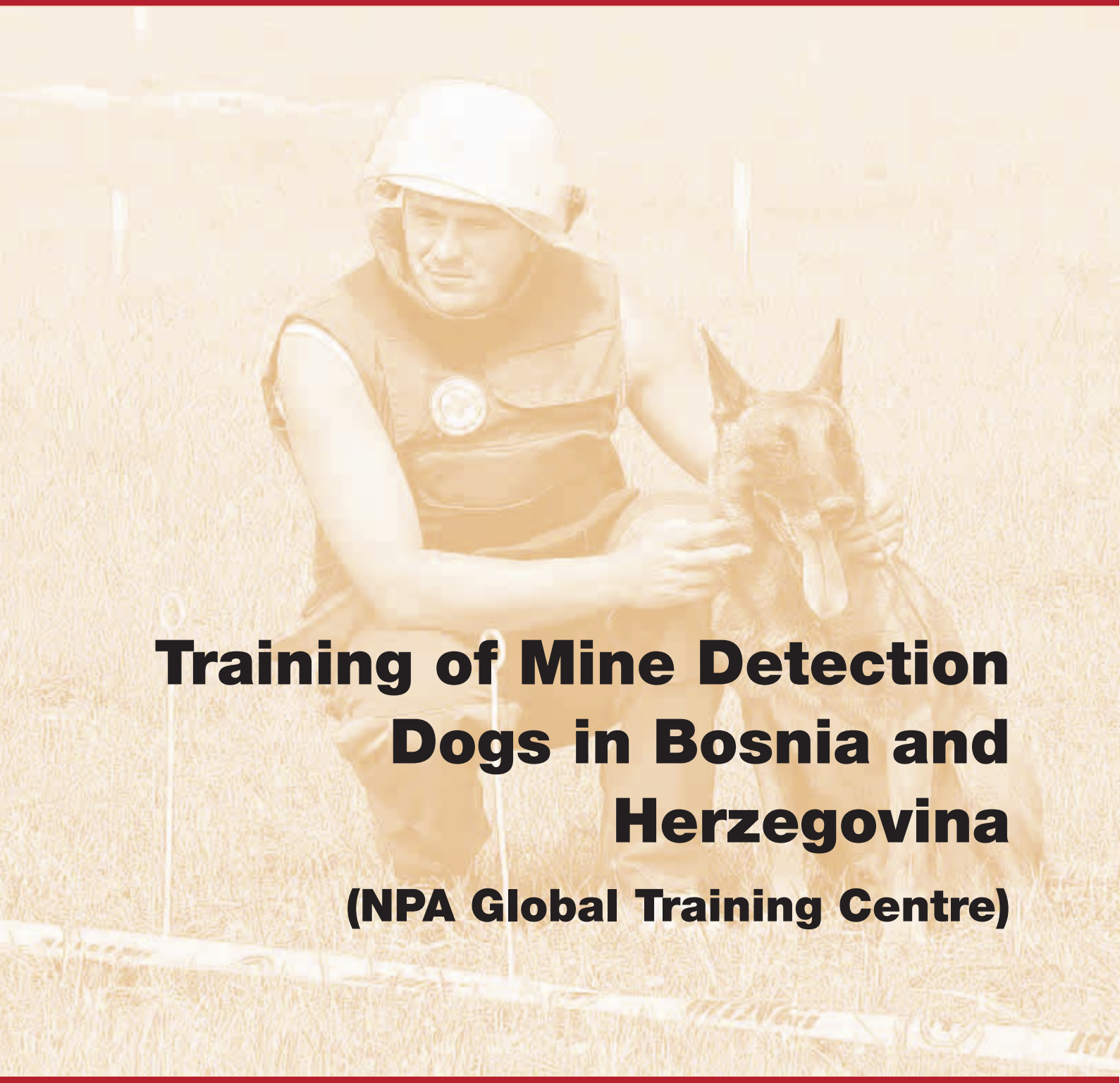

Training of Mine Detection Dogs in Bosnia and Herzegovina

(NPA Global Training Centre)

Geneva International Centre for Humanitarian Demining
Centre International de Déminage Humanitaire - Genève

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The **Geneva International Centre for Humanitarian Demining** (GICHD) supports the efforts of the international community in reducing the impact of mines and unexploded ordnance (UXO). The Centre provides operational assistance, is active in research and supports the implementation of the Anti-Personnel Mine Ban Convention.

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Foreword

The Geneva International Centre for Humanitarian Demining (GICHD) launched a study into mine dog detection in 1999. The study later evolved into a series of interrelated mine dog detection activities and research projects and the development of international mine action standards for mine dog detection. One of the key components of this study was an examination of mine detection dog (MDD) training methodology.

The training of MDDs is a complex process, often using many different methods, and accompanied by an equally varied range of opinions and training techniques from one organisation to the next. Until now, detailed documentation of MDD training has not been available to the general MDD community.

This case study describes the MDD training programme used by Norwegian People's Aid (NPA) in its Global Training Centre (GTC) in Bosnia and Herzegovina. It is not a training manual, its aim is to promote the dissemination of information about successful programmes to the larger MDD community and to encourage evolution of methodologies by providing an example of one particularly successful method among the many MDD training programmes.

The study had been requested by the United Nations Mine Action Service (UNMAS), but should also be of interest to the United Nations Development Programme (UNDP) and the United Nations Office of Project Services (UNOPS), as well as to non-governmental organisations, national mine action programmes and commercial companies training and using MDDs.

The GICHD would like to thank the United Kingdom Department for International Development for funding the project.

Ambassador Stephan Nellen
Director
Geneva International Centre for
Humanitarian Demining

Introduction

This book provides an examination and a descriptive account of the methodologies used by Norwegian People's Aid (NPA) at its Global Training Centre (GTC) in Bosnia and Herzegovina (Bosnia) for training mine detection dogs (MDDs). In the following material, the phrase *training methodologies* is used to describe the methods implemented in the training of both the dog and the handler. The methodologies and techniques described are constantly undergoing modifications with the aim of improving the training system.

It is generally acknowledged that styles of dog training vary and there are strong differences of opinion and belief among the members of the many dog-training communities (GICHD, 2003). There is no doubt that dog training is a complex process and can be undertaken successfully in a variety of different ways. A description of one such system is provided here.

NPA is one of the few non-governmental organisations (NGOs) that uses MDDs. NPA has gained competence during operational experience in many countries and regions, including Angola, Bosnia, Cambodia, Croatia, Kosovo and Mozambique. It was NPA's desire to establish a standardised set of guidelines for the training of MDDs. A uniform and familiar system among all NPA MDD programmes has led to the development of a central MDD academy, the Global Training Centre, to supply all NPA centres with dogs. As of 2004, NPA implemented the Global Training Centre for MDDs and established an in-house breeding programme that are independent of the Regional Mine Action Programme.

The training facility operated by NPA GTC in Bosnia (henceforth referred to as "the School") has achieved a high standard, and it is the training system operated in Bosnia that NPA chose as its standard for all programmes. This study provides a description of that programme and includes analysis and justification of each stage of the training process.

It is expected that the information describing the training model will be of use to other training centres for comparative purposes, with the aim of encouraging the transfer of knowledge and experience throughout the MDD training community.

NPA GTC MDD training definition

NPA defines an MDD as a dog trained to detect target substances, specifically, mines, certain types and quantities of explosives, unexploded ordnance (UXO) and fragments of mines and UXO, above and below the surface of the ground.

The quality of work and successful deployment of the School's MDDs in mine clearance operations are based on intensive training, testing and analysis performed on a strict and continuous basis. As a result, the capacity, ability and accuracy of MDDs deployed in operational work can be predicted. The psychophysical characteristics of the dogs, a modern and inventive imprinting methodology, and an intense physical-endurance training programme are key elements of the training style. Health care and hygiene, medical follow-up and specialised dietary needs for each dog are also emphasised.

Principles

Four key principles underpin the training of MDDs at the School:

- emphasis on hunting behaviour;
- pressure-search;
- high level of difficulty in detection training; and
- unpredictability.

Principle One: HUNTING

The dog's natural hunting instinct is stimulated and developed. Hunting is incorporated into the training model through exercises aimed at building up the dog's motivation to search. The key objective is to ensure that the dog is *highly motivated* to perform all job activities.

Principle Two: PRESSURE-SEARCH

A dog exhibiting pressure-search has its nose constantly flush with the surface of the area being searched and is completely focused in the search so that concentration is rarely broken. The key objective is to ensure that the dog is sniffing as close to the ground surface as possible, giving the highest probability of detection success. This style of search is accomplished by training the dog to detect micro-sized pieces of kong (the rubber device used to reward the dog during hunting training), which can only be detected if the dog's nose passes very close by.

Principle Three: MAXIMISING THE DIFFICULTY OF THE DETECTION TASK

Even early in training, the dog is never given easy detection tasks. The dog's initial sensitivity is measured using a training apparatus called the carousel *(see Chapter 11).* Once the dog is successfully detecting a difficult target, a training process designed to increase sensitivity further is introduced.

The dog is initially presented with a target at the most difficult level, and then the difficulty is progressively reduced (odour availability is increased) until the dog finally detects the target, thus establishing the dog's "detection sensitivity threshold". This threshold is the most difficult level of a substance that the dog is able to detect. Once this threshold has been determined, the difficulty is gradually increased to improve sensitivity. Training dogs to detect difficult targets at all times maintains the effort the dog must exert during the search.

Principle Four: UNPREDICTABILITY

Everything should be unpredictable for the dog. Rewards should not appear reliably, training should occur in different places, the type of the next target should not be predicted by the current target, and so on. The dog constantly encounters unexpected stimuli. In effect, all aspects of the training experience are randomised so that the position of targets cannot be predicted. For example, training areas are rotated so that the detection of the target cannot be based on memory.

Terms

The following terms used in this document are defined as follows:

- ***Maintenance training:*** The daily training used to maintain the level of performance of an accredited MDD unit (an MDD and its handler). This training includes pressure-search exercises using micro-sized pieces of kong.
- ***Developmental training:*** A form of training designed to improve the already present and established skills of MDDs. For instance, the detection sensitivity of an MDD is developed by increasing the level of detection difficulty of a target.
- ***Retraining:*** Training an operational MDD to learn a new skill. For example, teaching a short-leashed MDD to become a long-leashed MDD.
- ***Refresher training:*** The training that occurs after the MDD has experienced a period of downtime longer than three days. Downtime may be due to vacations, illness or seasonal and environmental factors that last more than three days.

Training philosophy

Training is adapted to the individual dog with the aim of promoting and improving each MDD's performance by meeting its individual needs. The dog must progress at its own speed with the pace of training dictated in accordance with the dog's progress. If the training pace were to continue irrespective of the dog's progress, then the dog's training performance could regress and the dog may lose motivation or refuse to do the activity. The key principle is maintenance of a high motivation to perform all activities in the mine detection role.

To maintain a standard of success, and to improve that standard, an open-minded and receptive attitude towards new and alternate ideas, techniques and methodologies is adopted. Since MDD training is a complex process, there are no quick fixes, and many remedies can be found by looking to other sources. The exchange of knowledge and experience is encouraged.

Training of NPA GTC MDDs is a constant and long-term process for all those involved in the MDD teams (trainers, handlers and the dogs). The importance of establishing a firm teamwork foundation between the MDD unit and all members of the MDD teams is stressed. The attitude emphasised during all training of MDDs is that you will only get out what you put in. Therefore, it is the handlers and trainers that must provide for and meet all of the dogs' needs. The handlers and trainers must invest an enormous amount of their time and patience for the training of the dog to be successful.

The general training programme proceeds in a sequence. The trainer must ensure that the dog is capable of performing all steps in each stage prior to moving on to the next. All steps must be performed in an interconnected and continuous manner.

Within each step of the general framework, the School strives for simplicity not complexity when training for a specific behaviour: a simple approach reduces the room for training error and minimises confusion for the dog. A segment-by-segment method is used to train complex behaviours; this focuses on the specific details of the behaviour pattern independently of other components. Only when the MDD unit is able to perform each step successfully will all of the steps be integrated to form the desired behavioural pattern.

Structure of the book

The book reflects the "training timeline" of a dog's life in the NPA MDD GTC training model, beginning with the selection of breeding parents and ending with preparation for transfer from the School. The book is divided into four sections: *General activities, Breeding Programme, Puppy Programme,* and *Mine Detection Dog Training Programme*. Section I, *General activities,* provides a general framework of the NPA MDD GTC training process and describes the principles of the reward system and the use of rewards within the training process.

The following sections (II to IV) reflect the training timeline and the associated training techniques and activities. The timeline is linked to key events in the life of the dog, and the timing of events depends on training progress with the dog. Furthermore, many training activities overlap in time. Within each section, specific topics are addressed in separate chapters.

Each chapter includes a "troubleshooting" section. These sections propose techniques for solving some of the common challenges encountered during training of NPA GTC MDDs. The process involved in correcting a challenge encountered consists of first identifying the problem, then analysing the problem to determine why it is occurring, then initiating a training regime to best confront and correct the problem for that individual dog. Due to the numerous variables involved in any training programme, an infinite number of issues can influence the dog's performance. Such variables include the dog's personality, temperament, health, previous training, the handler's skill and experience, the training environment, the weather and the season.

Section I

General activities

Section I describes the framework of the NPA GTC MDD training process and gives basic details on the use of rewards. The issues discussed in Chapter 1 — the use of rewards — must be understood by trainers and handlers before working with any dog as they apply throughout the training model, and consistency in their application is critical to a successful training outcome. Issues covered include how to determine which reward category is appropriate for a dog, and different procedures and techniques for using rewards. As set out in the various chapters, the choice of the reward and the manner of its allocation will depend on the dog and the training activity.

Chapter 1

NPA GTC MDD training process and use of rewards

NPA GTC MDD training process

The following describes the overall general framework of the NPA GTC MDD training model. This framework illustrates the most common route and a very general timescale that a dog experiences during its training with NPA GTC (*Figure 1*). An important component of this framework is flexibility, allowing the trainer to modify, adjust and fine-tune the details of training each dog.

Summary of the training model

Breeding programme: ***0 to 7 weeks***

Activities:

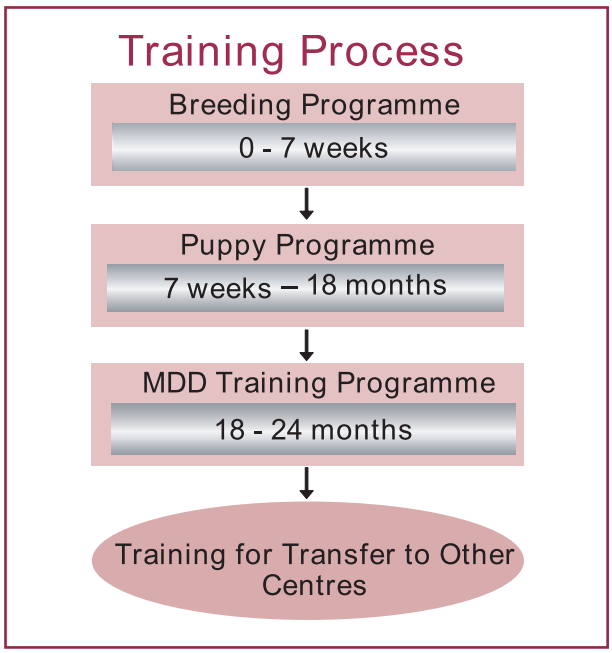
- handling;
- separate feeding;
- environmental and socialisation training;
- assessment;
- transfer to puppy trainers when 7 to 8 weeks old.

