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TECHNICAL REPORT NO. 74-54

NIGHT RECONNOITERING CAPABILITY FOR MILITARY DOGS

by

E. Scott Tomlinson
and
M. Krauss
Biological Sciences Branch

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U. S. ARMY LAND WARFARE LABORATORY
Aberdeen Proving Ground, Maryland 21005

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The AN/PVS-5 Night Vision Goggles were evaluated as a potential viewing device to enable a military dog handler to work his dog, e.g., a scout dog, off-leash at night. Supplementary IR illuminating devices mounted on the dog were evaluated in conjunction with the AN/PVS-5, but were proved to be unnecessary at distances up to 50 meters. Since 50 meters is the maximum distance at which an off-leash dog would be allowed to operate, the AN/PVS-5 NV Goggles alone are adequate to enable the handler to work his dog. A radio-controlled omni-directional IR indicator light was evaluated and proved to be useful in

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20. ABSTRACT (Cont'd)

enabling a handler to locate his dog in darkness if it is momentarily lost to view.

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PREFACE

The work reported here was performed under LWL Task 04-B-72, Improved Night Reconnoitering Capability of Military Dogs. The interest and cooperation of the following individuals and organizations, without which this work could not have been performed, are gratefully acknowledged: Mr. Jasper Lupo Mr. William Dincher of the USA Night Vision Laboratory, Ft. Belvoir; CAPT Woodrow Quinn and personnel of the Military Dog Detachment, USA Infantry School, Ft. Benning, GA; and Mr. John W. Woestman of the Franklin Institute Research Laboratories, Philadelphia, PA.

INTRODUCTION

With the advent of methods and procedures to train and employ military working dogs off-leash during daylight hours, it was a natural follow-on development to investigate the feasibility of utilizing the off-leash capability in night operations. The main difficulty to be overcome was the inability of the handler to observe his dog adequately in darkness at distances greater than a few feet. The effort described in this report was addressed to this problem. An earlier study had indicated that it might be possible for a handler equipped with an IR viewer to watch a dog in darkness at greater distances with the aid of infrared emitters mounted on the dog.[1] Initial trials of the concept were made with the AN/PVS-2 Image Metascope. The equipment proved inadequate.

Following the initial effort, a survey of night vision equipment was undertaken to determine whether a more satisfactory viewing device than the metascope might be available. The problem was discussed with personnel of the USA Night Vision Laboratory, Ft. Belvoir, Va. It appeared that either or possibly both of two developmental night vision devices might provide a more satisfactory solution that the AN/PVS-2. The devices suggested by the NVL personnel were (1) The AN/PAS-7 Hand-Held Thermal Viewer, and (2) The AN/PVS-5 Night Vision Goggles.

Based on the assumption that a handler would be expected to work his dog off-leash at night at distances as great as or even greater than 100 meters, the Franklin Institute Research Laboratories of Philadelphia were tasked to develop an appropriate IR illuminating device to mount on a dog.[2] With night vision devices borrowed from the Night Vision Laboratory, preliminary field tests were undertaken. In these tests it was determined that the AN/PVS-5 Night Vision Goggles were better as a potential viewing device for use by a dog handler in an operational environment than the AN/PAS-7 Thermal Viewer. It was also established that with the AN/PVS-5 alone, without supplementary IR illumination of the dog, a dog can be viewed clearly enough for operational use to about 50 meters. A reconsideration of the operational requirement resulted in the acceptance of 50 meters as limiting range for controlling dogs off-leash. Consequently, there was no need for supplemental illumination on the dog and the task was terminated.

As an offshoot of this task, an omnidirectional radio-controlled IR light on a dog was tested for those occasions when a dog becomes lost in vegetation or behind obstacles. The concept proved feasible.

---

[1] LWL Tech Memo No. 67-05, Infrared Emmitters for Locating Off-Leash Scout Dogs at Night, 1968.

[2] Woestman, J.W., Visualization of Dogs at Night, Final Report on Work Assignment, No. 5, Contract DAAD05-72-C-0113, FIRL Report No. F-C-3222-05, April 1973.

