installation (Table 1, Fig. 2). Initially, in 1992, we heard 104 woodcock over six routes for an average of  $17.33 \pm 3.59$  ( $\pm$  SE) birds heard per route. In 2005, we heard 271 birds over 12 routes for an average of  $22.58 \pm 2.72$  ( $\pm$  SE) per route. The highest numbers of males heard on the installation also occurred in 2005. The lowest average numbers of males heard occurred in 1998 and 2001, with an average of  $13.00 \pm 3.12$  and  $13.00 \pm 1.77$  ( $\pm$  SE), respectively, woodcock heard per route.

### Discussion

Historically, few areas have been identified as having stable or increasing populations of American Woodcock through SGS (Kelley 2004, Roberts 1989, Sauer and Bortner 1991). Only recently has the 10-year trend estimate for 1995–2004 in the Eastern and Central Region represented no change—

the first time since 1992 that the population had potentially stabilized with no decrease (Kelley 2004). Conversely, we found that Fort Drum may have a stable or slightly increasing population, and also may have among the highest average densities of peenting male birds per survey route or area reported in the northeast. Our lowest mean number of woodcock heard on any of our individual routes from 1992–2005 (excluding 1993 and 2000) was higher than 84.4% (579/686) of the mean number of males heard on any individual routes identified throughout the northeastern portion of the SGS range (estimated from counts summarized within the national USFWS SGS results that were run for at least 2 years during the same time period as our study). Further, only 1.75% (12/686) of the individual routes run in the northeastern region during the time of our study averaged over 10 males. On Fort Drum, 84.6% (11/13) of our individual routes had more than 10 males. In the northeastern region, only 0.6% (4/686) of all individual routes averaged more than 15 males heard, whereas Fort Drum had 61.5% (8/13). Additionally, there were no individual routes in the northeastern region that averaged more than 20 males heard, whereas Fort Drum had 30.8% (4/13) of routes with over 20 birds heard.

Table 1. Numbers of male woodcock heard "peenting" per year and per route on Fort Drum Military Installation, Fort Drum, NY from 1992 to 2005 (excluding 1993 and 2000). NIA = no information available.

Year	Route <sup>A</sup>												Mean <sup>B</sup>	
	3	4	5	6	8	9	10	13	14	15	16	17		18
1992	18	18	NIA <sup>C</sup>	NIA <sup>C</sup>	4	NIA <sup>C</sup>	NIA <sup>C</sup>	11	27	NIA <sup>C</sup>	NIA <sup>C</sup>	NIA <sup>C</sup>	26	17.33
1994	18	5 <sup>D</sup>	22	18	2	12	3 <sup>D</sup>	22	27	19 <sup>E</sup>	18	22 <sup>D</sup>	17 <sup>D</sup>	15.77
1995	11	16	8	12	4	21 <sup>D</sup>	8 <sup>D</sup>	11 <sup>D</sup>	25	13	8	25	16 <sup>D</sup>	13.69
1996	15	12	26	16	1	28 <sup>D</sup>	5	8	15	22 <sup>D</sup>	18	19	20	15.77
1997	3 <sup>F</sup>	13 <sup>G</sup>	24 <sup>F</sup>	23	4	20	4	17	10	20	8	NIA <sup>C</sup>	NIA <sup>C</sup>	13.27
1998	23	13	17	26	6	5	2	1	15	NIA <sup>C</sup>	4	31	NIA <sup>C</sup>	13.00
1999	12	11	25	27	8	4	6	11	25	NIA <sup>C</sup>	16	24	NIA <sup>C</sup>	15.36
2001	9	16	26	25	12	13	5	11	11	5 <sup>E</sup>	12	14	10	13.00
2002	26	20	27	17	8	18	4	18	17	16	7	27	24	17.62
2003	15	30	21	29	5	17	5	27	28	14	15	37	26	20.69
2004	13	29	22	24	4	17	NIA <sup>H</sup>	15	16	10	8	21	18	16.42
2005	12	21	23	35	7	15	NIA <sup>I</sup>	24	20	30	15	33	36	22.58
Mean <sup>B</sup>	14.58	17.00	21.91	22.91	5.42	15.45	4.67	14.67	19.67	16.56	11.73	25.30	21.44	

<sup>A</sup>Routes 1, 2, 7, 11, 12, and 19 have been removed from analysis as noted in "Study Areas and Methods."

<sup>B</sup>Averages have not been adjusted for the noted biases.

<sup>C</sup>No information was available in historic files.

<sup>D</sup>The survey was conducted outside of the recommended period (i.e., April 25–May 15).

<sup>E</sup>The route was run in the reverse order (i.e., the starting point was actually the normal ending point).

<sup>F</sup>The routes were run by inexperienced observers.

<sup>G</sup>The stops along the route were made at every 0.2 mile, instead of 0.4 mile.

<sup>H</sup>The survey could not be completed due to construction on the road.

<sup>I</sup>The survey could not be completed due to high winds.