Puppy programme: ***7 weeks to 18 months***

Activities:

- socialisation training;
- environmental training;
- drive and motivational training;
- off-ground pressure-search training;
- tracking training;
- search pattern (short- or long-leashed MDD) training;
- on-ground pressure-search training;
- carousel training;
- internal assessment.

Figure 1. General training process



MDD Training Programme: ***18 months +***

Activities:

- imprint training:
  - carousel training
  - indoor sandbox
  - training fields;
- maintenance and development training;
- endurance training;
- transfer preparation training.

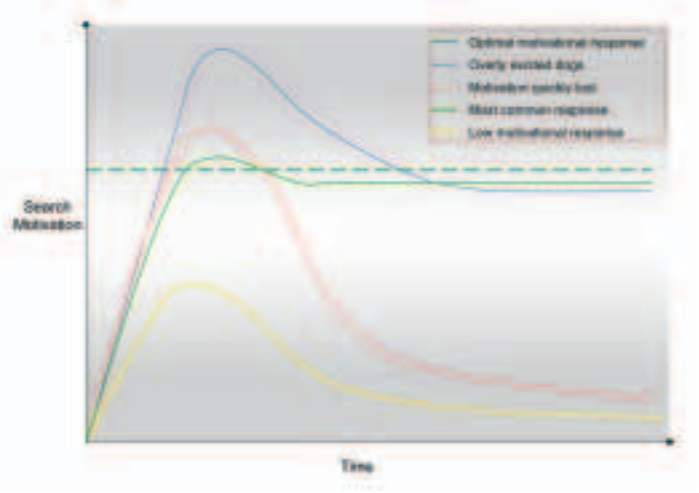
Use of rewards

Rewards used for MDDs consist of a combination of vocal and physical praise, and either food rewards or sessions of play-fighting over a kong toy. The rewarding nature of these things is originally established during the Puppy Programme *(Chapter 3)* during activity and passivity exercises *(Chapter 5)*. The specific allocation of rewards depends on the context. An important component of the context is the dog itself; in particular, its motivation.

Theoretical projections of motivation are shown in Figure 2. Here, the *y* axis represents increasing motivation to search, where motivation results from an interaction between the internal state of the dog and external stimuli provided by the trainer. The main internal factor is the hunting drive, which the trainer manipulates in order to optimise motivation to search. Other contributors to motivation are interest in play and willingness to please the trainer. The relative contribution of each of these factors will vary between dogs. Motivation is primarily expressed or measured as excitement. Thus the dog exhibits increasing levels of excitement that the trainer adjusts in order to manipulate motivation. The *x* axis

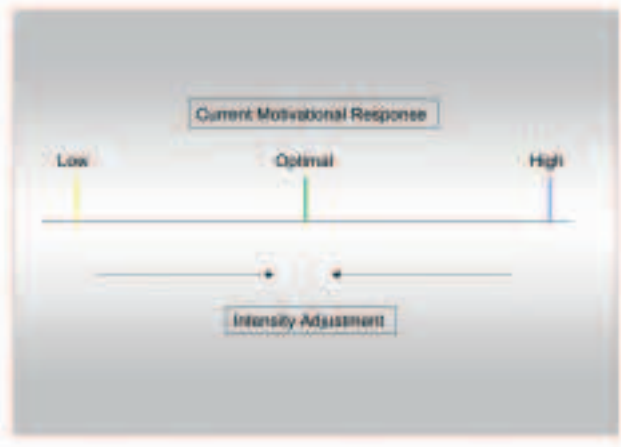
represents time, and could be as little as a 30-minute training session or as much as several weeks, in which case the graph is portraying motivation levels across some or many training sessions.

Figure 2. Motivation projections for an MDD through time



The dark green dotted line is the optimal motivational response and the trainer aims to keep motivation as close to that line as possible. An overly-excitable dog (blue line) needs to be calmed, whereas an uninterested dog (yellow line) needs to have its motivation raised. The red line portrays a dog that is initially well-motivated but which loses interest in the task too quickly. The green solid line is a practical example of a dog for which motivation is being adjusted optimally. Trainers adjust motivation by stimulating excitement using a play-fighting toy. The intensity of play-fighting is adjusted up or down the scale in Figure 3 depending on the current motivation (or excitement) exhibited by the dog. Play-fighting is itself a reward. A dog that is too excited (high-motivational response) needs to be calmed and the trainer aims to shift the motivation to the left of the scale. A disinterested dog (low-motivational response) needs to have its motivation raised and the trainer aims to shift the motivation to the right of the scale. Adjustments to motivation can occur within a fairly short period, although within one training session the trainer is likely to work to a fairly narrow range on the scale.

Figure 3. Intensity adjustments in allocation of reward



For the majority of dogs, play-fighting between the trainer and the dog involves a kong with an attached rope. As the aim is to establish the kong as a reward with which to reinforce other behaviour, the trainer eventually allows the dog to win the kong. If motivation (excitement) is too high, the trainer may not allow the dog to win the kong on every occasion or could use a kong toy without a rope attached, preventing play-fighting.

Play-fighting consists of the dog jumping, growling and chasing after or pulling the kong away from the trainer. The dog must never be allowed to cross over from play-fighting to aggressive fighting, indicated by the dog biting or being otherwise aggressive towards the trainer. Play-fighting involves displays of tail wagging, absence of hunched shoulders and the absence of a "ruff" (the erected fur from the base of the neck covering the shoulders to the base of the tail), and is easily distinguished from aggressive fighting. However, the vocal displays used during both play and aggressive fighting (growls, barks) can sound essentially the same.

Food has been used in the past as the main form of reward for some dogs, but is now rarely used. Although food rewards elicit strong responses relative to the kong, these responses are pacifying and short lived. Food is only used with dogs that become uncontrollably excited when the kong is used.

Reward patterns

When introducing any new desired learning response, a continuous reward schedule (CRS) is used; i.e. the dog is rewarded on every occasion it exhibits the desired behaviour or response (Fjellanger, 2003). Once the behaviour is established, the reward rate is progressively reduced (to become an intermittent reward schedule — IRS), with an increasingly smaller and more randomised proportion of correct responses being rewarded. If a CRS was continued after a specific behaviour had been established, the dog learns to expect the reward and the response frequently becomes "sloppy". This process applies standard principles of the psychology of learning (more detail in Fjellanger, *op. cit.)* and achieves higher levels of motivation and a more reliable response pattern than will CRSs.

Techniques

Ideally, rewards will appear spontaneously for the dog and will not be linked directly to the trainer. The reward is kept hidden during exercises, often by being held under the left armpit. When the dog expresses a desired behaviour, such as sniffing at a mine, the trainer maintains the attention of the dog on the mine and tosses the kong near that location. For the dog, the reward appears from nowhere and is linked to the mine rather than to the trainer.

Training for detection of mines will sometimes occur when the trainer does not know where the mines are located. Under those circumstances, the trainer must never reward the dog. If an indication is given, the trainer cannot know if there is a mine, or if the indication is false, for example because the dog is indicating an interesting odour such as a rabbit. Rewarding a false indication will lead rapidly to an increase in false indications because the behaviour of indicating will have been strengthened in the absence of the odour of the target. In other words, indicating has been encouraged, even when there is no target present. This will lead to indications of all interesting odours, or the dog may even begin to offer indications in order to manipulate the trainer into providing the reward.

Dogs must be trained in a variety of areas and should not be trained repeatedly in the same location. Regular training at one location can lead to gambling, where the dog knows approximately where the mines are and indicates the general vicinity of the mine without doing a proper search.

Dogs must be trained regularly in areas not containing mines. As training progresses, the proportion of time spent working in "no-mine" areas should increase, because the dog must learn that find rates for an operational dog will be low.

Operational dogs working in minefields receive no rewards (unless the handler can see that a mine or fragment is present at an indication location). This issue is addressed using the IRS during training. As a result of an IRS, dogs learn that finding an object does not necessarily lead to a reward. Thus when they are operational, dogs have no expectation that any particular indication will result in a reward. Their experience is that rewards appear on a small proportion of indications. Once the dog is established on an IRS, the handler can maintain motivation by introducing targets (either in the minefield or in an adjacent training area) and reward indications on those targets.

Once a desired behaviour has been established, the allocation of rewards becomes strict. The handler must keep the kong toy hidden during training exercises to avoid training the MDD to focus on the toy instead of the task at hand. The School regularly uses helper handlers (assistants) to administer the rewards, especially during long-leashed and carousel training *(Chapters 8 and 11).* The kong toy is spontaneously placed in the precise indication location. This form of reward placement trains intense focus by the dog towards the place of detection and not on the handler.

Section II

Breeding programme

Section II describes the main activities and common issues encountered in the Breeding Programme. Topics covered include main objectives, responsibilities, and the critical developmental stages and handling requirements for the developing pups.

Timeline

Breeding programme: *0 to 7 weeks*

Activities:

- handling;
- separate feeding;
- socialisation training;
- environmental training;
- assessment;
- transfer to puppy programme when 7 to 8 weeks old.

Chapter 2

MDD breeding programme

Training for MDDs should begin as early in the dogs' life as possible. There are critical stages in the dog's life that strongly affect their learning and behaviour, and many of these occur in the first weeks (van Wyk and Le Roux, 2003). Not every dog can be trained for mine detection operations. The dog must naturally possess certain traits and characteristics which can be developed during training. The process of selecting and training dogs with potential to be MDDs is extremely difficult and involves an ability to foresee potential in the dog (Matre, 2003).

The breeding programme consists of in-house breeding of MDDs and aims to prepare all the puppies for the puppy programme. Occasionally, puppies are selected at 6 to 7 weeks of age from litters recognised by accredited breeder associations.

Breeding programme objectives

- **Health:** Health of the puppies is assured through constant monitoring of the litter and the mother, maintaining a hygienic environment and ensuring that nutritional needs are met from the mother's milk.
- **Behaviour:** The puppies are encouraged to be as social, active, rambunctious and fearless as possible, through gently and cautiously introducing and exposing them to a variety of stimuli and providing many opportunities for play and exploration.

Choice of parents

Both parents are to be of extremely good health and free of hip dysplasia or any other genetic disorder or malady. It is preferable that both parents be fully trained MDDs. The preferred behavioural attributes of both parents are:

- high motivational drives with an emphasis on hunting behaviour and play-fighting;
- extremely good environmental skills (highly adaptable);

- active and outgoing;
- stable personality.

Care of the dam

The dam is maintained on her regular daily routine of MDD training throughout the entire gestation period. The dam resides at the kennel facilities up to three weeks prior to her delivery, at which time she is moved to a "home" environment but still performs her daily MDD training. It is important for the pups to be born and raised in a home environment, living with and among the breeder's family and being exposed to children and the normal daily activities of family life.

The bitch is fed her regular diet without an increase in portion throughout the gestation period. Upon delivery, she is fed a high protein and performance diet that is approximately 25 per cent more than her normal daily intake. The increase in food provides for the enormous energy costs the dam experiences due to lactation. Approximately one week after delivery and once the dam is comfortable with her new situation, she begins refresher training.

Developmental stages and corresponding handling agenda

"Bio Sensor" programme

The School uses the "Bio Sensor" Programme which focuses on early neurological stimulation. This programme uses five exercises, which are designed to develop and stimulate the neurological system. Each work-out involves handling the puppies a minimum of once a day for six weeks. The work-outs require handling the puppies one at a time while performing a series of the five exercises. Listed in no order of preference, the trainer starts with one pup and stimulates it using each of the five exercises before continuing on to the next pup:

- **Tactical stimulation (between toes):** The trainer holds the puppy in one hand then gentle stimulates by tickling the pup between the toes on any one foot using a Q-tip for three to five seconds.
- **Head held erect:** The trainer holds the pup with two hands and holds the pup perpendicular to the ground so that its head is directly above its tail for three to ten seconds.
- **Head pointed down:** With both hands, the trainer holds the pup upside down so that its head is pointed towards the ground for three to five seconds.
- **Supine position:** The trainer holds the pup so that its back is resting in the palm of both hands for three to five seconds.
- **Thermal stimulation:** The trainer places the pup, feet down, on a damp towel that has been cooled in the refrigerator for a minimum of five minutes for three to five seconds.

Weeks 1 and 2

This period is devoted primarily to ensuring that the pups are receiving nourishment from the mother. The following biochemical mechanisms and physiological and behavioural developments are occurring:

Senses:	• Sight and hearing senses are not yet developed • Senses such as smell, taste and feeling begin to develop • The pups are reactive to temperature and pain
Inborn behaviour:	• Crawling in a circle • Head swinging • Snuggling with mother and litter-mates • Sucking behaviour • Whining and screaming

The puppies are handled a few days after birth. In addition to the handling activities conducted in the Bio Sensor Programme, the following handling activities are to expose the puppies to increasing levels of stress while maintaining a safe and secure feeling. The ultimate objectives of these activities are to teach the puppies to be adaptable and comfortable with changes in their surroundings and for the puppies to learn to trust and be comfortable with humans.

WEEK 1

The following activities are performed at a slow pace and with a gentle motion, with an emphasis on human body contact.

Day 1: Each puppy is gently held for a minimum of 30 seconds.

Day 2-3: The time spent with each puppy is gradually increased. Each puppy is handled in both hands and gently moved from one hand to the other.

Day 4-7: Each puppy is held for at least two minutes per day. The motions include raising the puppies in the air, holding them upside down and turning them in a circle.

WEEK 2

Previous handling activities are intensified.

1. The handling of each puppy becomes more specifically related to enduring human involvement such as being comfortable enough to sleep on a human's lap and to be turned around and handled without displaying any fear behaviour.
2. A radio set at a low volume is placed in the litter room.

WEEK 3

During this period, the puppies move around more, begin to eat solid food, growl and play-fight with their litter-mates. The following biochemical mechanisms and physiological and behavioural developments are occurring:

Senses:	• Sense of smell and feeling fully developed • Eyes and ears open (Day 20) • Sight and hearing functional (Day 21)
Inborn behaviour:	• Development of social behaviour Snuggling with mother and litter-mates (*Figure 4 a, b*) • Investigate litter-mates • Tail wagging • Begging for food • Walking

Figure 4. Close physical contact with mother and litter mates

a. b.

Previous handling activities are intensified.

