

Hunter Use of an Urban Small Game Management Area

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Abstract: A user survey was conducted on Eastern State Wildlife Management Area from 8 November 1986 through 28 February 1987. A total of 1,290.50 hours of use was recorded by hunters and non-hunters for the period. December received the maximum hunter effort with 406.50 hours. November received 247.50 hours of use, January 193.00 hours of use, and February 122.32 hours of use. January recorded the maximum hours of non-hunter use with 156.50 hours. Rabbit hunting was the most popular activity with 224.42 hours. Unspecified, squirrel, crow, and dove hunting followed in popularity. It is apparent from use and harvest data that the area provides substantial opportunity for the hunters of the surrounding metropolitan area.

Proc. Annu. Conf. Southeast. Assoc. Fish and Wildl. Agencies 41:508-513

Eastern State Wildlife Management Area (ESWMA) is located on a 142-ha tract of land which forms the southern bank of the French Broad and Tennessee rivers at their confluence, approximately 6 river km above Knoxville, Tennessee. The area was owned by the Tennessee Department of Mental Health (TDMH) and was intensively farmed from the 1940s through the early 1970s. Historically, both row crops and cattle grazing were utilized to meet the food requirements of the Eastern State Psychiatric Hospital in Knoxville.

The land was established as a wildlife management area through a renewable 5-year cooperative agreement between the TDMH and the Tennessee Wildlife Resources Agency (TWRA) in 1974. Currently, the land is listed as surplus property and is managed under a 5-year renewable agreement with the Finance and Administration Department of the State of Tennessee. Conditional to the original agreement, the TWRA was required to develop public recreational uses for the land. Because of the area's size, historical uses, and needs of local hunters, small game management was initiated. Management practices were begun to enhance small game populations of mourning dove (*Zenaidura macroura*), eastern cottontail rabbit (*Sylvilagus floridanus*), bobwhite quail (*Colinus virginianus*), and gray squirrel (*Sciurus carolinensis*). Small game seasons generally coincide with statewide seasons. The area is also listed as one of TWRA's wildlife observation areas and year-

round non-consumptive use is encouraged. During the year the area is used by hikers, photographers, bird watchers, and school groups.

Because the area is close to Knoxville, adjacent to a navigable river and undeveloped, the Knox County Commission periodically considers the value of the land to the residents and businesses of Knox County. Considerations for development of the area into an industrial park, complete with a barge terminal, have been expressed.

Each time the issue of industrial development is publicly debated, a consolidated effort from hunters, sportsmen's clubs, and non-consumptive users endorses the preservation of the ESWMA as a recreational area. Those opposed to industrial development have used various arguments for preservation of the area. Arguments such as (a) the topography and geology of the area not being economically conducive for stated development plans, (b) the archaeological significance of the area (unpubl. data, Tenn. Dep. Conserv., Site Survey Records, Nashville 1983), and (c) the proximity of this large "green space" area to downtown Knoxville have maintained the area in an undeveloped state thus far. Quantified use, however, was unavailable and could not be used as a defense of the area.

The primary objective of this study was to obtain data regarding numbers of users, hours of use, hunter trips, and harvest from the area. This data would be of value in future debates about the proposed development of the area. It will also assist TWRA personnel in adjusting management practices or regulations in order to meet the needs of users.

Methods

The French Broad and Tennessee rivers compose the north-to-northeast boundaries of the area. Along the river the soil is deep and rich. Approximately 40 ha are available for cultivation. Crops planted include corn, wheat, millet, and milo. Field boundaries consist of honeysuckle (*Lonicera japonica*) and blackberry (*Rubus sp.*) fencerows with mixed hardwoods and autumn olive (*Eleagnus sp.*) interspersed.

Along the eastern, southern, and western boundaries, stands of hickories (*Carya sp.*), red oaks (*Quercus rubra*), and white oaks (*Quercus alba*) are found. Some large eastern red cedars (*Juniperous virginianus*) and pine (*Pinus sp.*) are present in the canopy, but the understory is primarily hardwood reproduction.

