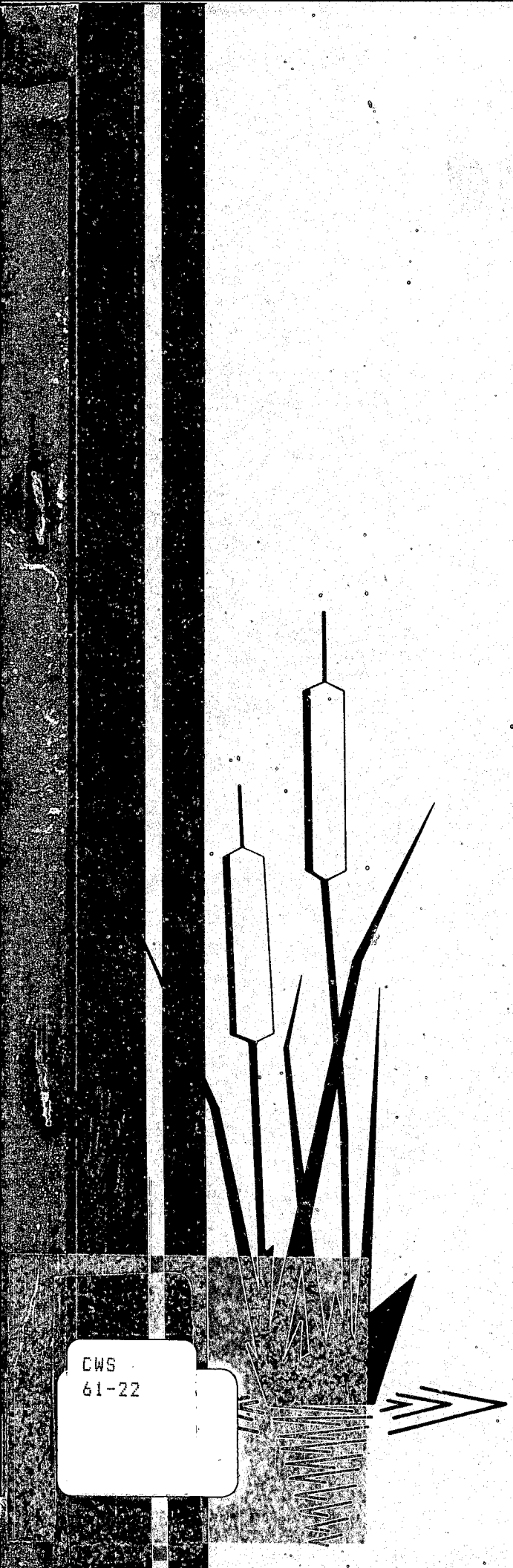

CANADIAN WILDLIFE SERVICE

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Stephen, W.J.D.

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Report on trial of Exid Thunderbird Mark V automatic bird scarer

Introduction

In late June, 1961, a single sample of Exid Thunderbird Mark V automatic bird scarer was shipped to Canadian Wildlife Service, Saskatoon, on approval. That machine was operated according to the instructions supplied by the importer and distributor, James McBride, 66 Second Street, North, Stoney Creek, Ontario. Mr. McBride indicated by letter (July 7, 1961) that there are no dealers on the prairies at present. Brochures supplied indicate that the test machine supplied is identical to Scare-Away Model M-2.

Past experience with acetylene exploders (Stephen, 1961) has indicated that in order to prevent ducks from landing in a grain field, intervals between explosions should be about one minute, especially during the sunrise and sunset periods. It is also known that many farmers on the prairies whose grain fields are damaged by ducks do not live adjacent to those fields and that during wet weather when the fields are most susceptible to damage access is sometimes limited. Thus if an automatic acetylene exploder is to be effective in preventing damage it must consistently operate near the rate of one explosion per minute at least during the sunrise and sunset feeding-flight periods for several days without manual adjustment.

The test machine was operated for a total of 41 days. For seven of those days it was operated from bottled acetylene gas; for the remainder it was operated from carbide and water. The test machine was operated in two sites; the first on the University of Saskatchewan campus in the Field Husbandry test plots and the second in a wheat field (Section 29, Township 28, Range 24, West of the second Meridian) near Simpson, Saskatchewan.