THE AN/PVS-5 NIGHT VISION GOGGLES

The AN/PVS-5 Night Vision Goggles are a lightweight (1.98 pounds), head-mounted, binocular, image-intensifier viewing system which allows the operator to perform tasks requiring both hands. The goggles have a field of view of approximately 42 degrees. The goggles are equipped with focusable objectives with a range of 25 cm to infinity. The entire system consists of head mounts and straps, housing IR illuminator, objective lens assemblies, two image intensifier tubes with integral multiplier and oscillator, two eyepiece assemblies, and a battery. Separate carrying cases are provided for storing and transporting.

The image presented by the AN/PVS-5 is a monocular scene in which objects can be distinguished and identified under minimal light conditions. At distances beyond about 50 meters, however, objects in the field of view tend to blend together, losing distinction.

FIELD EVALUATION OF NIGHT VIEWING SYSTEM

A field evaluation of the AN/PVS-5 Night Vision Goggles combined with supplementary dog-mounted IR illuminators was performed by the Military Dog Detachment, Company Operations Dept., USAIS, at Ft. Benning, GA. A detailed plan was developed for guidance in conducting the evaluation (see Appendix A).

A report of the results of the field evaluation was submitted by the Military Dog Detachment (now attached to HQ, 1st Bn, 29th Infantry (Pioneers), Ft. Benning, GA. A copy of this report is appended as Appendix B.

The main result of the Military Dog Detachment evaluation was to show that with the AN/PVS-5 Night Vision Goggles, supplementary IR illumination of the dog is not necessary up to a distance of about 50 meters in darkness. It was the consensus of the combat-experienced dog-handlers who participated in the evaluation, that 50 meters represent the maximum distance from the handler at which an off-leash dog would be allowed to operate at night. This position was contrary to the original assumption that had been the basis for the IR illuminator concept. Since 50 meters, more or less, also is just about the limiting range of the AN/PVS-5, where the resolution breaks down, it was concluded that a supplementary IR illuminator on the dog is not necessary. This was fortunate, because the problem of illuminating a dog in the required mode proved to be very difficult, and was not satisfactorily resolved by the prototype IR illuminating devices provided by the Franklin Institute for evaluation.

RADIO-CONTROLLED IR OMNIDIRECTIONAL LOCATOR LIGHT

Although it was determined that the AN/PVS-5 goggles alone could permit off-leash control of dogs at night under most conditions, personnel of the Military Dog Detachment at Ft. Benning expressed interest in the feasibility of relocating a dog in darkness if it became lost to sight behind intervening vegetation or other terrain features even within the range of the AN/PVS-5. It was proposed that a radio-controlled omnidirectional IR light carried by the dog would be flashed on briefly by the handler to enable him to locate his dog in this situation.

The Franklin Institute Research Laboratories were tasked to develop a prototype radio-controlled omnidirectional IR light to be mounted on a dog harness. The device that FIRL designed and built is described in detail in a separate report.[3] It was evaluated in the field at Ft. Benning by the Military Dog Detachment and the concept was found to be feasible (Appendix B, pg 4, para 8c).

[3]Woestman, J. W., Radio Controlled IR Indicator Light for Military Dogs, LWL Technical Report No. LWL-CR-04B72, Dec 1973.

CONCLUSIONS

1. An off-leash military dog, e.g., a scout dog, can be worked successfully at night at distances up to 50 meters by a handler equipped with the AN/PVS-5 Night Vision Goggles.

2. An off-leash dog working at night can generally be located, if momentarily lost to view, by means of a radio-controlled omnidirectional IR indicator light mounted on its harness.

RECOMMENDATION

A minimum of 4 AN/PVS-5 Night Vision Goggles should be issued to a dog platoon as a part of its TO&E.

APPENDIX A

EVALUATION PLAN-IMPROVED NIGHT RECONNOITERING CAPABILITY FOR MILITARY DOGS

1. References.

a. Letter, ATSIN-C, USA Infantry School, 7 April 1971.

b. USALWL Message, Request for Assistance, 071330Z Jun 73.

c. USALWL Proposed Evaluation Plan-Improved Night Reconnoitering Capability for Military Dogs.

d. FM 7-40, Scout Dog Training and Employment, 1 March 1973.

e. FM 7-41, Mine and Tunnel Dog Training and Employment, 2 March 1973.