The interior of the area consists of rolling hills with shallow soil. Bedrock outcroppings are frequent with mixed-year classes of cedars being the dominant woody vegetative covering. The understory consists of young cedars, annual and perennial grasses, and honeysuckle. Open areas have vegetative cover consisting of lespedeza (*Lespedeza sp.*), honeysuckle, blackberry, and grasses.

Seven springs provide ample water supply even in years of low rainfall. One tenth-ha low land marsh separates the hardwoods of the east and cedar hills of the interior.

Nine food plots approximately $\frac{1}{20}$ to $\frac{1}{10}$ -ha each consisting of alfalfa, red

clover (*Trifolium pratense*), white clover (*Trifolium repens*), annual and perennial grasses are spaced throughout the uncultivated areas.

Access is limited with 1 main entrance and 2 secluded side entrances. The main entrance, an old farm road, is gated approximately $\frac{1}{5}$ km into the area and limited parking is available.

Approximately 27 m inside the gate, a questionnaire box was erected. Most, but not all, visitors enter by this route. Two signs, 1 at the gate and the other above the box, were placed requesting users to complete the questionnaire contained within the box. The box was placed inside the area to discourage vandalism. The survey was initiated on 8 November 1986, the opening day of statewide rabbit and quail seasons. Questionnaires were made available for the remainder of small game seasons through 28 February 1987. The supply of questionnaires was replenished regularly, but within single days in November and December 1986, the supply was exhausted.

The questionnaire was brief and simple in form. Basic information on use, duration of visit, and harvest were requested.

Both hunters and non-consumptive users were considered in analyzing total use. Total recreational hours were calculated by multiplying the number of users times the duration of the trip and obtaining the product. If the user participated in more than 1 activity on the area, the duration of the trip was divided by the number of activities, thus allotting equal time to each. No indication of the number of users who did not complete the questionnaire was available. For this reason data on use and harvest is conservative.

Results and Discussions

The results reported are a compilation of the completed user questionnaires.

Small game habitat is decreasing in Tennessee (Tenn. Wildl. Resour. Agency 1986) and access to private land is a serious problem facing small game hunters. Cooperative agreements between intrastate agencies can establish lands for small game management and provide hunting opportunities with minimal costs to the wildlife agency. Small game management areas in urban locations can provide hunting opportunities that would otherwise be limited or non-existent.

Hunters spend 969.32 recreational hours pursuing small game on ESWMA. December received the maximum hours of hunting use (Fig. 1), hunter trips by the most hunters (Table 1), as well as total use by all users. Across the state, November receives the most small game hunter effort (Tenn. Wildl. Resour. Agency 1987). This discrepancy may be attributed to November hunters not being aware of the questionnaire.

Rabbit hunting was the most popular recreational activity on ESWMA during each month of the period surveyed (Table 2). A total of 87 rabbits was harvested during 627.70 hours of hunting. December rabbit hunting and harvest were the maximum for the period with 293.29 hours of hunting accounting for 47 rabbits harvested.

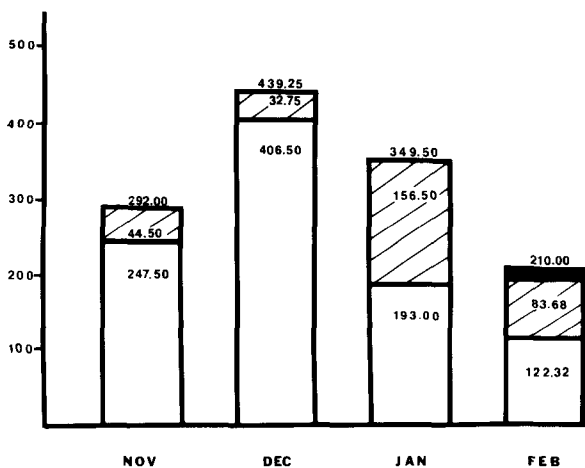


Figure 1. Total hours of use on Eastern State Wildlife Management Area by hunters (open histograms), non-hunters (cross-hatched histograms), and unknown (closed histograms).