1. The puppies are fed together (*Figure 5*).
2. The puppies are kept close to the human body for a minimum of 10 minutes per day.
3. A "play-fight rug" and a kong (*Figure 6 a, b*) are placed in the litter box.
4. Play is initiated with the puppies individually on a daily basis.
5. The volume of the radio is increased during daytime. Taped noises of everyday sounds such as traffic and crowded shopping centres are played.
6. The puppies are encouraged to investigate new environments.

Figure 5. Communal feeding

Figure 6. Introduction of a kong toy

a. b.

WEEKS 4 to 7

The following biochemical mechanisms and physiological and behavioural developments are occurring:

Senses:	• Fully developed
Brain:	• Very fast development
Inborn behaviour:	• Give signals with their tails, ears, teeth and by growling • Defend their food

The puppies are exposed to a multitude of environments involving different people, children, vehicles, and both outdoor and indoor scenarios.

1. The puppies are exposed individually to close human body contact for a minimum of 10 minutes per day.
2. The length of time and the level of stress during play-fight activities with each puppy are gradually increased.
3. The puppies are exposed to machines emitting loud noises such as fans and vacuum cleaners, and are constantly encouraged to investigate these items.
4. The puppies are divided into groups of two or three and are placed into transport boxes and indoor cages for short durations (*Figure 7*). These activities are always performed in an environment known and secure to the puppies.

Figure 7. Introduction of transport boxes

5. The puppies are fed in smaller groups and on occasions, inside the transport box or indoor cages.

WEEK 5

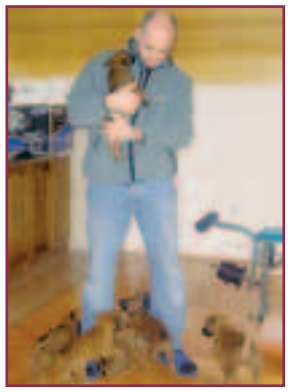
1. The processes started in Week 4 are continued and the puppies are exposed to even more varied environments, such as car drives and groups of children.
2. Processes such as repeated exposures to indoor cages and transport boxes are continued. By the end of Week 5, the puppies must be able to spend 10 minutes alone in this environment without displaying fear or anxiety.
3. Each puppy is held and experiences human body contact for a minimum of 10 minutes per day (*Figure 8 a, b, c*).
4. The puppies are encouraged to investigate and negotiate their environment.
5. Continued play-fighting on an individual basis.
6. The puppies' interest in retrieving different objects, such as tennis balls, rugs, plastic bottles and other toys, is encouraged.
7. Continued playing of the radio in the litter room with an increase in volume during the day.

Figure 8. Human body contact and interaction

a.

b.

c.



WEEK 6

1. The activities conducted in Week 5 are continued with an increase in the overall intensity of each exercise and activity.
2. The puppies are continually introduced to new environments.
3. Continuation of stimulating and developing the puppies' play-fighting ability via activities such as chasing toys and praising pups for displaying interest in the toy (*Figure 9 a, b*).
4. The puppies' retrieving ability is stimulated both individually and with litter-mates for competition purposes. Toys are used as prey items and the puppies' predatory drive is built through games of hide-and-seek and toy retrieval.
5. The puppies are placed inside indoor cages and transport boxes for periods longer than 10 minutes, so that they learn to be relaxed in this kind of environment.

Figure 9. The puppies have access to, and are encouraged to play with a variety of balls and toys

a.

b.

WEEK 7

The puppies are subjected to all previous activities on a more individual basis. The aim is to prepare the pups to leave their litter-mates to live with the puppy trainer's family. This step is a major event in the puppies' lives and it is important to continue environmental training and positive experiences with the transport box and indoor cage.

1. Continued exercises of play-fight.
2. Continued exercises of prey-drive.
3. Feeding in different environments (*Figure 10*).

Figure 10. Feeding in different environments

The School conducts an assessment of all the puppies to identify the strengths and weaknesses of each individual and to determine which puppies demonstrate the highest potential for MDD training.

Puppy assessment process

Assessment of dogs is a continuous process at the School. A formal internal assessment of the puppies is conducted when the puppies are 7- to 8-weeks old. The puppy assessment process aims to identify and assess all the puppies' strengths and weaknesses. Provided that sufficient resources are available, the School will maintain training of all puppies. As 7- to 8-week-old puppies are awake and active only for short periods, the assessment process takes two days and some components are repeated.

Assessment criteria for 7- to 8-week-old puppies

Key qualities, characteristics and behavioural responses are sought at this stage. Preference is given to puppies that exhibit a combination of:

- alpha characteristics;
- high energy, playful and rambunctious behaviour;
- inquisitive behaviour;
- courageous behaviour.

Alpha characteristics are leadership and dominance over litter-mates and other dogs. The Alpha dog should be "well-balanced", in that the dog is confident but not overly aggressive. Overly aggressive dogs can create problems with other dogs and with handlers. At this stage in the puppies' lives, a potentially aggressive dog is not easily distinguished from a confident Alpha dog, and aggression is a poor selection criterion. Alpha dogs are usually male, but females can be dominant within a litter.

The remaining characteristics are usually linked. **High energy** describes dogs that are very active, mobile and intense. They are alert and interactive, the tail wags constantly, and they observe and investigate their surroundings. An **inquisitive nature** and **courage** are usually correlated and can be tested by introducing the puppies to new stimuli, such as new environments or new objects. For example, the assessors may introduce to the litter a new toy with an associated noise. Puppies that are brave enough to investigate the new situation are preferred to those that cower and/or run away, or show little interest.

The behavioural criteria are also influenced by gender and breed.

Gender

Very few dogs are neutered or spayed at the School. Females are permitted several heats to allow their biochemical systems to mature and stabilise. Dogs that are not considered to be of breeding quality are sterilised.

In cases where all other attributes are equal, female dogs are preferred to males for the following reasons:

1. Female dogs generally mature four to five months earlier than males and learn faster than do males of the same age. The difference decreases the overall training period and is more cost-efficient than training predominantly with male dogs.
2. Female dogs are generally more submissive and docile than males, which is preferable when combined with mental and emotional strength.

Breed preference

German shepherds, Belgian shepherds (Malinois) and Labrador retrievers are trained at the School (*Figures 11, 12 and 13*). No one breed is preferred, because each offers different physical and behavioural characteristics that are appropriate to different training and operational requirements.

Malinois are more tolerant of hot and sunny conditions and have a smaller and lighter physical stature than German shepherds and black Labradors. The coat of the Malinois is lighter in colour, shorter in length and less dense than that of German shepherds and black Labradors. These characteristics allow Malinois to work for longer periods (or with fewer breaks) in hot climates than the other breeds.

Figure 11. German shepherd

Figure 12. Malinois

Figure 13. Labrador

German shepherds and Labradors tend to have more health problems than Malinois, particularly in the skeleton which endures more strain in these heavier dogs.

However, some of these health problems may not become restrictive until the dog approaches retirement age (8 to 10 years old) and thus may have little influence on operational capacity.

Malinois are generally more high-strung, nervous and unpredictable in temperament than German shepherds and Labradors. Labradors are generally more docile, eager to please and easy-going than either of the other breeds.

NPA GTC evaluation of puppies

Evaluation exercise 1

Prey drive

The trainer uses an age-appropriate toy. Soft toys such as tennis balls are used with puppies that still have their immature temporary teeth (younger than 4 months). Hard toys such as the kong are used with puppies that have adult permanent teeth (older than 4 months). The trainer captures the puppy's attention and throws the toy a short distance away (*Figure 14*) from puppies older than 3 months and rolls the toy away for puppies younger than 3 months. The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** Puppy runs to toy and immediately snatches it up with their mouth and shakes it.
- **Adequate:** Puppy runs to toy and investigates it by sniffing it. The puppy only picks the toy up if the toy is repeatedly thrown.
- **Failed:** Puppy doesn't run to toy, nor shows any interest in the toy.

Figure 14. Assessing prey drive

Evaluation exercise 2

Retrieval (*Figure 15*)

After puppy captures the toy, the trainer encourages the puppy to return by jogging backwards and calling for the pup to follow. The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy immediately returns to the trainer and drops the toy to initiate more play.
- **Adequate:** The puppy returns but does not release the toy. The puppy partially returns to the trainer but stays out of reach.
- **Failed:** The puppy does not return to the trainer.

Figure 15. Assessing toy retrieval

Evaluation exercise 3

Persistence

Figure 16. Assessing persistence

The trainer hides the toy either under their foot, in their hands or behind an object so that the toy is barely visible (*Figure 16*). The trainer encourages the puppy to find the toy. The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy digs at, mouths, and/or whines for the toy.
- **Adequate:** The puppy nudges at the toy by using its paws.
- **Failed:** The puppy gives up easily or does not try at all.

Evaluation exercise 4

Tug response

Figure 17. Assessing tug response

The trainer uses a towel or a leather rag and encourages the puppy to grab and pull the material from the trainer (*Figure 17*). The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy immediately grabs and tugs the material vigorously.
- **Adequate:** The puppy grabs the material only after repeated encouragement and releases the material without pulling.
- **Failed:** The puppy grabs for the material only after repeatedly teased with it and does not maintain a grip.

Evaluating exercise 5

Possessiveness

Figure 18. Assessing possesiveness

The trainer lets the puppy win the tug-of-toy game (*Figure 18*). The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy shakes the toy with its mouth then either attempts to engage the trainer to play the game again or runs away with the toy.
- **Adequate:** The puppy runs away with toy but drops it soon after.
- **Failed**: The puppy drops the toy immediately.

Evaluation exercise 6

Follow

Figure 19.

This exercise is conducted with puppies younger than 3 months of age (*Figure 19*). The trainer calls to the puppy and jogs backwards while softly clapping. The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy immediately begins to follow the trainer and continues to follow until they reach the trainer.
- **Adequate:** The puppy begins to follow the trainer but loses interest along the way.
- **Failed**: The puppy does not attempt to follow the trainer.

Recall

This exercise is conducted with puppies older than 3 months of age. An assistant restrains the puppy while the trainer jogs backwards. The trainer calls to the puppy to follow and the assistant releases the puppy. The following provides a general standard in assessing the behaviour the puppies demonstrate during the exercise:

- **Good:** The puppy runs at full speed towards the trainer and rams into the trainer's body, jumps on the trainer, or solicits affection.
- **Adequate:** The puppy jogs toward the trainer and either nudges the trainer or seeks for attention from the trainer.
- **Failed:** The puppy does not follow trainer or only jogs toward the trainer and then immediately leaves.

Section III

Puppy programme

During the puppy training programme, the young dogs are trained for the following behaviours:

Timeline

Puppy programme: *7 weeks to 18 months*

Activities:

- socialisation training;
- environmental training;
- drive and motivational training;
- off-ground pressure-search training;
- tracking training;
- search pattern (short- or long-leashed MDD) training;
- on-ground pressure-search training;
- carousel training;
- internal assessment.

Chapter 3

Puppy programme

Prior to the establishment of the NPA MDD GTC (in 2004), NPA Bosnia MDD had received the majority of its dogs from puppy trainers in Norway (since 1999). The Norwegian puppy trainers were four or five individuals who worked and trained the dogs independently of each other. All were qualified dog trainers with extensive experience of working with dogs in military, police or security roles. These puppy trainers played a crucial role within the training programme because they established the baseline behaviours required in an MDD. On delivery from the puppy trainers, it was possible to immediately begin imprinting training (odour sensitisation).

The introduction to the NPA Bosnia MDD Programme of the Norwegian puppy trainers in 1999 *(see Annex 3)* gave rise to the School's present day training philosophy, using a modular training system.

Puppy programme activities

The training period is variable, but it is usually from 7 weeks to 18 months. The variation depends on the season of the year training begins, and on individual variability in learning capability and temperament.

The puppies live in a home environment with a trainer and their family. The major training objectives of the puppy training programme are the following:

1. Socialisation, interactive and environmental training;
2. Drive and motivation training:
   a. leather rag;
   b. activity and passivity sessions;
   c. kong toy.
3. Off-ground pressure-search training;
4. Tracking: leather rag.
5. Search pattern (short- or long-leashed MDD) training;
6. On-ground pressure-search training;
7. Carousel introduction and development of performance;
8. Internal assessment and testing.

General timeline

The following timeline is used as a general guide in training desired behavioural skills. The timeline varies depending on variables such as weather, the dog's progress and its health.

WEEKS 8 to 10

Daily routines initiated by the breeder, such as socialisation and exposing the puppy to different forms of environmental stimuli, are continued by supporting and guiding the pup through the different problems:

1. Intensive play-fight exercises in which the pup wins the toy upon displaying high motivation and intensity for the toy (prey).
2. The retrieving sessions are intensified and consist of situations in which the pup must use its nose to succeed.
3. Continued encouragement of the puppy to investigate and solve simple search exercises.

WEEKS 10 to 12

Previous activities continued, with an increase in intensity and duration. The pup's natural level of motivation should not be exceeded and the exercises should end on a positive note.

1. Initiate activity and passivity sessions (*Chapter 5*).
2. Introduction of off-ground pressure-search training (*Chapter 6*).
3. Introduction of very basic tracking exercises (*Chapter 7*). During these initial exercises the trainer does not overwhelm the puppy.
4. Introduction of different methods of reward. Food can be used as a "pacifying reward" and play-fight as a reward to increase motivation and activity.

WEEKS 12 to 16

Continuation of previous exercises with an increase in intensity and to challenge the puppy's ability to solve more complex tasks. During these sessions, the puppy is never to be placed under any strain. The aim of these exercises is for the puppy to offer the desired behaviour of its own accord.

1. Reward passivity behaviours such as when the puppy lies down and relaxes.
2. Continuation of tracking exercises in a versatile environment.
3. Continuation of activities involving retrieval of objects.

MONTHS 4 to 12

The dogs remain in the puppy training programme until they are approximately 12 to 18 months of age. The main training events occurring between 4 to 12 months are described in Chapters 4 to 11.

Chapter 4

Socialisation, interaction and environmental training

It is vital that socialisation and environmental training are among the dog's first learning experiences, especially during the critical period of 6 to 16 weeks of age. This critical period is prior to the onset of fear reactions and is when the dog is most receptive to new stimuli. Any experiences learned during this period remain ingrained for life.

During these 6 to 16 weeks, the puppy can absorb a lot of information and adapt relatively easily to new situations. This is the foundation period for the training to come later. For about four months after the foundation period, both socialisation and environmental training will go more smoothly and be less stressful for the new pup.

Socialisation and environmental training must continue after 16 weeks of age, but beginning such training after this critical period becomes a difficult and time-consuming process.

Socialisation training

Socialisation refers to the interaction between the dog and other individuals in the same social environment, including interactions of dog to dog, dog to human, and dog to other animals. A dog that is highly socialised possesses a higher level of confidence and sense of security when interacting with humans and other dogs. These attributes increase the dog's trainability, which ultimately increases training efficiency. A dog with low levels of confidence and security is more apt to engage in fights with other dogs, display aggression toward humans and ultimately will have a lower trainability, demanding a higher investment in time and money.