2. Introduction.

The military usefulness of dogs has been recognized and exploited by the armies of the world for centuries. Recent experience showed that the special conditions of warfare imposed by the enemy and terrain in the Republic of Vietnam were particularly favorable for the employment of dogs. The impetus provided by the requirements arising in this area lead to increased interest in the role of the military dog and, as a result, development of capabilities beyond those employed in Korea and during the years between that conflict and the deployment of dogs to RVN. Very shortly after the initial deployment of dogs to RVN, it became apparent that a high priority should be attached to extending the range of the scout dog beyond that imposed by the leash. This would provide increased early warning of enemy presence. The resultant impact of this is fairly obvious - casualties could be reduced and, with the increased time, the combat unit would be in better position to take appropriate actions to bring the maximum fire power to bear on the enemy. As a result, work was initiated which led to the development of a scout dog with an off-leash capability permitting the dog to range as far as 50-75 meters in front of the handler. The development of a mine detection capability in the military dog also incorporated the off-leash concept. Both the off-leash scout dog and mine dog proved highly successful during combat operations and made a significant contribution to the capability of US Forces. As in previous wars, combat operations at night played an important role in the overall effort. However, despite the advances made in extending the daylight range of the dog, the previous limitation - the leash - still existed for night operations. The Military Dog Detachment, USA Infantry School recognized this deficiency and, accordingly requested that the USA Land Warfare Laboratory take action to develop a night time off-leash capability. The results of the developmental effort are described in the Proposed Evaluation Plan provided by USALWL and will be tested during the evaluation. This plan translates the broad objectives contained in the USALWL Proposed Evaluation Plan into specific procedures and working objectives.

3. Objective.

The objective of this evaluation is to determine whether or not the concept developed by the US Army Land Warfare Laboratory will provide the capability for effective off-leash employment of scout and mine dogs at night. In addition, the specific shortcomings and deficiencies of the prototype equipment will be identified.

4. Phases.

The evaluation will be divided into three phases with sub-objectives for each phase as follows:

a. Phase I - Preparation

Sub-objective 1: Brief personnel on the evaluation and equipment. Familiarize the handlers with use of the AN/PVS-5 Night Vision Goggles.

Sub-objective 2: Determine the capability of the scout and mine dogs, as presently trained, to work at night in the off-leash mode.

b. Phase II - Remedial Training

Sub-objective 3: Based on shortcomings identified by the exercises conducted under Sub-objective 2, conduct the training required to bring the dogs up to the level of proficiency needed to conduct the evaluation.

c. Phase III - Operational Exercise: This portion of the evaluation will consist of field exercises designed to obtain the desired information. The following sub-objectives are based on the USALWL Proposed Evaluation Plan and Questionnaire.

Sub-objective 4: Determine the capability of the AN/PVS-5 Night Vision Goggles and harness and collar lights to enable the handler to detect the scout and mine dog's response to target personnel, mines and trip wires.

Sub-objective 5: Determine the capability of the AN/PVS-5 Night Vision Goggles alone to enable the handler to detect the scout and mine dog's response to target personnel, mines and trip wires.

Sub-objectibe 6: Determine the extent to which the lights on the dog can be detected by the target personnel (equipped with night vision equipment).

Sub-objective 7: Identify specific deficiencies in the harness and collar light configurations.

Sub-objective 8: Determine if additional control measures (training or materiel or both) are required to employ off-leash dogs at night.

d. Phase IV - Analysis and Report

Sub-objective 9: Complete questionnaires.

Sub-objective 10: Determine if the capabilities referred to in Sub-objectives 4 and 5 are operationally acceptable, compare the two, and draw a conclusion as to the preferred capability.

Sub-objective 11: Determine the preferred light configuration as identified by the information obtained under Sub-objectives, 4, 5 and 6.

Sub-objective 12: Define the requirements for additional control measures as determined under Sub-objective 7.

5. Time Period: The evaluation will require six to seven weeks total, divided by phase as follows:

a. Phase I: This phase will require approximately four days with the majority of the time devoted to night exercises.

b. Phase II: The time required for remedial training is completely dependent upon the outcome of Phase I, however, for planning purposes is estimated at one week.

c. Phase III: Two weeks will be allocated for the operational phase of the evaluation.

d. Phase IV: It is estimated that two to three weeks will be required to analyze the acquired data and to complete the report.