During the same time period as our analysis, trends from throughout New York averaged between 1.5 and 2.0 males per route statewide (Kelley 2004). For counties surrounding Fort Drum, average numbers of males heard ranged from 0.83 to 7.75 on individual routes (R. Rau, USFWS Division of Migratory Bird Management, Patuxent Wildlife Research Center, Laurel, MD, pers. comm.). In light of these comparisons, we believe that Fort Drum harbors a large breeding population of woodcock with numbers exceeding regional and state routes. Currently, this locally (and perhaps regionally) important breeding population is not being considered in regional and state population assessments. We acknowledge that we are intensely monitoring a local population versus the range-wide coverage of the national USFWS SGS; however, based on routes monitored in the northeastern region, there are no individual areas that have comparable populations of breeding males as occur on Fort Drum. These refugia of habitats in large ownership blocks, such as Fort Drum, would seem to be very important in sustaining overall population numbers of woodcock. There may be similar numbers on intensely managed private or commercial lands, but we have found no published data from such places.

We suggest there are two main factors why woodcock numbers are high on the installation: (1) topography/geography and (2) historic and current land-use practices including farming, active land management (e.g., forest management through Fort Drum's Forest Management Program and

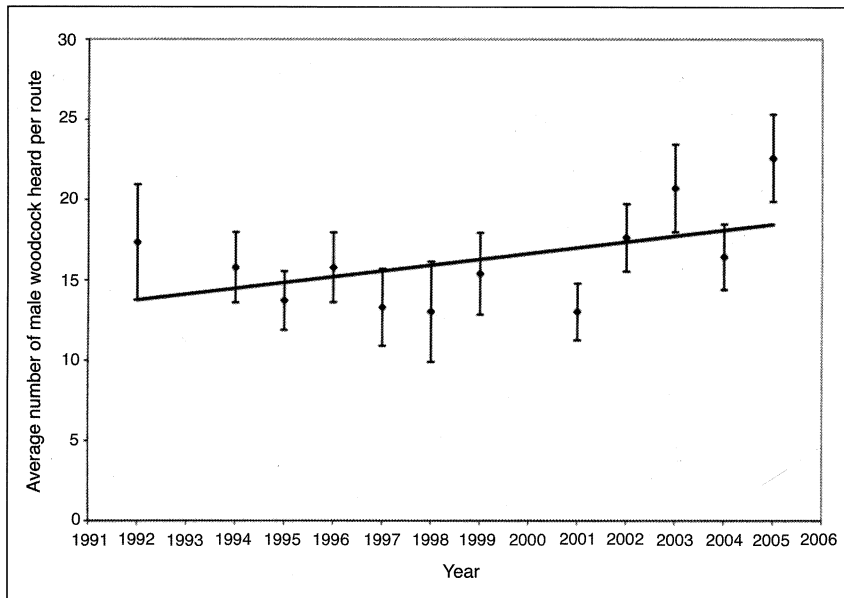


Figure 2. Average numbers of male woodcock heard per year and per route from 1992 to 2005 (excluding 1993 and 2000) on Fort Drum Military Installation, Fort Drum, NY.

shrub removal through Fort Drum's Integrated Training Area Management Program), and military training.

Approximately 66% of Fort Drum consists of low plains with little topographic relief and soils that range from shallow and poorly drained to deep and excessively drained. Prior to the late 1800s, the land area supported mesic forests consisting of predominately mixed northern hardwood species and xeric sand plains dominated by *Quercus* spp. (oak) and *Pinus* spp. (pine). This area was logged and cleared for farming during the late 1800s to early 1900s, however, all of these farmsteads ceased operations with the expansion of Fort Drum in 1940. From 1945 to 1995, there has been an increase of approximately 11,340 ha of forest land (J.E. Wagner, Forest Management Program, Fort Drum, NY, pers. comm.), as natural succession has occurred. The current landscape is a mosaic of mixed northern hardwood and coniferous forests in predominately early to mid-successional stages, interspersed with open rangelands, shrublands, and wetland areas.

Because of varying soil characteristics on Fort Drum, vegetation growth and distribution varies across the installation. Succession may proceed at a slower rate on poorly drained soils such as clay, while loamy soils provide a good medium for rapid vegetation growth after areas are opened up to sunlight through timber harvesting or other soil-disturbing activities. Additionally, some of the old agricultural fields were established in wetland areas, and as these areas are allowed to revert back to wetlands, successional regimes may have slowed here as well.

Other areas on Fort Drum have succession set back by either active land management or military training activities. Small patch clearcuts (typically 2–3 ha in size) regenerate aspen stands and other early successional northern hardwood species. Removal of woody vegetation to allow for greater access and movement for military training also keeps areas in early seral stages. Some military training activities, such as the use of tracked vehicles, disturb soils and vegetation, which may retard succession and retain areas in early stages of succession (Greene and Nichols 1996, Johnson 1982). Because training activities and land management actions vary temporally and spatially (and in extent and size), some areas may experience a regime of succession, while other areas remain in an early seral stage. Additionally, the necessity of continued military training and the presence of unexploded ordnance in certain areas prevents any future development or urbanization. All these activities provide a variety of successional habitats to satisfy woodcock life requirements in both quantity, and presumably quality, in a relatively stable amount at any given time.

Similar to many parts of New York and the Northeast, Fort Drum has had net increases in forest acreage as farming practices have ceased. However, with the continuation of current military training retarding vegetation growth or setting back plant succession in some places and allowing it to grow back

in others as training locations and missions change, suitable areas of habitat for sustaining current numbers of woodcock on Fort Drum will presumably continue. Additionally, periodic land management activities, such as timber harvesting, mowing, and other activities that maintain or create open areas, will still be required to provide the varieties of habitat that not only benefit woodcock populations on Fort Drum, but other species with similar life-history requirements as well.

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