Socialisation is the process of getting the dog accustomed to people, animals and objects while remaining at ease and comfortable in its surroundings. It provides the opportunity for the dog to familiarise itself with various environments in non-demanding situations. From these exercises, the dog learns appropriate behaviour when interacting with humans and other dogs; it also learns that humans, other animals and objects are not threatening.

Socialisation exercises include regular exposure to:

- encounters and contact with humans and other dogs;
- groups of two to three dogs.

Interaction training

Interaction training is closely related to socialisation training as both involve human contact and interaction. The term *interaction* training is used here to refer to behaviour that is normally trained with obedience-training objectives, in addition to a more interactive relationship between the dog and the handler.

Although the word "obedience" is used routinely by dog trainers, it is ***not*** used here because it implies notions of "control"; these are generally not appropriate to the training of an MDD. An MDD and handler are a unit with equal and complementary roles (the MDD should work independently, requiring minimal direction from the handler).

Interaction training is initiated in the breeding programme during activities of handling the pup. The pup is introduced to humans and their scent, with the broader goal of developing a perception of the handler as a pack member. The more advanced interaction training conducted in the puppy programme involves the basic principles generally associated with obedience training and establishes a mode of communication between the dog and humans. It is through interaction training that new handlers introduce themselves to their potential MDD partner and the handler and dog become familiar with each other.

Intensive interaction training is avoided with most dogs so that the dog does not become too focused on the handler. If the dog is focused on the handler, then it is not focused on the task at hand. Dogs that undergo intensive interaction training tend to rely on the handler to lead the way and for reassurance, assistance and cues. Occasionally a dog may exhibit extremely dominant behaviour towards the handler. In such instances, these dogs receive intensive interaction training.

Environmental training

Environmental training ensures that a dog is comfortable in new situations by regularly exposing it to new stimuli from a young age. This is a core element of the training methodology. Environmental training develops the dog's concentration and focus by acclimatising it to distractions from the environment.

The dog is regularly exposed to as many new situations as possible, as early in life as possible. Such environmental training exercises include conducting obstacle courses in different areas for young and older dogs (*Figures 20 a, b, c, d, e, f, g and 21 a, b, c*). The dog must feel secure prior to the introduction of new stimuli and the exercises must be performed only within the dog's comfort level. If the dog begins to appear scared or uncomfortable, the exercise is immediately suspended. If, or when, the puppy becomes slightly alarmed at a new situation or stimuli, it is given a few moments to recover. If the puppy attempts to veer away, the trainer encourages investigation. For instance, the trainer kneels between the alarming situation and the puppy and calls the puppy. The puppy receives praise if it comes closer and seems braver.

Figure 20. Obstacle course

a.

b.

c.

d.

e.

f.

g.

Environmental exercises include regular exposure to:

- busy and noisy locations such as train stations, beaches, shopping centres, parking lots, cafés and parks;
- toys of different shapes, colours and sizes — large enough to prevent choking or swallowing;
- any new stimuli;
- car travel and the travel crate.

Without the above experiences, dogs will have a limited ability to adjust to new situations and surroundings, potentially causing them to become uncomfortable, distracted and anxious.

Figure 21. Obstacle course

a.

b.

c.

Chapter 5

Drive and motivation training

Most training techniques in this training model are designed to stimulate the dog's natural instincts with an emphasis on hunting the kong toy and the leather rag as prey items. The key principle is that capturing the kong or rag is very rewarding, producing a high level of motivation for the hunt.

The leather rag and tennis ball are used first with younger pups while their mouths are still sensitive. The leather rag and kong toy are used in the reward system (*Chapter 1*) and activity and passivity sessions. Activity and passivity sessions are exercises aimed at developing a drive for the rag and kong, and are described in detail below.

Leather rag

The puppy is introduced to the leather rag by the breeder while it is still in the litter box. The leather rag is made by attaching a leather strap to a scrap of leather *(Figure 22).* This soft material allows the young dog to bite firmly without risking the injury that a hard and non-malleable material might cause.

Figure 22. Leather rag

The leather rag is dragged in front of and around the pup to encourage chasing, catching and attacking. Drive to win the leather rag is encouraged by releasing the rag whenever the pup exhibits signs of ownership over the rag. These signs can be growling, roughly pulling, tugging or biting the leather rag with full mouth.

By the time the pup has its permanent adult teeth (4 to 5 months) it should have developed a strong drive for the rag. The puppy trainer then encourages more forceful play by wetting the rag. A slippery rag forces more aggressive and forceful biting. The puppy trainer increases the level of excitement during games of tug-and-war with the rag by lightly pushing and swatting at the dog while giving vocal praise.

Every session must end with the dog still chasing the leather rag. To end a session, the puppy trainer quickly removes the rag from the pup's reach during a chase. This action increases drive for the rag and encourages the dog to keep a firm grip on the rag next time.

After the puppy displays desire for the leather rag — such as being reluctant to let go, growling or pulling — the puppy trainer initiates track training *(Chapter 7).*

Kong toy

The kong *(Figure 23)* is a durable rubber toy that plays a crucial role in the reward system and in future training activities, and it is critical that all of the dog's experiences with the kong are positive. The kong toy is introduced to the puppies in their litter box. However, the mouth of the pup is easily injured before 4 to 5 months of age, when the adult teeth emerge. Until then all play with the kong is gentle, involving chase, search and find, but nothing rough. Rough games can cause injury or pain, which could lead to negative associations with the toy or puppy trainer. Rougher games (as described for the leather rag) using the kong begin after the dog has obtained its adult teeth.

Figure 23. A kong

In order to make the kong harder to find in games of hide-and-seek, the puppy trainer gradually places the kong off the ground up to the level of the pup's head. Eventually the kong is hidden in places like vehicles, woodpiles, brickpiles and in walls (*Chapter 6*). Placing the kong off the ground makes it difficult for the dog to dig at it and discourages any tendency to scratch at the kong once detected. If the pup digs or scratches at the object, the puppy trainer immediately reprimands the dog with a firm vocal *"Nie" (No).* Upon finding the kong, the puppy trainer gives the pup lots of vocal praise and affection to reinforce searching behaviour.

To train a high intensity of motivation and desire for the kong, the puppy trainer allows the dog to win the kong in any displays of force, activity and interest. Winning is defined as releasing the kong to the dog after displaying ownership of the kong. Such behaviours include shaking the kong and growling while trying to pull the kong free from the puppy trainer. The aim is to develop confident hunting behaviour directed towards the kong. During the initial stages of this training, the dog always wins the kong. Eventually, the puppy trainer begins training the dog to release the kong.

Training to release the kong is achieved by making the kong inactive. Once the kong is inactive, the dog usually releases on its own accord. As the dog releases, the puppy trainer says *"Slip!"* (*Release!*). The level of vocal firmness used depends on the

temperament of the dog. After releasing the kong, the kong is reactivated by the puppy trainer and another reward session is initiated. Thus, the reward for releasing the kong when it is inactive is to have the kong reactivated. A dog that refuses to release an inactive kong is described as experiencing extreme motivation, called *overexcitement*. The solution to this problem is to offer a second kong. Most dogs will immediately release the first kong in order to get the second. In a few cases, the puppy trainer may need to force release of the kong. In these cases, it is vital for the puppy trainer to allow the dog to have the kong again immediately after the dog releases the kong.

Once the dog is exhibiting a desire for the kong and is confident in these games, the puppy trainer gradually increases the excitement level in the presence of the kong. For example, when the dog has the kong in its mouth, the puppy trainer pulls at the rope while lightly pushing and swatting the dog. The dog must now fight harder to win the prey (the kong). This stage is taken with great caution as the puppy trainer must respond to the dog's behaviour and comfort levels. If the force is too great relative to the dog's confidence, the dog may begin to dislike or fear the kong, the activity or the puppy trainer. The aim of these exercises is to increase the dog's drive and focus for the kong.

After the drive for the kong has been established, the puppy trainer decreases the size of the kong during hide-and-seek games to micro-sized pieces. The puppy trainer hides the pieces in the same way as in previous hide-and-seek games — off the ground surfaces to discourage digging. Vehicles, woodpiles and in the holes of brick walls are very useful as they provide many hiding places off the ground. The progressive decrease in size of kong pieces encourages the dog to work with an increasingly difficult detection problem. The reward for finding small pieces of kong is always the original-sized kong toy.

Activity and passivity sessions

Activity and passivity are methods used both in drive/motivational training and in indication training. The following material is described with respect to the kong only but applies also to the leather rag.

During activity sessions, the puppy trainer builds up the dog's drive for the kong by swinging and shaking it in front of the dog, encouraging chasing, catching, biting and playing tug-of-war. The dog is encouraged to pull the kong from the puppy trainer. Initially the puppy trainer always allows the dog to win the kong regardless of the force used or enthusiasm shown. For example, even if the dog only pulls slightly on the kong, the puppy trainer releases it to the dog and gives praise. The release builds confidence and lets the dog know that it is permitted to take and fight for the kong. In these initial stages of developing drive for the kong, any force displayed by the dog, such as growling and pulling hard, is praised and commended.

General activity exercises:

1. Act as a form of reward for the dog.
2. Develop and establish a high and intense positive reaction directed towards a particular object (the kong).
3. Increase motivation and energy levels.

Activity sessions reinforce desired behaviours exhibited by the dog.

During passivity sessions, the puppy trainer makes the kong inactive by not moving the kong. The puppy trainer either suspends the kong in air by holding the rope or places the kong on the ground. The main objective of passivity sessions is to direct the dog's entire focus and attention onto the kong without the dog becoming bored or distracted.

Passivity sessions achieve the following objectives:

1. Focus on the kong for an extended period (to allow time for marking of indications during operations).
2. Calm the dog down after a reward is given or when it is excited.
3. Build anticipation for the kong.

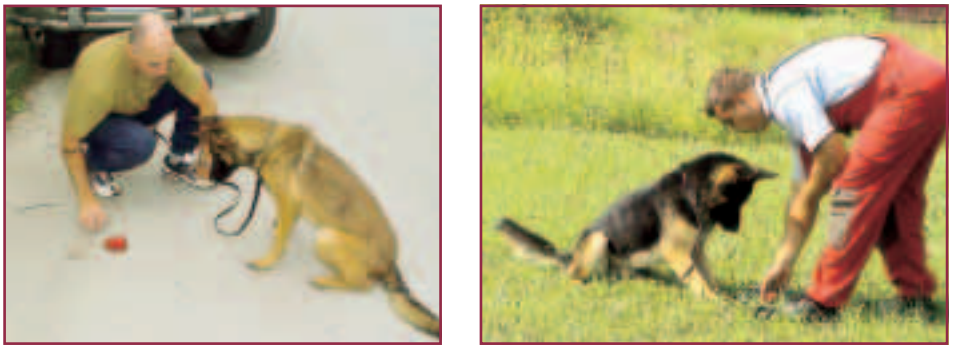
The indication response of sitting and focusing on the point of detection is developed from passivity sessions.

General procedure for activity and passivity sessions

Stage I

1. The puppy trainer begins a passivity session in a kneeling position in front of the pup, holding the kong at the pup's visual level.
2. Once the pup is focused on the target, the puppy trainer places the kong on the ground and covers it with both hands (*Figure 24*).
   The dog may dig at the kong, bark for it and/or whine for it. Only if the dog scratches or digs at the kong does the puppy trainer interfere by instructing the dog "*Nei!*"(*No!*). The dogs are not likely to dig or scratch at the kong due to the previous training of searching for targets off the ground.

Figure 24. Covering kong



3. The puppy trainer only allows the dog to have the kong when it sits, or as soon as it begins to sit. It is essential that the dog sits on its own without any instruction from the puppy trainer.
4. As soon as the dog sits or is about to sit, the puppy trainer flicks the kong in front of the dog causing the dog to move towards it (*Figure 25*). Activity sessions with games of play and tug-of-war last between one and three minutes.
5. Following an activity session, the puppy trainer immediately initiates a passivity session.
6. The cycle is repeated three to four times in a row.

Stage I is repeated periodically throughout the day.

Figure 25. Direction kong is flicked

Stage II

1. The puppy trainer begins a passivity session by kneeling and covering the kong with his hands.
2. Instead of initiating an activity session immediately after the dog sits, the dog must remain sitting when the puppy trainer removes his hands from the kong. If the dog starts to take the kong, the puppy trainer covers the kong again until the dog sits.
3. Once the puppy trainer is able to remove his hands from the kong while the dog remains seated and fully focused on the kong, then the next activity session is initiated.
4. The cycle is repeated three to four times in a row.

Stage II is repeated periodically throughout the day on a daily basis until the dog sits consistently without scratching or digging at the kong when the puppy trainer's hands are removed from covering the kong.

Stage III

In Stage III, the puppy trainer gradually stands up while the dog remains seated and focused on the kong.

1. The puppy trainer begins a passivity session in the kneeling position with hands covering the kong on the ground.
2. Once the dog is sitting and focused on the kong, the puppy trainer removes his hands from the kong and slowly stands up. If the dog starts to take the kong, the puppy trainer re-covers the kong and waits until the dog sits down again.
3. Gradually, the puppy trainer will be able to stand while the dog stays seated and focused on the kong. The puppy trainer then initiates an activity session.
4. The cycle is repeated three to four times in a row.

Stage III is repeated periodically throughout the day on a daily basis.

Troubleshooting

If the dog becomes distracted and loses focus on the kong positioned on the ground, the puppy trainer slightly shakes the kong from side to side and calls the dog's name to direct attention back to the kong. If the dog repeatedly becomes distracted in a session, the puppy trainer terminates the session and does not reward the dog. A dog that becomes repeatedly distracted during multiple sessions probably needs work on environmental skills.

In some situations, a dog may need training on specific indication behaviour. This occurs when sitting by the dog is "sloppy" during an indication response. For safety reasons, the proper position for an indication response is for the dog to remain focused on the site of detection and to sit straight on its hindquarters (*Figure 26*), not slouching or leaning to either side.

To correct the behaviour, the puppy trainer sets up a search lane with one 10-metre row of posts connected by three rows of tape and a baseline tape placed 50 centimetres to the right of the posts (*Figure 27*). These posts and tape prohibit the dog from slouching off to the side during indication responses. The search lane is prepared with targets so the dog will perform the indication response. During an indication response, the puppy trainer ensures the dog is performing the correct response by adjusting the dog's body into the correct position.

Figure 26. Proper indication response

Figure 27. Indication correction

Chapter 6

Off-ground pressure-search training

Pressure-search is a form of search in which the dog is trained to search by having their nose constantly flush with the surface of the area being searched while sniffing intensely. The School begins pressure-search training by having the puppies search for objects placed off the ground. These activities focus on training the puppies to search for extremely small targets such as micro-sized pieces of kong with a high intensity.

Off-ground pressure-search training exercises begin when the pup is approximately 3 months old (*Figure 28*) and continue throughout the dog's training at the School (*Figure 29*). Items used for targets consist of micro-sized pieces of kong. Locations used for off-ground searching include brick piles, wood piles, cars, and walls. The walls of two rooms have been designated for indoor off-ground pressure-search training. These walls offer a multitude of placements for targets and are easily decontaminated by washing them down. These two rooms are completely empty so as not to distract the dog.