6. Resources.

a. Personnel: Four handlers (two scout and two mine), one scorer, target personnel and one NCOIC will be made available for the evaluation.

b. Dogs: Two scout dogs and two mine dogs will be committed to the evaluation.

c. Areas: The area used for the Night Vision Goggle familiarization portion of Phase I will include open, moderately vegetated and densely vegetated terrain and contain roads/trails and uneven ground. That used for determining current proficiency in off-leash night operations should be open to moderately vegetated terrain. The areas used for Phase III will either already contain or be suitable for the establishment of scout and mine lanes as shown in Annexes A and B. No dogs will be trained or exercised in these areas for a minimum of one week prior to and during the evaluation.

d. Equipment:

(1) Two sets of AN/PVS-5 Night Vision Goggles, two sets of harness-mounted lights, one set of collar-mounted lights, batteries, and battery charger will be provided by the USA Land Warfare Laboratory.

(2) One AN/PVS-2, Night Vision Sight or Image Metascope will be provided by the USA Infantry School or the USA Land Warfare Laboratory.

(3) The necessary mines, trip wires, etc., will be provided by the USA Infantry School.

7. Procedure.

a. Phase I.

(1) Personnel will receive a briefing on the purpose and nature of the evaluation followed by an orientation on the operation of the equipment. Familiarization with the AN/PVS-5 Night Vision Goggles will be accomplished by actual use in walking over various types of terrain. This will be considered complete when each individual achieves near-daylight ease of movement and ability to perform those duties required by his MOS.

(2) The dogs selected for the evaluation will be tested for proficiency in off-leash operation at night by a series of exercises using the standard scout and mine lanes. The key factor is the dog's ability to work a minimum of 25 meters in front of his handler at night. It is recognized that available control equipment (e.g., "silent" whistle) may not be adequate for control of the dog under these circumstances, therefore, the introduction of an artificiality (control means that would not normally be considered acceptable for operational employment that would not normally be considered acceptable for operational employment) during Phase III may be necessary and is considered acceptable. The Night Vision Goggles will be used during these exercises. Targets (personnel and mines as appropriate) will also be included so that the situation is kept as realistic as possible for the dogs. The dogs will be considered ready for the evaluation if a consistent ability to maintain direction at a minimum distance of 25 meters is demonstrated.

b. Phase II: Remedial training required to reach the standard referred to in paragraph 82(2) will be conducted.

c. Phase III:

(1) The scorers will be oriented on the general method evaluation, the data collection procedure, and the data to be collected. A scorer will accompany each dog team during the lane exercise. A means will be provided by which the scorer can determine the exact location of each target. The results from each lane exercise will be recorded on the score sheet.

(2) The handlers will also be oriented on the general method of evaluation, data collection procedures and the data to be collected.

The handler will receive instructions prior to each lane exercise, but will not be provided with any information concerning the sequence, nature, or location of the targets.

(3) The scorer will control the lane during each exercise. The handler and dog will begin on command by the scorer. The scorer will begin to observe the actions of the handler and the dog from the start to the finish of each lane and will record the appropriate information for each of the areas contained on the score sheet. The scorer will maintain approximately two meters between himself and the handler. When the handler detects an alert by the dog, he will inform the scorer. At this point, movement on the lane will stop. The scorer will record that the dog has alerted, the type of alert (artifact or personnel), and the relative position of the dog and his handler on the lane at the time of the alert. The scorer will then inspect the area to determine whether or not a target was present. After all the data have been recorded for an alert, movement down the lane will be continued. The above procedure will be followed for each alert. If the dog does not alert on a target, this fact will be recorded. At the completion of each lane, the questions on the score sheets will be discussed with the handler to insure that complete information is obtained. These comments will be entered on the sheet.

(4) Each type of lane (scout and mine) will be run a minimum of 2 times for each light configuration, i.e., collar lights, harness lights and no lights.

(5) Deficiencies in the prototype equipment such as wires, snagging in the underbrush, improper location of components on the harness, etc., will be identified by observation during the lane exercise with inspection of the equipment following each lane exercise.