Table 1. Number of users and trips on Eastern State Wildlife Management Area.

Month	Hunters	Hunting trips	Non-hunters	Non-hunting trips
Nov	84	41	15	9
Dec	113	59	21	13
Jan	74	37	69	14
Feb	38	21	44	20

Table 2. Hunting effort and harvest of small game on Eastern State Wildlife Management Area.

Species Hunted	Nov		Dec		Jan		Feb	
	Hours of effort	Number harvested	Hours of effort	Number harvested	Hours of effort	Number harvested	Hours of effort	Number harvested
Rabbit	160.50	21	293.29	47	86.58	13	87.33	6
Quail	56.00	4	62.32	8	76.52	7	29.58	0
Other	17.50	2	8.49	0	14.85	0	3.75	0
Squirrel	4.50	3	21.62	6	11.52	3	1.33	0
Crow	9.00	0	5.79	0	3.35	0	0.33	0
Dove	—	—	14.99	3	0.25	0	—	—

A population estimate of cottontails inhabiting approximately 91 ha of huntable rabbit habitat of the ESWMA is not available. Much of the land of ESWMA is considered preferred rabbit habitat, preferred habitat being hedgerows, brushy areas and edge areas (Hendrickson 1938, Allen 1939, Allen et al. 1982). The TWRA considers 1 rabbit/1 ha a good rabbit density (Tenn. Wildl. Resour. Agency 1983a). Taking the liberty of assuming ESWMA provides a good rabbit density, approximately 112 rabbits should inhabit the area. Therefore, the 87 rabbits (78%) harvested is below the 80% to 85% expected turnover (Tenn. Wildl. Resour. Agency

1983a). The hunter success rate of 0.14 rabbits/hour could be indicative of the impenetrable cover in some parts of the area, as well as some degree of wariness of area rabbits.

Quail was the second most frequent species hunted on ESWMA. A total of 224.42 hours of hunting during the season resulted in the harvest of 19 birds. This author located 3 distinct coveys on the area, but individual numbers of birds could not be obtained. Again, population estimates are not available. If average winter covey size of 14 birds is assumed (Tenn. Wildl. Resour. Agency 1983b), approximately 42 birds could inhabit the area.

Unspecified hunting activity provided a total of 44.59 hours of recreation for the survey period. Possible species hunted included groundhog (*Marmota monax*), wood duck (*Aix sponsa*), mallard (*Anas platyhrychos*), or woodcock (*Philohala minor*). Target shooting is prohibited on the area; however, it was listed several times in the "other" category.

Squirrel, crow, and dove seasons open in August and September on ESWMA; this is prior to the initiation of this survey. December received the maximum effort and harvest of area squirrels during the survey period. November received the maximum effort from crow hunters. Dove season on ESWMA does not conform to the statewide dove season. On ESWMA, hunters are allowed to hunt dove only on 3 selected days of the first week of the statewide dove season. This is to ensure that the area is not "shot out" during the first few days. The ESWMA dove season does conform with the statewide dove season beginning with the second week. The area provides a substantial amount of dove hunting opportunities during this early season. The late dove season, 13 December 1986 through 28 December 1986, received the lowest effort surveyed during the period.

Small game management areas adjacent to cities and urban areas can serve dual purposes. Not only do they provide hunting opportunities, but also supply non-hunting users year-round recreational opportunities as well. A total of 317.43 hours was spent by non-hunting users on ESWMA with January receiving the maximum hours (156.50).

It is apparent that ESWMA provides valuable recreational opportunities for hunters and non-hunters as a small game management area. Efforts and monies expended on managing urban management areas under intra-agency agreements is well placed. Understandably, spending money on potentially temporary land is uneconomical. However, under intra-agency agreements, there are no initial purchasing costs. Monies can be spent directly on management practices aimed at providing hunting and non-hunting opportunities. A formidable force of satisfied hunters and non-hunters can greatly increase assurances of the land's continued use as a management area.

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