Figure 28. Three-month old puppy performing off-ground pressure-search training exercise

Figure 29. Adult dog performing off-ground pressure-search training exercise

To encourage the dog to search the surface of the area, the puppy trainer sweeps their hand by the area without ever touching the surface. The puppy is encouraged with vocal praise as soon as it begins to show an interest in the walls. The puppy trainer avoids offering clues as to where the targets are placed by focusing their attention on the dog and not on the site of the target. The dog is rewarded immediately upon finding the target.

This exercise is conducted two to three times per day, lasting a maximum of ten minutes per session.

Chapter 7

Track training

Tracking is defined as searching for a known target by following the scent of that target. An interest in tracking is a key criterion in the assessment process of potential MDDs. Track training consists of many intertwined and sequential steps. These steps are described below under *Basic track training* and *Advanced track training*.

In track training, the pup searches a minimum of 1,000 metres of non-linear track containing a variety of vegetation, terrain and obstacles.

The top priority during these exercises is the puppy's behaviour, rather than its ability to track perfectly. Desirable behaviours while tracking include:

- nose consistently to the ground;
- high search intensity;
- ability to focus and to concentrate;
- ability to work for long periods without tiring;
- motivation maintained.

The behaviours are assessed by causing distractions during the search, such as having people walk by a few yards away, producing different noises in the area and creating difficult tracks. These test the puppy's ability to focus, its endurance and its stamina. These training activities ultimately develop the pup's concentration and coordination skills. The puppy must have a strong innate hunting drive in order to be able to cope with these exercises due to the extreme pressure, level of difficulty and high standards that are required.

Basic track training

Track training is introduced by the trainer when the puppy is about three months old. Tracking sessions are conducted once or twice daily, with about three tracking activities per session. All training exercises must be positive experiences for the pup and sessions are stopped if it grows bored, frustrated or tired. The puppy trainer should always end the session on a positive note.

Basic track training is performed using the leather rag. To avoid frustration or the development of negative associations with the exercise, the level of difficulty is extremely low in the first steps of basic track training. The linear tracks are made to a maximum of 25 metres in length with few obstructions. The search begins as soon as the track is created, thus maximising the freshness of the scent.

Procedure

Although these exercises can be done in different ways, the framework is as follows:

1. **Site preparation:** The optimal site is a field with low-density vegetation for easier detection.
2. **Dog preparation:** The puppy trainer first excites the pup by playing with the leather rag (*Figure 30*).
3. **Removal of leather rag:** When the pup is excited, the puppy trainer quickly removes the leather rag from its reach, building up a high level of motivation to follow the rag (*Figure 31*).
   The pup is secured to a point from which it can observe the puppy trainer, or where a second person can hold the pup in view of the puppy trainer. Once the pup is secured, the puppy trainer drags the leather rag away from it and begins creating the track.

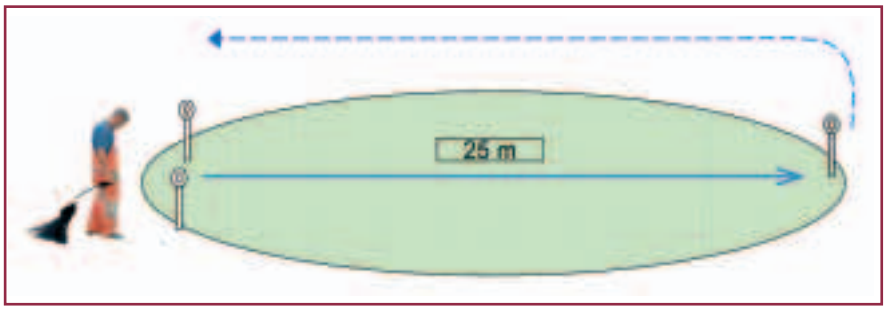
Figure 30. Building up motivational drive for the leather rag

Figure 31. Removing the leather rag from the dog's reach

4. **Creating the track:** The puppy trainer holds the strap of the leather rag behind his back, ensuring that the surface of the rag touches the ground. The puppy trainer creates a track into the field by shuffling their feet and dragging the surface of the rag over the freshly made footprints (*Figure 32*). Shuffling the feet creates a constant and uniform scent for the pup to follow. The puppy trainer impales a flagged steel picket into the ground indicating the end point of the track and discards the leather rag around that area. The puppy trainer turns to the left and walks a minimum of five metres before returning to the starting point of the track. By veering away from the end of the track in this manner, the pup will not encounter the puppy trainer's returning tracks, which might confuse it.
5. **Tracking:** The puppy trainer immediately takes the pup by the lead to the starting point of the track and allows it to go forward. While the pup moves in

the correct direction, the puppy trainer follows. If the pup leaves the track or stops, the puppy trainer stops and waits for it to resume following the track.

Figure 32. Creating a track for basic track training



6. Once the pup finds the leather rag at the end of the track, intense rewards of play, praise and affection are given. The pup is encouraged to keep the leather rag and to tear and attack it. These rewards build motivation based on its natural hunting instinct.
   The first sign of success is when the pup searches the ground to find the track and no longer relies solely on the wind or visual searching to locate the rag. The puppy trainer praises the pup for odour searching.
   As the pup grows in confidence and performance, the level of difficulty is increased and the pup is trained to sit directly to the puppy trainer's left leg and the hand gestures to signal a search are introduced (*Chapter 16*).
7. At the end of each session, the puppy trainer re-motivates the pup's drive for the target by initiating an activity session involving chasing the target. In one of the chases, the puppy trainer removes the target in mid-chase. Removing the target in mid-chase stimulates the pup's focus on it next time.

Troubleshooting

Upon introduction of this exercise, the pup will not understand what the game is, or how to win, and the exercise may need to be repeated many times. The puppy trainer must always show patience and allow the pup to find the target with minimal assistance. Allowing the pup to learn the object of the exercise without support minimises the development of dependency on the handler in challenging situations.

In cases where the pup does not show an intense interest in the leather rag once found, the puppy trainer can arrange to have the leather rag attached to a rope held by a support person. The support person should be hidden from the pup to make the leather rag simulate a prey item by moving it once the pup is about to pounce.

Advanced track training

Once the pup achieves a consistently good level of performance in the basic track training, the difficulty is increased using exercises classified as advanced track training. An advanced track is a track created by a person walking a minimum of 1,000 metres. The track:

- is non-linear;
- is made through a diversity of vegetation;
- crosses trails or paths used by civilians; and

- used one hour after it is made.

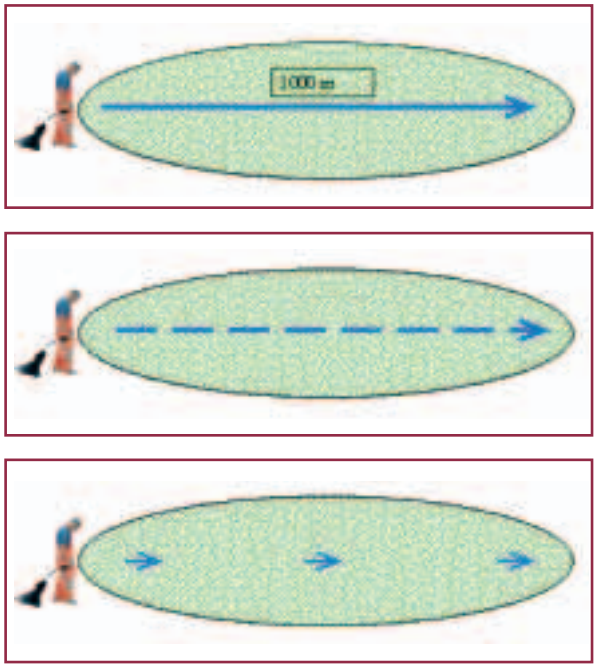
As the pup improves, the level of difficulty is increased in a series of stages that are introduced independently then slowly integrated:

1. the length of track is increased;
2. the density of vegetation and obstacles is increased;
3. track trails that veer into sharp turns are introduced;
4. the time between the laying and the searching of the track is increased;
5. the amount of scent left on the track is decreased.

Procedure

Exercises in which the amount of scent left on the track is decreased are designed to develop the pup's tracking ability (*Figure 33*).

Figure 33. Gradual reduction of scent trail



1. The puppy trainer holds the pup on a leash in view of a support person who traces a track with the leather rag. The support person does not shuffle his/her feet but makes large strides, leaps or hops down the lane.
2. The leather rag is dragged on the ground in areas without foot tracks to decrease the traces of scent trail left on the track.
3. The pup is observing all of this, but is prevented from observing the final placement of the rag, allowing the pup to calm down.
4. The pup is brought back to the start point of the lane after calming down and should be ready to focus (by sitting or lying down, not whining or begging for the rag).
5. The puppy trainer signals to the dog to sit in the correct position, signals the search and then follows holding the leash.

6. Upon finding the rag, the dog is allowed to win and play with it. The puppy trainer gives continuous high intensity praise and may initiate tug-of-war games to ensure high motivation for the rag.

The whole procedure may be repeated several times but must end prior to the dog becoming tired or disinterested. To end the session, the puppy trainer removes the rag during one of the chases, which heightens the dog's desire for the rag.

Chapter 8

Long-leashed MDD training

Introduction

After successful completion of track training, the dogs are assigned to a specific search pattern. Training for either long-leashed or short-leashed search pattern begins at about five months of age and overlaps with other training activities.

Training a long-leashed MDD takes approximately three months longer than a short-leashed MDD. The additional training is due to the challenges encountered when training a dog to pressure-search the 30-centimetres search width on the ground in a straight line. Short-leashed MDDs have additional guidance from the handler, and the consistent width and line search objectives are achieved more easily.

The dogs best suited to long-leashed operations are of a strong character, independent and who work well at a distance from the puppy trainer. "Strong character " is defined as being able to cope with frequent and firm vocal corrections and firm tugging on the lead. Dogs with a gentle nature often turn back to the puppy trainer if firmly corrected.

Initially, direction and search intensity are trained as separate behaviours. For example, direction may be trained in the mornings and on-ground pressure-search (*Chapter 10*) in the afternoons of the same day. Once both behaviours are achieved, they will be integrated.

In the following exercises it is best to have an assistant who corrects the dog in all instances when the dog veers from the search width, and who also rewards most of the good search behaviour. The following principles apply:

- The puppy trainer provides positive reinforcement only: firm, negative methods or corrections are not to be applied by the puppy trainer during training exercises. Training should always be a positive experience for the dog.
- An assistant should reward the long-leashed dog during training to avoid an association forming between the dog and the puppy trainer. The dog should not develop an expectation that rewards come from the puppy trainer and should remain focused on the target once it has been found.

Direction training

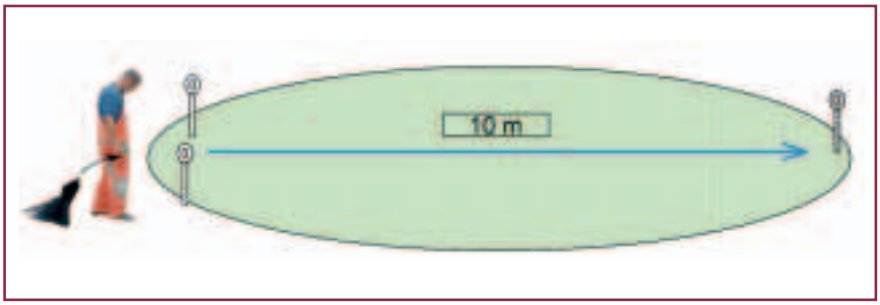
The key objective of long-leashed MDD training is to search in a straight line. Thus direction training must be given separately from other training objectives until it is fully established. The dog will continue to practice straight-line searches throughout its life as an operational MDD, but the behaviour must be exhibited reliably before integration with other trained behaviours such as pressure-search.

Direction training is a version of track training, with the main objective being direction. The following direction training exercises are repeated up to 10 times in one session and each stage must be mastered before moving to the next.

Procedure

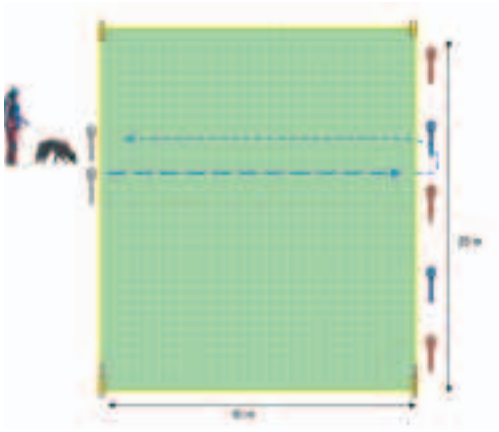
1. **Site preparation:** A 10-metre lane is prepared for direction training (*Figure 34*). The puppy trainer creates a "complete track" by walking down the lane and impaling a steel picket at the end. A complete track is made when the puppy trainer shuffles their feet or walks heel to toe along the surface of the ground, creating a continuous scent trail for the dog to follow.
   At the end of the lane, the puppy trainer turns to the left and returns to the beginning of the lane. Two white pickets are impaled in the ground at the start of the search lane 30 centimetres apart.

Figure 34. Site preparation for direction training



2. **Dog preparation:** The puppy trainer and dog are positioned so that they both face down the lane to be searched (*Figure 35 a*). The puppy trainer positions the 11-metre lead under the dog's left forepaw (*Figure 35 b*). The dog is instructed to sit and wait for the signal to search. The positioning of the lead acts as a precaution in case the puppy trainer needs to steer or pull the dog back during operations. If the puppy trainer pulls back on the lead, the dog will be pulled to the left and backwards to a safe area.
3. **Begin search:** The puppy trainer gives the signal to search and stays at the beginning of the lane. The dog begins searching between the two white pickets.
4. **During search:** The dog tends to move quickly down the lane initially. As the training aim is to teach direction and not search speed, fast movement is initially acceptable. The puppy trainer offers vocal praise whenever the dog moves in a straight direction, has their nose to the ground or reduces its speed.
5. **Return training:** The dog does not search on the return. Once the dog approaches the end of the lane, the puppy trainer instructs the dog to turn left and return. The dog will most likely follow the track made by the puppy trainer when they returned to the start point.

Figure 35. Dog preparation



a. Starting direction for long-leashed dog

b. Positioning of lead for long-leashed dog

The moment the dog is about to turn left or is in the middle of returning, the puppy trainer voices the command "*Venstre!*"(instructs the dog to turn to the left and return to the puppy trainer). Once the dog returns to the puppy trainer in the correct fashion, the puppy trainer praises and rewards the dog. If the dog turns to the right, no reward is given.

The puppy trainer repeats the same procedure as in track training to decrease the amount of track laid, either by jumping or leaping down the lane. Once the dog has mastered these tasks without turning or stopping midway, consistently turns to the left when returning to the puppy trainer on vocal command, and begins to slow its pace, the puppy trainer begins to integrate these exercises with long-leashed pressure-search training (*see below*).