(6) Evaluation

(a) Scouting lanes. During this portion, each dog will run lanes approximately 600 meters long, with six targets set on, or near, the lane. Each lane will contain one set of decoys, two sets of personal equipment, and three trip wires. The sequence in which the targets are arranged will be varied. Lanes will be set up generally as shown in Figure 1.

(b) Mine lane. During this portion, each dog will run lanes approximately 600-800 meters long, with six targets set on the lane. Each lane will contain three buried mines, one elevated target, one trip wire, and one off-trail clay more (5 to 10 feet off trail). Mine lanes will be approximately 12 hours old. The sequence in which the targets are arranged will be varied. Lanes will be set up generally as shown in Figure 2.

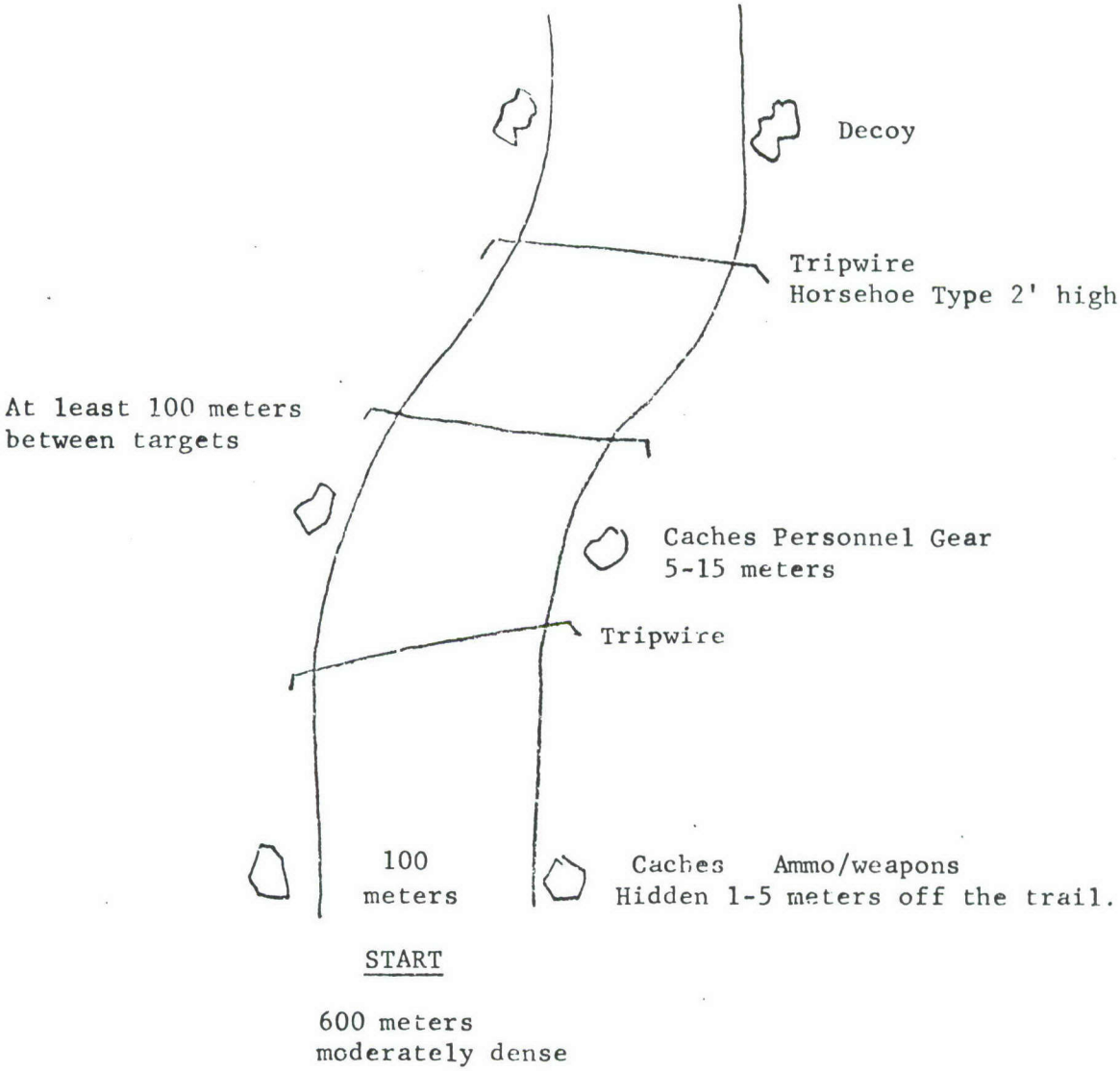
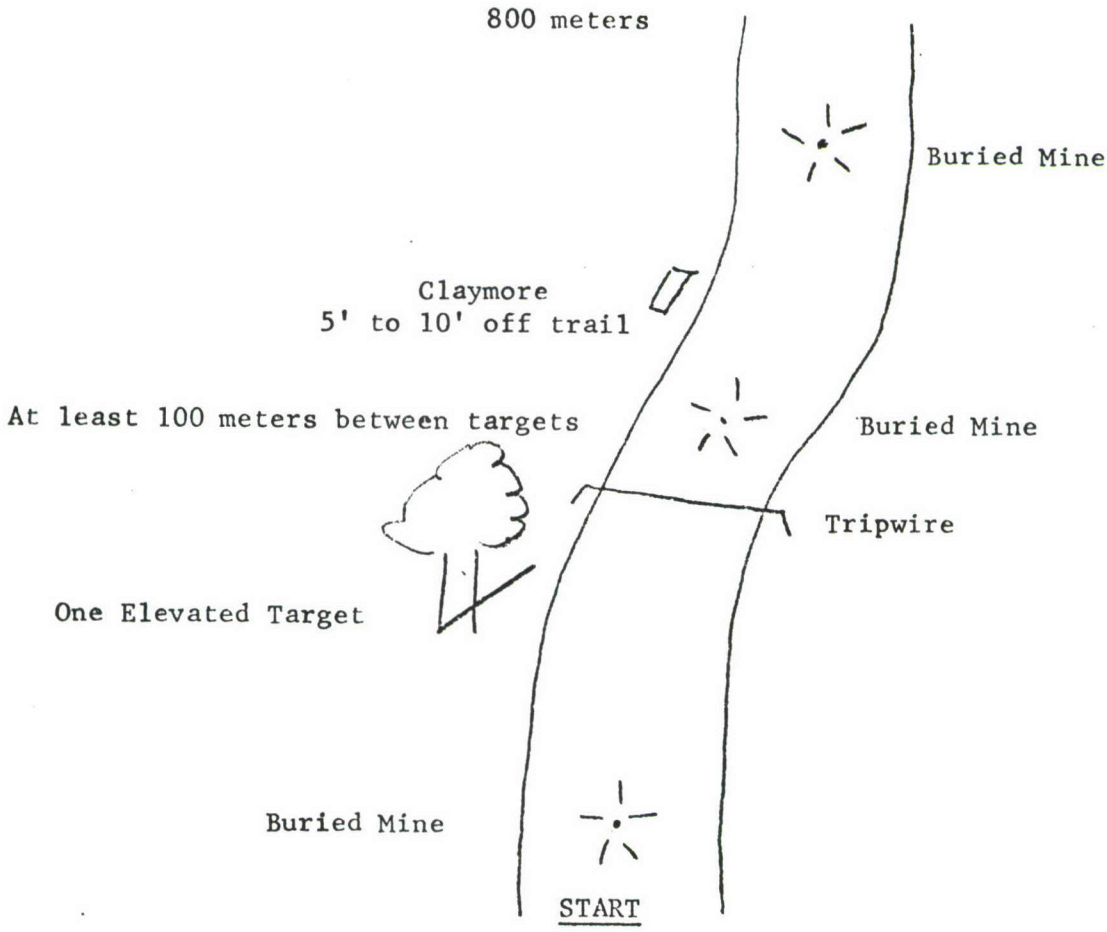