Results

The Exid Thunderbird Mark V automatic bird scarer was set in the University of Saskatchewan, Field Husbandry Department, experimental field, in an attempt to prevent house sparrows from damaging test plots of wheat and barley. The bird scarer was not operated at night because of complaints of Saskatoon residents. The machine was shut off and started up manually. The machine was checked periodically until hydrolysis of the first filling of carbide was more or less complete. Observations of cycling rate during that period are in Table 2. The machine was then operated by technical staff of the Field Husbandry Department, University of Saskatchewan.

Effectiveness of the test machine in preventing sparrow damage was not completely evaluated. However, sparrows were observed landing at distances estimated to be 50± yards from the exploder. Two other acetylene exploders were also operating in the test plots. An area of 50 yards radius would be approximately an acre and a half. When Field Husbandry staff were questioned about the test machine they said it had operated properly.

The Exid Thunderbird Mark V automatic bird scarer was operated for 7 days (from evening August 22nd to evening August 29th) from a supply of bottled acetylene gas. Table 2 indicates the variability found in cycling rate and frequency of explosion when checked periodically. Inconsistency of explosion appeared to be due to faulty ignition. Apparently flint ratchet wheel was not always engaging. The noise made by the Exid Thunderbird Mark V is comparable to that made by a shotgun discharge, and other acetylene exploders such as the Sentinel, Zon and CWS-NRC prototype.

Table 1: Operation of Exid Thunderbird Mark V automatic bird scarer on one filling of carbide and water.

Date	Time	Cycling Rate	No. of cycles in sample	Remarks
July 11	4 pm	3 min	3	Begun operation - 2 lbs. carbide and water tank full.
	5 pm	3 min	3	
	9:30 pm	2 min, 30 sec.	3	water disconnected.
July 12	8 am	2 min	3	water connected
	11:30 am	2 min, 30 sec.	3	
	5 pm	2 min, 30 sec.	3	
	10 pm	2 min, 30 sec.	3	water disconnected
July 13	8 am	2 min, 30 sec.	3	water connected
	1 pm	3 min	3	
	5 pm	3 min, 15 sec.		
	10 pm	3 min, 30 sec.	3	water disconnected
July 14	5:30 am	1 min, 30 sec.	3	water connected - needed considerable priming.
	6 am	3 min	3	
	10 am	5 min	3	
	12:30 pm	7 min	3	
	1 pm			carbide replaced and water tank refilled.

Table 2: Operation of Exid Thunderbird Mark V automatic bird scarer on bottled acetylene for 7 days.

Date	Time	Cycling rate	No. cycles in sample	% misfire	Remarks
Aug. 22	7.40 pm	55 sec			full acetylene bottle
Aug. 23	5.10 pm	90 sec	10±	10%±	
Aug. 24	5.15 pm	95 sec	64	55%	
Aug. 24	6.45 pm	95 sec	15	0	flint reversed in tube
Aug. 25	7.15 am	40 sec	15	53%	
Aug. 25	6.00 pm	70 sec	15	47%	acetylene bottle empty; replaced with 1/2 full tank rate
Aug. 26	6.28 am	5 min+	1		Gas supply checked ok; took 15 min to reset flow.
Aug. 26	6.33 am	70 sec	22	27%	
Aug. 26	5.15 pm	112 sec	16	62%	
Aug. 27	6.20 am	75 sec	19	68%	flint adjusted
Aug. 27	5.40 pm	65 sec	15	40%	acetylene bottle empty; replaced with full bottle.
Aug. 28	4.45 pm	85 sec	18	61%	
Aug. 29	5.45 pm	58 sec	18	60%	gauge indicating 3/8 full when operation ceased.

Conclusions

1. The Exid Thunderbird Mark V automatic bird scarer tested seemed to cycle and explode consistently when set to operate at one explosion per 2.5 minutes from acetylene formed by the hydrolysis of calcium carbide. However, the test machine did not cycle and explode consistently when set to operate at one explosion per minute from compressed acetylene.

2. Cycling at the rate of approximately one explosion per 2.5 min., the test machine operated for about 40 hours on one filling of carbide and water.

3. Cycling at the rate of approximately one explosion per 1.5 minutes, more than 2 bottles of acetylene were used in 7 days.

4. When operated from bottled acetylene supply, cycling rate of exploder was difficult to adjust with the valves supplied.

5. While tests conducted were by no means exhaustive, it is apparent that the Exid Thunderbird Mark V (and/or Scare Away M-2) are not sufficiently dependable

in cycling rate and explosion frequency when operated from bottled acetylene to recommend generally to prairie farmers for prevention of duck damage.

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