Troubleshooting

If the dog is having difficulty keeping to a straight line after several days, the puppy trainer places a kong on the steel picket impaled in the ground at the end of the track to help direct the dog.

If the dog does not return to the puppy trainer at the end of the lane, the puppy trainer may call the dog while shaking the kong to encourage the dog to return. This method should be avoided, as the dog could learn to expect the kong at the end of the lane, and may run the last few metres of the lane in the hope of receiving the reward.

On-ground pressure-search training for long-leashed MDDs

The following exercises are repeated up to 10 times in one session and must be mastered before increasing the difficulty to the next level.

Procedure

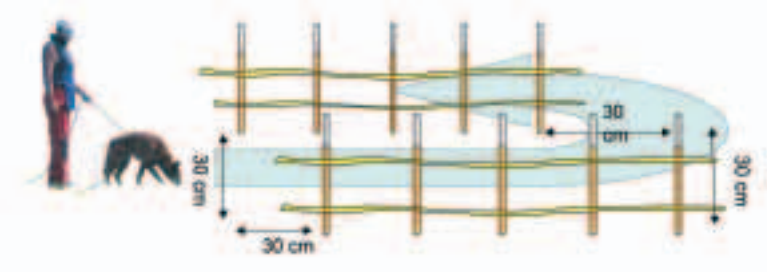
1. **Site preparation:** A 10-metre-long, 30-centimetre-wide lane is prepared with two rows of 50-centimetre-long wooden pickets planted in the ground (*Figure 36*). The right row of pickets extends 30 centimetres beyond the end of the left

row to provide a barrier which encourages the dog to veer to the left when called back. Each row of pickets is fenced using two rows of marking tape, one placed 10 centimetres from the ground and the other 10 centimetres from the top of the picket. The fencing ensures that the dog walks in a straight line, so that its full focus can be directed to pressure-search training. One steel picket is impaled 50 centimetres beyond the end of the lane and two white steel pickets are impaled 30 centimetres apart at the entrance of the lane.

Figure 36. Site preparation for pressure-search training for long-leashed dogs

2. **Placement of targets:** Micro-sized pieces of kong are placed in the 3:2:3 combination along a baseline as for the initial pressure-search training (*see Figure 42, p. 58*).
3. **Dog preparation:** The puppy trainer and dog both face down the lane to be searched (*Figure 37*). The puppy trainer instructs the dog to sit and to wait for the signal to search. An 11-metre lead is placed under the dog's left foreleg (*Figure 35 b*). The positioning of the lead acts as a safety precaution in case the puppy trainer needs to pull the dog back during operations. The dog will be pulled back and to the left of the search line (cleared area).

Figure 37. Starting position for long-leashed dogs



4. **Begin search:** The puppy trainer gives the signal to search and stays at the beginning of the lane (*Figure 38*). The dog may tend to move quickly down the lane initially.
5. **Return training:** The dog does not search on the return. Once the dog approaches the end of the lane, the puppy trainer instructs the dog to turn left and return. The moment the dog is about to turn left or is turning left, the puppy trainer voices the command "*Venstre!*". The dog is more likely to turn left when called back due to the additional 30-centimetre length of the right-hand row.

Figure 38. Search signal

Troubleshooting

If the puppy trainer has difficulty getting the dog to return immediately, the puppy trainer shakes the kong to encourage the dog to return.

Integration of direction and pressure-search

Only when the dog performs well in the direction-training exercises *and* the on-ground pressure-search exercises will the two behaviours be integrated. Integration involves gradually increasing the difficulty by decreasing the visual cues. The dog must perform well in each step before moving to the next step.

Procedure

1. **Site preparation:** The site is prepared in the same manner as for training long-leashed pressure-search as described above.
2. **Dog preparation:** The dog is prepared in the same manner as for long-leashed on-ground pressure-search.
3. **Target preparation:** The targets are prepared in the same manner as for long-leashed on-ground pressure-search training.
4. **During search:** The dog will tend to proceed very quickly. No corrections are given as the dog will eventually learn that in order to detect anything and receive a reward it needs to go slowly. After the first few runs, the dog should slow its pace, at which time an assistant may stop the dog to repeat a section where micro-sized pieces of kong are laid. The assistant points to the area in front of the dog and instructs the dog to continue searching by vocal command. The assistant rewards slower searches and straight searches.
5. **Increasing the level of difficulty by decreasing visual cues:** *Figure 39.*
   i. The site is prepared (*see Figure 39 a*).
   ii. The puppy trainer progressively removes the yellow marking tape from the right row of posts, leaving only the left side with tape and repeats the pressure-search exercise (*see Figure 39 b and c*). The gradual removal of tape from the right-hand side allows the dog to become accustomed to searching in a straight line with less visual aid.

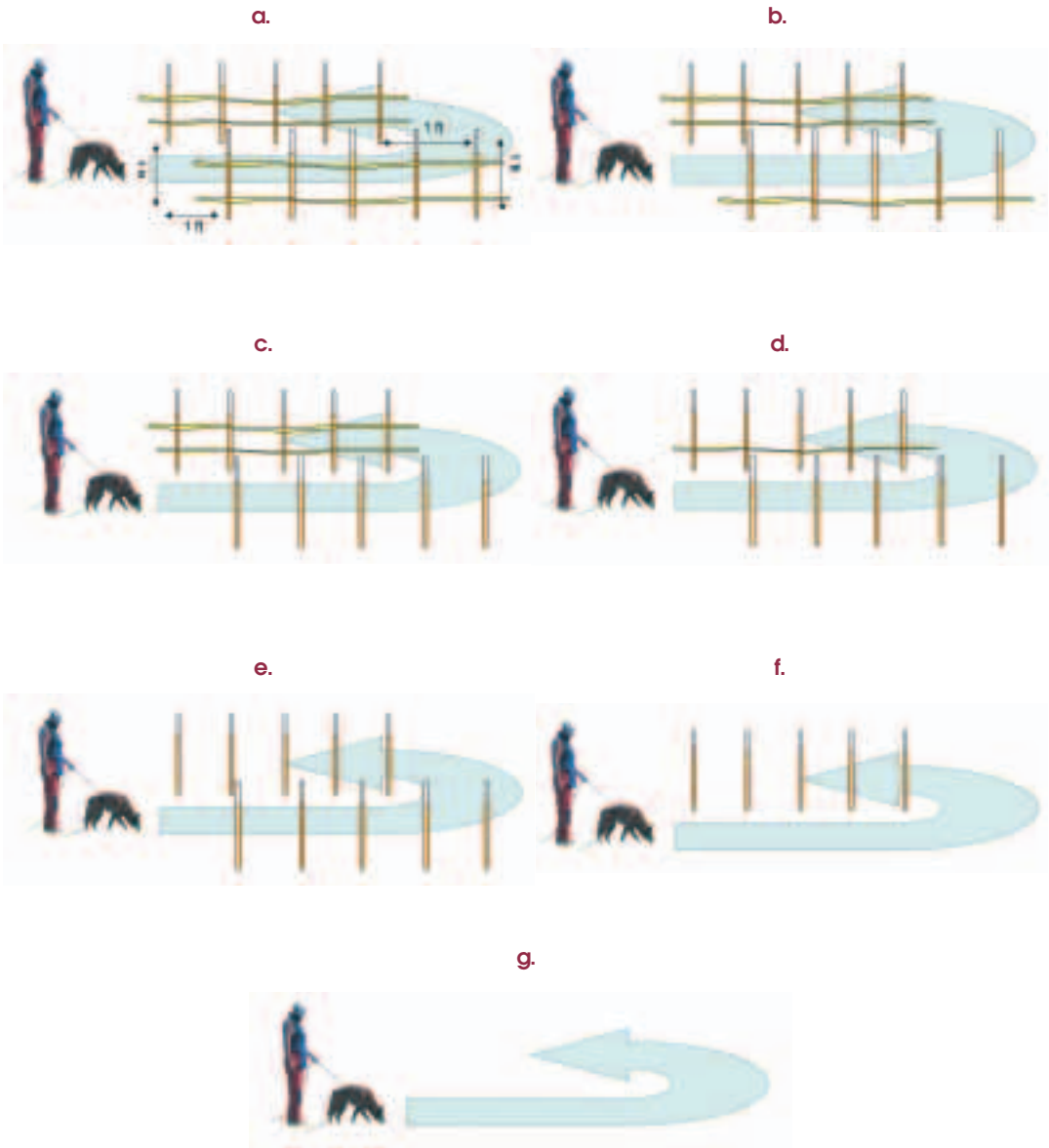
iii. The top row of marking tape is removed from the left row of pickets and the pressure-search exercises are repeated *(Figure 39 d)*.

iv. The remaining marking tape on the left row of pickets is removed and the pressure-search exercises are repeated (*Figure 39 e*).

v. The right row of pickets is removed and the pressure-search exercises are repeated (*Figure 39 f*).

vi. The left row of pickets is removed and the pressure-search exercises are repeated (*Figure 39 g*).

Figure 39. Reduction in visual cues



The progressive adjustment of the search environment allows the dog to connect the present exercise with the previous one. This is a long process and performance tends to fluctuate. It is essential that the puppy trainer is consistent and patient during training and never pushes the dog to speed up the process.

Troubleshooting

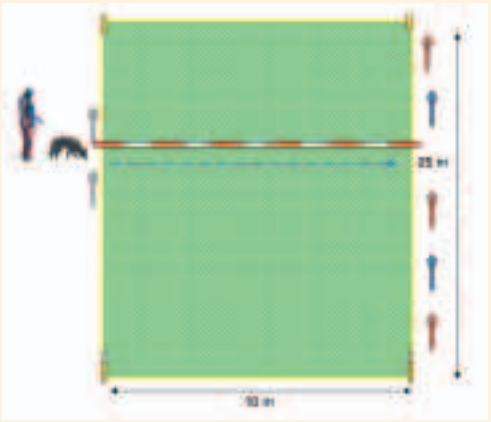
When direction and search intensity are integrated without visual cues, the dog may become confused. The assistant directs the dog by patting the ground in front of the dog and vocally instructs it to search. If confusion persists, the assistant may place the kong at the end of the lane to encourage the dog to go straight down the lane. This option is avoided, as it could teach the dog to expect the target at the end of the search lane, causing the dog to run to the end of the lane without searching.

Another method used to guide a dog after the visual cues have been removed is for the puppy trainer to create a track down the centre of the search lane where kong pieces are not laid.

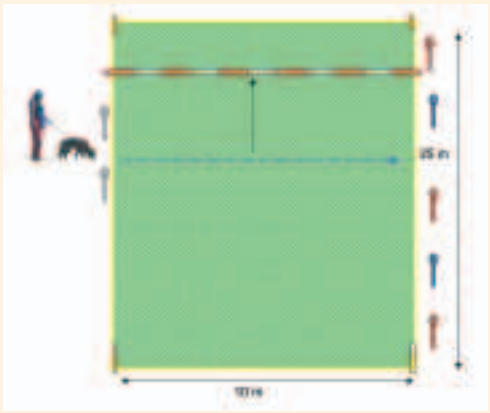
The dog will often move very quickly and may not search in a straight line. The puppy trainer and assistant do not reprimand the dog for this as the dog should eventually learn that, to detect the target and receive a reward, it needs to go slowly. After the first few runs, the dog will most likely slow its pace. Once the dog slows down, the assistant may stop the dog to repeat a section where micro-sized pieces of kong are laid. The assistant rewards the dog during trials in which the dog searches slower or begins to search the lane in a straight direction.

Another technique used to guide the dog is with a baseline (*Figure 40*). The puppy trainer places a baseline-tape 50 centimetres to the left of the lane to be searched. The puppy trainer gradually moves the tape to the left in 1-metre intervals until it is 25 metres from the search lane. The puppy trainer creates a track down the search lane by shuffling his/her feet and placing micro-sized pieces of kong in 3:2:3 combinations in areas free of track. Progressively moving the baseline tape ensures the dog does not become dependent upon the tape for guidance in direction and follows the track regardless of the placement of tape.

Figure 40. Troubleshooting



a. Use of a baseline



b. Gradual increase in distance between the baseline tape and the search lane

Reward system

Long-leashed MDDs are rewarded mainly by the assistant after correct indications or displays of good search behaviour during training exercises. To prevent the development of an association between the puppy trainer or handler and the reward, handlers or puppy trainers are discouraged from rewarding the dog by themselves. If such an association develops, the dog is apt to look to the puppy trainer or handler and not focus on the site of indication.

To allocate the reward to a long-leashed MDD, the assistant throws the kong/food to hit the spot correctly indicated by the dog. This leads the dog to expect the reward to come from the site of detection and not from the assistant and therefore the dog is trained for focused indications on the site of detection.

The primary handler occasionally rewards spontaneously during periods of good search intensity by throwing the kong in front of the working dog. This type of reward needs to be performed with perfect timing and in a very precise manner. The puppy trainer needs to be confident that the dog will not look up or walk off course prior to the reward. If the reward appears as the dog exhibits unwanted behaviours, the unwanted behaviours will be reinforced. For instance, if the dog lifts its head prior to the kong falling in front of him, the dog may lift its head more often.

Chapter 9

Short-leashed MDD training

Training a short-leashed MDD is generally easier and faster than training a long-leashed MDD. The short-leashed MDD is accompanied by the puppy trainer down the search lane along the baseline tape. Dogs that are best suited for this search pattern are those that are comfortable working close to the puppy trainer. Dogs that are distracted if accompanied by the puppy trainer may be better suited for the long-leashed search pattern.

It is crucial that the trainers are aware of their own movements and body language so as to avoid offering clues to the puppy. The puppy will very quickly learn to read its trainer and if the trainer is giving clues, the puppy will learn to depend on the its trainer.

Procedure

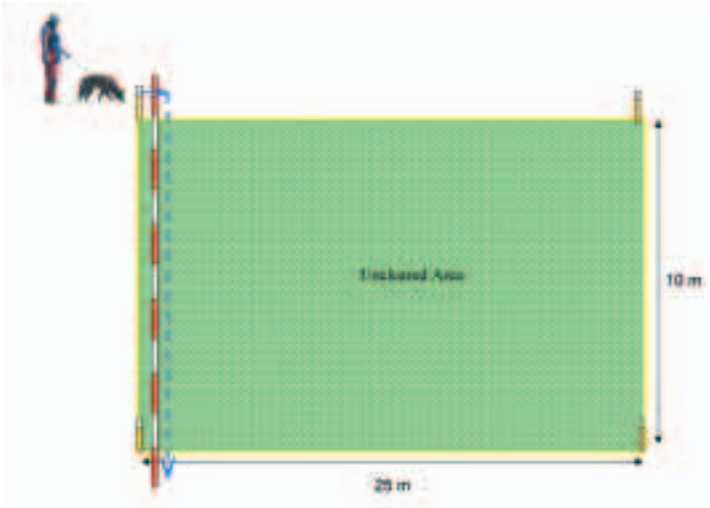
The short-leashed MDD is trained to follow the baseline. The baseline acts as a search guide and the dog will learn to follow this line in a matter of minutes. The short-leashed MDD is always accompanied by a puppy trainer via a lead, which can prevent instances of veering off course. Because the dog does not need to learn direction, training focuses mainly on pressure-searching within the 30-centimetre search-width achieved using micro-sized pieces of kong in a number of arrangements.