Figure 1. Diagram of scouting lane, 600 meters long with 6 targets set on or near the lane.



All items on trail camouflaged.
Wind always in favor of the dog.

Figure 2. Diagram of mine lane, 600 to 800 meters long, with 6 targets set on the lane.

SCORE SHEET

Dog's Name _____

Date-Time Group _____

Lane (Scouting or Mine) _____

Equipment (Harness, Collar, No Lights) _____

Light Data

Moon Phase _____ Clear _____

Scattered Clouds _____ Stars Visible _____

Overcast _____ Temperature _____

Moon Visible _____ Humidity _____

Rain _____ Wind Speed _____

1. Control:

a. Did the dog move out without hesitation on the handler's command?

Yes _____ No _____

b. Did the dog maintain the general direction of movement indicated by the handler? Yes _____ No _____

c. Describe the handler's ability to follow the location of the dog?

Poor _____

Good _____

Excellent _____

d. In comparison with the other light configurations this ability was:

	Harness	Collar	No Lights
Poorer than	_____	_____	_____
Same as	_____	_____	_____
Better than	_____	_____	_____

e. What problems were encountered in controlling the dog during the exercise:

f. Provide recommendations for overcoming these problems:

2. Distance:

a. What was the average distance between the dog and the handler?

0 - 2 M _____

2 - 25 M _____

25 - 50 M _____

50 - 100 M _____

b. Did the dog show any hesitancy about working at this distance?

Yes _____ No _____ Explain:

3. Rate of March:

a. Compared to the handler's rate of march, the dog's rate of march was:

Slower _____

Same _____

Faster _____

b. Considering the terrain and handler's knowledge of the dog, the dog's rate of march was:

Appropriate _____

Not appropriate _____

4. Alerts:

a. Describe the handler's ability to detect the dog's alert.

Poor _____

Good _____

Excellent _____

b. In comparison with the other light configurations, this ability was:

	Harness	Collar	No Lights
Poorer than	_____	_____	_____
Same as	_____	_____	_____
Better than	_____	_____	_____

5. Detection:

Target	Type Alert	Distance	Remarks

6. Vulnerability: At what distance did the decoy personnel detect the lights on the dog?

Specify type of night vision device _____.

7. Equipment:

a. What deficiencies were noted? Explain in detail:

b. Was battery life adequate? Yes _____ No _____ Explain:

8. Comments: Use this space to provide additional details on any of the above questions.

APPENDIX B

DEPARTMENT OF THE ARMY
HEADQUARTERS, 1ST BATTALION, 29TH INFANTRY (THE PIONEERS)
FORT BENNING, GEORGIA 31905

ATSH-TP-29-MD

SUBJECT: Night Reconnaissance Study - Report

THRU: Commander
US Army Training and Doctrine Command
ATTN: ATTS-OP-C
Fort Monroe, Virginia 23351

TO: Commander
US Army Land Warfare Laboratory
Aberdeen Proving Ground, Maryland 21005

1. REFERENCES:

a. Unclassified message, AMXLW-ADB (USALWL), 071330Z Jun 73, subject: Request for Assistance (Inclosure 1).

b. Evaluation Plan - Improved Night Reconnoitering Capability for Military Dogs, USALWL, undated (Inclosure 2).

2. A feasibility study of USALWL Task 04-B-72, Improved Night Reconnoitering Capability for Military Dogs, was conducted during the period 7-28 September 1973.

3. PURPOSE:

a. To determine whether the AN/PVS-5 Night Vision Goggles (NVG) plus infrared harness or collar lights could enable the dog handler to effectively work his dog off-leash at night and observe its responses to target personnel, mines, boobytraps and tripwires.

b. To determine whether the NVG alone could accomplish the above.

c. To determine if additional control measures (training and/or materiel) are required to employ off-leash dogs at night (for more detailed subobjectives, see paragraph 4c, Inclosure 1).

4. LOCATION: The W, Y and Z training areas in Alabama were used. These areas provided the types of terrain required in the Evaluation Plan.

5. PERSONNEL AND DOGS:

a. Five dog trainers, NCOIC and OIC from the Military Dog Detachment.

b. Five multipurpose dogs from the USAIS phase of USALWL Task 06-B-70.

6. BACKGROUND AND PROCEDURE: See Evaluation Plan.

7. SYNOPSIS OF OBSERVATIONS:

a. Phase I (Preparation). This phase was accomplished with only minor difficulty. Several personnel experienced headache and eyestrain while wearing the NVG, but this was corrected by locally fabricating improved headstraps for the NVG and by avoiding the tendency to stare fixedly through the goggles. The dogs were initially worked at dusk, and phased into darkness. Their natural tendency to become playful at night was overcome by normal training procedures.

b. Phase II (Remedial Training). This phase was minimal.

c. Phase III (Operational Exercises). The operational concept was to use the harness and collar lights provided to assist the handler with NVG in "reading" his dog's "natural" (personnel) alerts. The harness unit consisted of two elements, each containing three grain-of-wheat incandescent lamps, a plastic infrared filter and a metal shield to direct the light toward the dog's head and prevent enemy observation. The collar unit consisted of one element with two lamps. The theory was that the light would illuminate the dog's head so that, when viewed through the NVG, the handler could detect the often tiny head and ear movements involved in the dog's alert and interpret ("read") these movements.