The puppy trainer repeats the following exercises up to 10 times per session. Each session is separated by a minimum of one hour from other training activities.

1. **Site preparation:** The puppy trainer prepares the search lane with a 10-metre baseline tape and arranges the micro-sized pieces of kong in the basic 3:2:3 combination, as in the on-ground pressure-search exercises described in Chapter 10 (*Figure 42, p. 58*).
2. **Dog preparation:** The puppy trainer and dog are positioned at 90 degrees to the tape to the start of the baseline tape (*Figure 41*). The dog sits by the puppy trainer's left leg.
3. **Begin search:** The puppy trainer leans over the dog and signals with the right hand to begin searching. The dog searches along the left side of the puppy

trainer with the baseline tape between them. The puppy trainer walks at the appropriate speed as described in Chapter 16. The lead is always slack to avoid distracting the dog.

Figure 41. Search direction of short-leashed unit



4. **During search:** Initially, the dog moves fast. For the first few trials, the puppy trainer allows the dog to go quickly and does not slow it down by pulling on the lead. Rather, the puppy trainer voices the command to slow down ("*Rolig!*") and vocally praises ("*Bra!*") the dog when it slows down naturally.
   After several trials, the puppy trainer begins to stop the dog in mid-search and leads it to an area with micro-sized kong targets. The puppy trainer often praises the dog during any improvements in search behaviour such as slowing down and searching with pressure. Correct indications are reinforced with intense activity sessions. Eventually, the dog learns that following the puppy trainer's pace is necessary for successful detection.
5. **End of search:** The puppy trainer leads the dog away from the end of the lane by turning to the right and faces back down the lane. The dog is instructed to sit while the puppy trainer moves the baseline tape 50 centimetres to the left of the box. The puppy trainer then leads the dog back to the start of the lane, with both the dog and puppy trainer walking in the cleared area. The dog does not search on the return.

Troubleshooting

Non-randomisation of target position will result in the dog learning where the targets are and will cause the dog to search only in those areas. As soon as the dog has learned that targets are present, the puppy trainer should randomise the placement of the pieces of kong. This prevents the development of an expectation of target position and trains the dog to search the appropriate width of the search lane and to search continuously throughout the lane.

Training the dog to search the appropriate width and to search continuously involves adjusting the arrangement of the pieces of kong. For dogs that search too narrowly or too widely, targets are placed, respectively, farther from (*Figure 43 a, p. 59*) or closer to (*Figure 43 b*) the baseline tape. For an erratic search pattern, pieces of kong are placed randomly to train the dog to thoroughly search the entire lane (*Figure 43 c*).

In situations where the dog becomes interested in an odour along the baseline which may or may not be of the target and stops walking to continue searching this one spot, the puppy trainer keeps moving by inching forward. The puppy trainer must not stop moving at any time and continues in a forward motion even if the movement is very small, in order to avoid signalling to the dog that it is doing the right thing. The dog must make all decisions about targets.

Rewarding techniques

Most rewards are given by the puppy trainer of the short-leashed dog, but occasionally an assistant gives the reward. The reward appears spontaneously at the site of detection.

In most instances, the reward is in the form of a kong with an attached rope. Upon a correct indication, the puppy trainer kneels beside the dog and places the kong directly on the spot of detection. To direct and keep the dog's focus on the site of detection, the puppy trainer strokes the dog with the left hand while moving the right hand over the kong. After several seconds, the puppy trainer flicks the kong forward from the dog which causes the dog to spring forward to catch the kong. The puppy trainer grabs the rope attached to the kong and plays tug-of-war with the dog for several minutes.

Chapter 10

On-ground pressure-search training

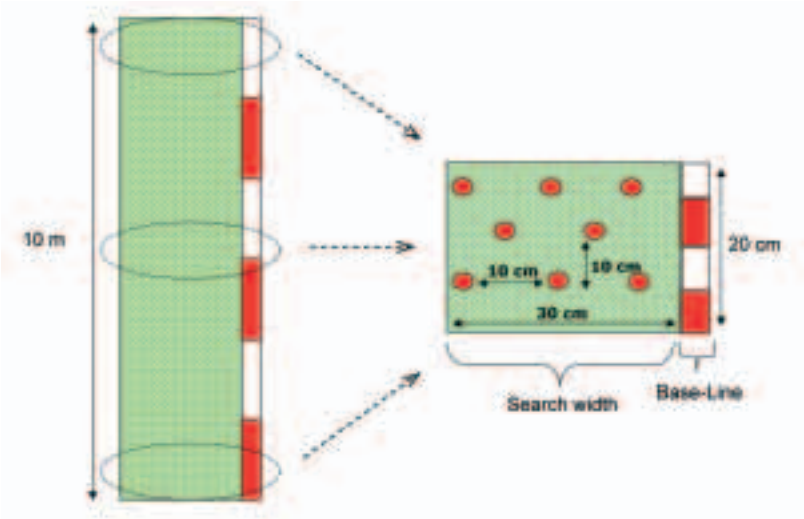
Pressure-search training is where the dog is trained to search with the nose continuously pushed onto the surface of the area being searched. Odour detection of landmines in Bosnia is extremely difficult due to factors such as high soil-moisture content, high vegetation density and heavy clay soils. Therefore, in Bosnia all NPA MDDs are required to search continuously with pressure, because this technique ensures full ground coverage and intense focus.

Procedure

The general description of the procedural steps of pressure-search that follows applies to both long- and short-leashed MDD training. How the procedures differ according to the search pattern is discussed in detail in Chapters 8 and 9.

1. **Site preparation:** Training is initially conducted in areas with dry, short and low-density vegetation. Micro-sized pieces of kong are arranged with pliers in specific combinations for placement along a search lane 10 metres long and 30 centimetres wide. During winter, the pieces of kong are arranged on 11 metres by 30 centimetres strips of carpet. The carpets are easy to maintain, washable and provide flexibility by being easily transported.
2. **Placement of micro-sized pieces of kong:** The first and most commonly used pattern of kong pieces is the "3:2:3" arrangement (*Figure 42*) in which eight pieces of kong are placed in a pattern at the beginning, in the middle and at the end of the search lane. In each pattern, the eight pieces are arranged into three rows spanning 30 centimetres across the search width and 20 centimetres along the search lane. The first row consists of three pieces, the second of two pieces and the third of three pieces. Each piece is placed 10 centimetres away from other pieces of the same row. This alignment teaches the dog the width of the search lane to be searched.
   The puppy trainer should randomise the arrangement of kong pieces to train the dog to search the entire lane continuously and to prevent anticipation of the target location.
3. **Begin search:** Initially, the search begins immediately after placement of the

Figure 42. Placement of micro-sized pieces of kong in 3:2:3 combination



kong pieces because the scent of the kong is still fresh. The puppy trainer first instructs the dog to sit and then gives the signal to search.

4. **During search:** The puppy trainer walks beside the dog down the lane. The approach builds on previously learned tracking exercises and the dog may recognise what is expected.
   At first, the dog may move extremely quickly down the lane without finding anything. A rapid search is to be expected and the dog should learn that slow searches are more successful. The puppy trainer patiently instructs the dog to search slowly, often stopping the dog and restarting the search where kong pieces have been laid. The exercise is ended before the dog becomes frustrated or disinterested, usually by rewarding the dog when it is searching well. The dog is searching well when its nose is to the ground, it is moving slowly, taking deep breaths and wagging its tail. Ending the exercise by rewarding good behaviour reinforces that behaviour for next time and ends the session on a positive note.
   It may take several days for the dog to find its first target, but the procedure is repeated rigorously giving the dog minimal support. It is essential that the dog find the pieces of kong on its own.
5. **Indication:** When the dog has detected the target but has not yet indicated by sitting, the puppy trainer continues to move slowly forward. If the dog does not sit after several moments, the puppy trainer instructs the dog to continue searching. If the dog sits, the puppy trainer rewards the dog. The dog must learn to indicate without any instruction from the puppy trainer.
6. **Rewarding:** There are two common ways to allocate a reward upon correct indication of a target:
   i. The puppy trainer kneels beside the dog and points with the right hand to the site of detection to get the dog to focus on the site, then drops the kong directly on the site of detection with the left hand and initiates an activity session.
   ii. The puppy trainer kneels beside the dog and places the kong directly on the site of detection for several seconds, flicks the kong in a forward motion away from the dog and then initiates an activity session.

7. **Empty lanes:** The puppy trainer runs the dog on empty lanes randomly throughout the session. By having empty lanes to be searched during the session trains the dog from expecting to find something every time, which will reduce the occurrence of taking chances.
8. **Increasing difficulty:** When the dog displays good search intensity and detects the targets reliably, the puppy trainer gradually increases the difficulty level. Search lanes are made in areas of progressively denser and higher vegetation and the time between the laying of the kong pieces and the beginning of the search is increased.
   The ultimate aim of these exercises is for the dog to perform a perfect search along the entire baseline and to be able to repeat this performance.

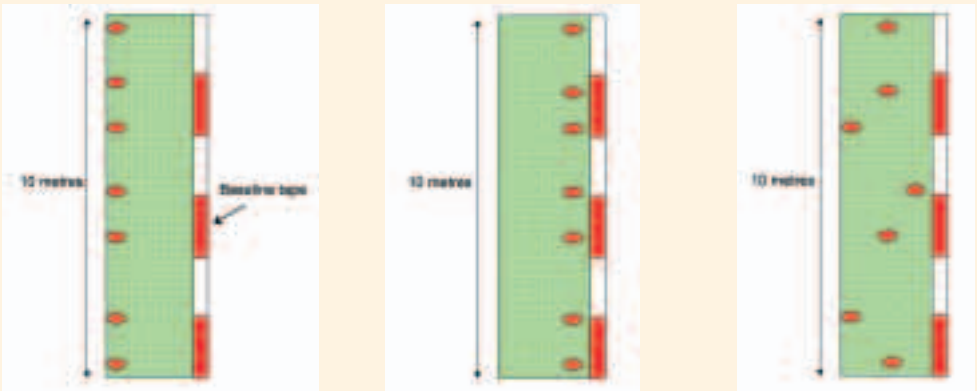
Troubleshooting

Two common challenges are:
1. the dog does not search the correct width;
2. erratic search — the dog does not search continuously down the search lane.

These problems are corrected by adjusting the pattern of kong pieces. For dogs that search too narrowly or too widely, targets are placed farther from the baseline or closer to the baseline respectively (*Figure 43 a and b*). If the search is erratic, when the dog does not search certain sections of the lane, the pieces are placed more randomly to train the dog to search the entire lane (*Figure 43 c*).

If the dog stops walking to search an odour, the puppy trainer keeps walking slowly forward. It is important for the supplier to continue in a forward motion even if the movement is very small, so that the dog does not interpret the puppy trainer stopping as a clue.

Figure 43. Modifying the placement of micro-sized pieces of kong



a. Correcting a search which is concentrated on the baseline

b. Correcting a search which is concentrated away from the baseline

c. Correcting an erratic search

Chapter 11

Carousel training

The carousel is a rotating apparatus that was incorporated into the NPA Bosnia MDD training programme in 1999 (*Figure 44*) and is among the key elements in the School's training programme. The carousel was developed to present odours of target substances to the dog for imprinting and to increase search pressure.

This apparatus uses a "multiple-choice " concept, with a series of containers (stainless steel cups) arranged in a circle. Each stainless steel container has a set of three holes just below (~1 centimetre) the top and just above (~1 centimetre) the bottom *(Figure 45).* A glass container is placed inside each stainless steel container and holds a combination of non-target objects (dummies). This multiple-choice concept is based on the premise that only one of the steel containers will hold the target substance, while all other containers are either empty or hold non-target objects. The dog walks around the circle once per session, sniffing at each container.

Figure 44. Carousel apparatus

Figure 45. Steel container

The pup is introduced to the carousel at approximately six months of age, but the concept of carousel training is earlier introduced during searching activities using vehicles, woodpiles, piles of brick or searching along a wall. The carousel is an off-

ground pressure-search training tool. Micro-sized pieces of kong are used as the primary target odour. The dog learns to walk around the carousel, sniffing at each cup as it is encountered.

Preparation and maintenance of the carousel

All equipment associated with the carousel must be decontaminated prior to use. Contamination by just one fingerprint, a single hair fibre or any other foreign substance can defeat the entire exercise, because the dog can learn to use such contamination as a clue signalling the location of the target.

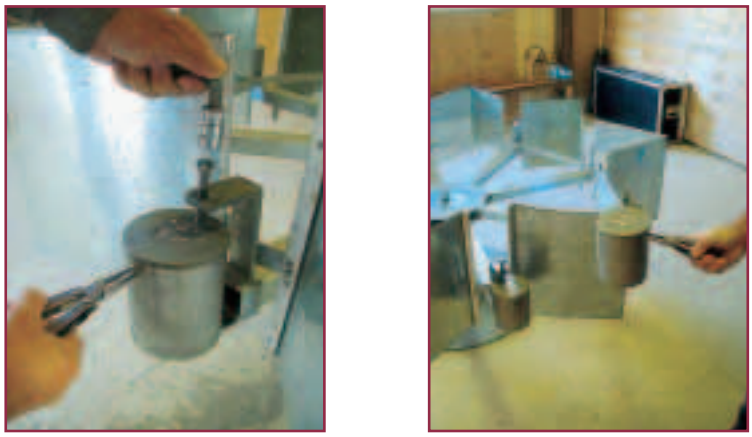
The carousel room should be isolated, constructed of material that is easily disinfected, and equipped with temperature control. Material such as wood, which readily adsorbs fine particles, should be avoided in the carousel room. The optimal room temperature is 21 to 23°C. The target substances and decontaminated equipment should be stored in separate rooms adjacent to the carousel room. All of the carousel apparatus is constructed of stainless steel, making it resistant to corrosion and easy to decontaminate.

Decontamination

An autoclave (a sealed washing unit that uses boiling water) is the optimal method for decontamination of the equipment. Plastic gloves are worn when handling all carousel equipment.

Each stainless steel container is fastened to the device via a nut and bolt through the lid of the container. To avoid contamination, the puppy trainer uses a pair of pliers to grip the steel container and a steel tool to unscrew the nut *(Figure 46).* The puppy trainer never touches any part of the apparatus.

Figure 46. Preparation of the equipment for decontamination



Once the steel container has been removed from the main apparatus, the puppy trainer washes the steel containers, lids and glass containers first with acetone and then with boiling water via dishwasher. All containers and lids are left to air-dry and cool on a sterilised tray for 10 minutes. Each stainless steel container is replaced using sterilised tools and the same method as when they were removed. All glass containers are disposed of after one use with the carousel.