(1) Sub-objective 4. Handlers had no difficulty in observing their dogs' sit responses to boobytraps and tripwires. The light units emitted such a glare, however, that handlers were unable to see their dogs' heads, and thus were unable to "read" the alerts.

(2) Sub-objective 5. When using the NVG alone, handlers were able to detect all of their dogs' responses nearly as well as in daylight.

(3) Sub-objective 6. In all cases, target personnel using the AN/PVS-2 Starlight Scopes detected the harness and collar lights as soon as they obtained line-of-sight to the dogs.

(4) Sub-objective 7. When it was discovered that the lights were so brights as to cause a "blooming" effect in the NVG, they were examined. It was found that there were gaps of up to 1mm between the infrared filters and the shields, through which visible light was escaping. The gaps were sealed with a liquid rubber compound, but this failed to reduce the glare. The filters were then covered with up to five layers of masking tape, again without effect. At this point, use of the lights was abandoned.

(5) Sub-objective 8. No additional control measures were found to be necessary. Due to the dogs' heightened sensitivity at night, it was discovered that they could hear lower-pitched voice commands at greater distances than in daytime, and that they observed and obeyed hand-arm gestures even in near-total darkness. The dog handlers had no difficulty working their dogs out to 75 m, with an average working distance of 25-50 m.

d. The dogs worked a total of 29 combination lanes, varying in length from 400-1000 m, on seven nights. They were exposed to 29 personnel targets and 172 boobytraps and tripwires, or a total of 201 targets. Results were as follows:

(1) Personnel: 28/29 (97%)

(2) Boobytraps/tripwires: 144/172 (83.7%)

(3) Overall: 173/201 (86%)

(4) Best dog: 95.0%; worst dog: 78.6%

(5) These results were comparable to or better than average daytime results.

e. Of the 29 lands, 14 (48%) were run under clear conditions, 3 (10%) under partly cloudy and 12 (42%) under overcast. Results under each type condition were as follows:

(1) Clear: 89/97 targets (92%)

(2) Cloudy: 14/20 targets (70%)

(3) Overcast: 72/85 targets (85%)

f. On the clear and partly cloudy nights, ambient light consisted of starlight, new-to quarter-moonlight, and the glow from the garrison and nearby city. On the overcast nights the city glow provided weak ambient light except in the deeper woods, where conditions reached near-total darkness.

g. The ambient light conditions seemed to determine the distance the dogs would work ahead of their handlers. Ranges and average distances were as follows:

(1) Overcast: 15-30 m; average 20 m.

(2) Cloudy: 25-40 m; average 30 m.

(3) Clear: 50-75 m; average 50 m.

8. CONCLUSIONS:

a. Off-leash night employment of military dogs using the AN/PVS-5 NVG is operationally acceptable. Employment doctrine will be revised to include this capability.

b. The use of harness or collar lights to supplement the NVG is superfluous, due to the excellent vision obtainable with the NVG.

c. An infrared harness light would be desirable for use as an emergency light, if it would be operated remotely. The light could be turned on momentarily to pinpoint the dog's location under tactical conditions. Under non-tactical conditions, such as peacetime and civil-assistance missions, the light could be used to follow the dog's progress at night. (NOTE: USALWL delivered a prototype of such a system in January 1974. Testing showed this concept to be feasible.)

9. RECOMMENDATIONS:

a. That off-leash night employment of military dogs using the AN/PVS-5 be included in relevant doctrine on the employment of military dogs.

b. That consideration be given to submitting a Basis-of-Issue (BOI) change to TOE 7-52H, Infantry Organization - Combat Dog, which would authorize a minimum of four NVG per platoon.

2 Incl
as

WOODROW L. QUINN, JR.
CPT, Infantry
Commander

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