Preparation of non-target substances

Non-target substances

Non-target substances are objects the dog may encounter during operational searches, such as rocks, dirt, iron, grass, etc. These targets are collected from areas away from the School and are handled using plastic gloves. The non-target items are stored in separate airtight stainless steel containers. Random combinations of the non-target objects are placed into each of the glass containers, which is placed inside the stainless steel containers (*Figure 47 a, b, c*).

Figure 47. Non-target substances

a.

b.

c.

Preparation of target substances

Kong

The kong targets are prepared by slicing tiny pieces from a kong. These slices are then cut into smaller and smaller pieces, until each piece has reached the micro-sized standard *(Figure 48).* Another method is to use a cheese grater to produce the pieces. This is extremely tedious work, but it is essential that the pieces are never larger than micro-sized. A micro-sized piece of kong is placed into one of the glass containers already prepared with non-target substances.

Figure 48. Micro-sized pieces of kong

Carousel training methodology

The principle behind the imprinting of targets is to begin with the most difficult task. Initially, only one or two pieces of kong are placed in one of the glass containers. Beginning with the most difficult level saves time in establishing the dog's current scent detection threshold. The dog is trained to search with pressure, because the dog must push its nose directly onto the surface of the containers to detect the micro-sized pieces.

Once the dog can consistently detect two or three micro-sized pieces of kong inside the containers, it is ready to begin imprint training (*Chapter 13*) of operational targets (explosives, pieces of mine).

One arm of the carousel is randomly chosen to hold the container with the target. This arm is marked with a piece of tape obscured from the dog's view so that the puppy trainer can recognise the location of the correct container after the carousel has been rotated.

The time between the placement of the target in the container and the beginning of the exercise depends on factors such as room temperature and humidity. At 21 to 23°C the dog is brought into the room 10 minutes after placement of the target, giving enough time for odour to stabilise in the container and begin to escape through the holes.

Procedure

Carousel training is done in conjunction with on-ground pressure-search training *(Chapter 10).* Directly after a correct indication on the carousel, the puppy trainer initiates on-ground pressure-search training in a training field. The carousel and on-ground pressure-search exercises are repeated two or three times a day with a minimum of two hours between sessions.

1. **Non-target placements:** Prior to the dog entering the carousel room, random combinations of non-target substances are placed into each glass container.
2. **Target placement:** Before the dog enters the room, the target pieces are placed into one of the glass containers. All glass containers are placed into the steel containers using sterilised-steel handling instruments. One or two pieces are used initially and the number in a container is increased if the dog consistently misses them.
3. **Dog enters room:** The puppy trainer leads the dog into the carousel room. The dog is kept on the lead throughout the initial exercises.
4. **Calming dog:** The dog is instructed to sit on the puppy trainer's left to calm down before focusing on the search. The dog is usually excited when first entering the room so the puppy trainer calms the dog by stroking and patting it in a soothing manner.
5. **Begin search:** The puppy trainer gives the hand signal and vocal command to search and leans over the dog towards the carousel.
6. **During search:** The puppy trainer leads the dog with the left hand to the closest container and gestures with the right hand where to search on the container. The puppy trainer never physically touches the containers or any part of the carousel.

The puppy trainer leads the dog around the carousel in a counter-clockwise direction *(Figure 49)* until all containers have been searched. The counter-clockwise direction allows the puppy trainer to hold the lead in the left hand, while leaving the right hand free to gesture where the dog should search. The puppy trainer controls speed, tempo and pace by keeping the body in front of the dog.

Figure 49. Carousel training: counter-clockwise direction

The cycle is not repeated within the same session. When starting the next session, the decontaminated carousel is rotated. By rotating the carousel, the position of the target is not predictable.
To avoid contamination, the puppy trainer uses a steel tool to rotate the carousel. The person rotating the carousel should avoid looking at the target position. Experience has shown that some dogs identify the correct container by observing the person, rather than by searching and detecting.

7. **Indication:** When the dog shows "positive " interest towards a correct container, the puppy trainer continues to move, inching forward until the dog indicates by sitting and focusing intently on the container *(Figure 50)* before rewarding the dog. Positive interest is defined as an increase in tail wagging, perky ears, licking the container and heavier intakes of breath.

Figure 50. Proper indication

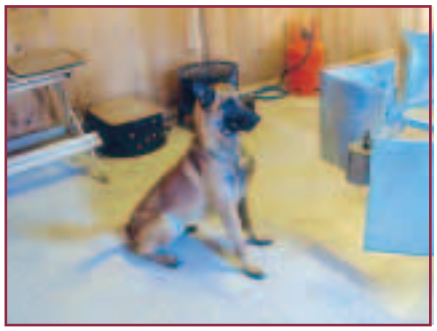


Figure 51. Rewarding

If the dog does not sit but maintains interest in the correct container, the puppy trainer calls the dog away from the container, rotates the carousel and repeats the cycle only ***once.*** If the dog shows interest in the same container during the second cycle but still does not sit, the puppy trainer ends the exercise without rewarding the dog.

Upon correct detection and proper indication, the puppy trainer maintains the dog's focus on the container and then rewards the dog with a kong *(Figure 51)* and initiates pressure-search training on the ground in a field. The carousel trial is ***not*** repeated after a correct indication because the dog may take chances or leave a signature on the container.

8. **After search:** All glass containers and contents are disposed of. All stainless steel equipment is decontaminated.

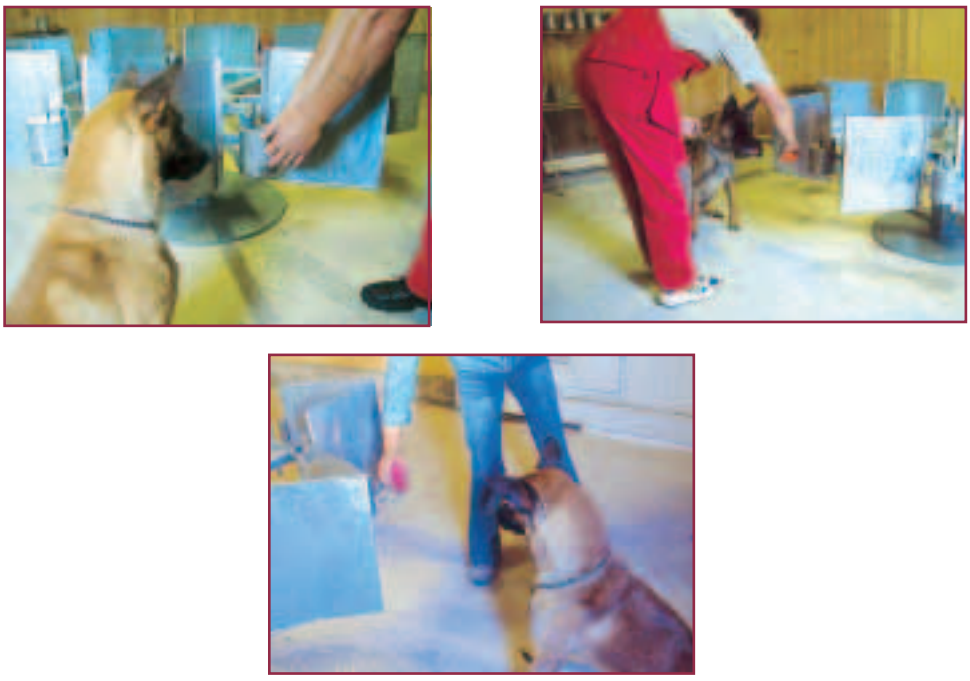
Procedures in rewarding in carousel exercises

In most instances, the reward used during the carousel training is an activity session of play-fighting with the kong attached to a rope. This form of reward builds the dog's motivational drive for the kong. The kong is kept visually hidden from the dog in a place that allows quick access for the puppy trainer so that the reward can be given with precise timing. The puppy trainer most commonly holds the kong under the left armpit. This allows the puppy trainer to point to the spot for the dog to focus on with the right hand, while lifting the left arm for the kong to be dropped for the dog to catch.

Sessions of play-fighting with the kong are not used as a reward with dogs that display an easily overexcited motivational drive *(Chapter 1).* As they are already highly excited, any added active stimulation could cause them to become overexcited. A food reward is used with these dogs.

A support person occasionally allocates the reward. Upon correct indication, the puppy trainer points to the holes on the correct container to get the dog to focus on this site while the support person throws the kong/food to that site. Alternating the person allocating the reward prevents the development of an association between the puppy trainer and the reward, which focuses the dog's attention on the container not the puppy trainer.

Figure 52. Positioning of kong for reward



To focus attention on the site of detection, the puppy trainer takes the kong or food item and holds it level to the holes of the container which the dog correctly indicated *(Figure 52)*. The placement of the reward item is important, as it trains the dog to focus on the container by teaching to expect the reward from that area. The puppy trainer then drops the reward and begins an activity session.

Exceptions and troubleshooting in carousel training

1. During initial trials, the young dog may not know what to do and will perform very badly, barking or whining at the carousel and jumping onto it. In these situations, the puppy trainer calms the dog down by instructing it to sit for several minutes before continuing.
2. If the dog is still confused after several trials, an assistant takes the kong and shows it to the dog at the beginning of the trial. While the dog watches, the assistant moves to each container and holds the kong level to (but never touching) the holes of the container. The puppy trainer distracts the dog to prevent it from seeing the assistant placing the kong under the left armpit. These activities guide the dog to search each of the containers. When the assistant has the dog's attention again, he/she pretends to place the kong in one of the containers and then show the dog his/her empty hands.
3. If the dog fails to detect the target, the number of pieces of kong in the container is increased.
4. A dog that repeatedly indicates incorrectly or randomly after several trials may be gambling, or attempting to gain the reward independently of the task. As the dog is showing motivation, the puppy trainer may add one or two more pieces of kong to the container. If the dog continues to indicate incorrectly after several more trials, the puppy trainer discontinues the exercise for a minimum of half a day without giving a reward. The exercise should end while the dog is still motivated and before it becomes frustrated or loses interest in the exercise.
5. If the dog increases its speed around the carousel, the puppy trainer slows it down by walking in front of the dog while vocally instructing the dog to slow ("*Rolig!*"). When the dog performs at a slower speed and thoroughly investigates each of the containers, the puppy trainer vocally praises the dog.
6. If the dog is not performing the indication response properly, the puppy trainer (or assistant) holds the kong level with the correctly identified container. The dog is not instructed to sit because the response needs to be given spontaneously. However, the dog should already associate the kong with the sit response from earlier exercises. Only upon sitting is the dog rewarded with the kong through sessions of play-fighting and vocal praise. If the dog does not sit after several seconds, the puppy trainer instructs the dog to continue searching.

Chapter 12

Internal assessment process, testing and policy

The Global Training Centre (GTC) monitors the training progress of each dog by conducting and documenting daily, weekly and monthly internal assessments of each dog. These internal assessments are aimed at improving the performance of each dog by identifying each dog's strengths and weaknesses, and by preparing a training programme modified for the individual dog. An achievement test is conducted on the last Wednesday of every month (*Figure 53 overleaf*).

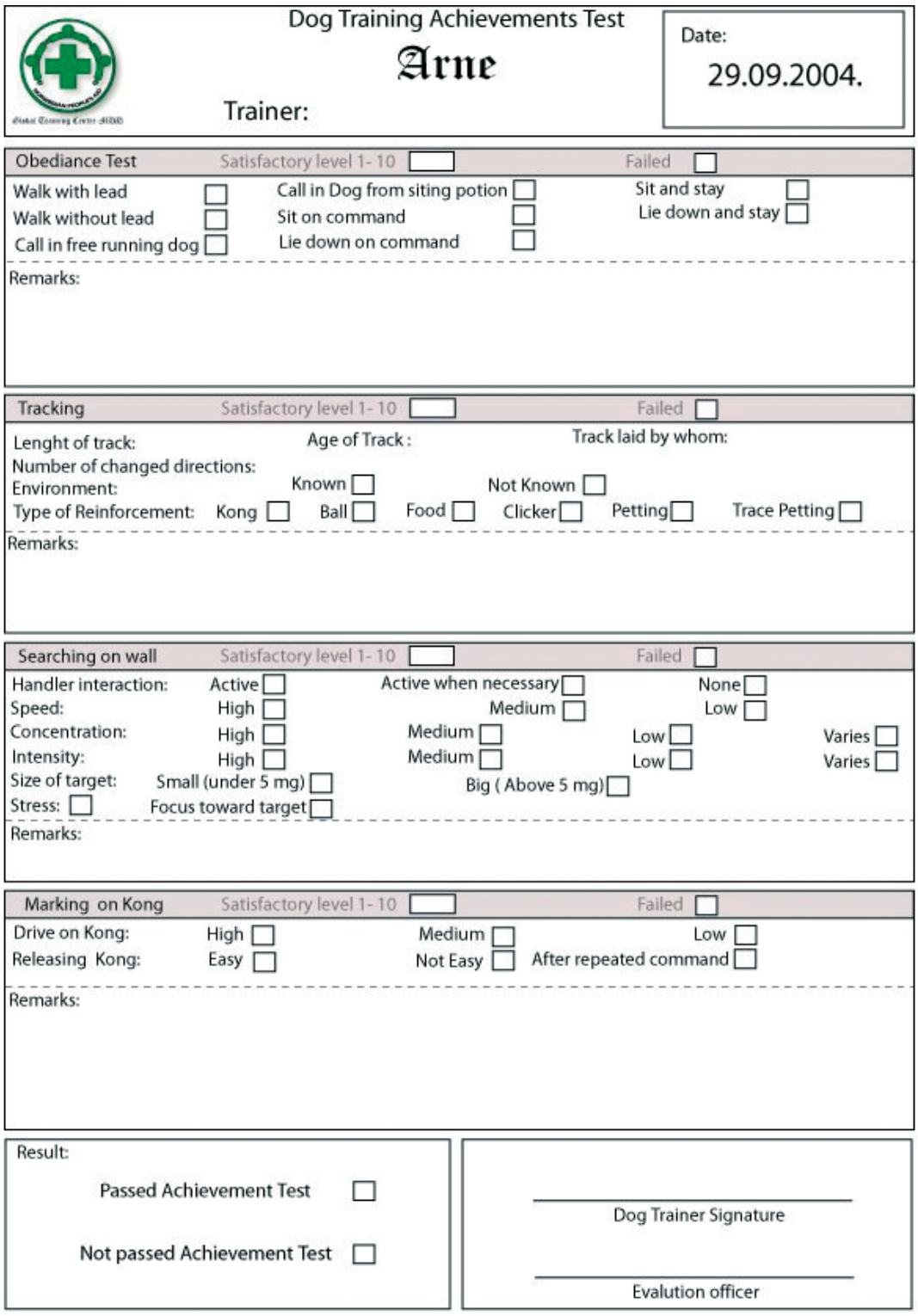
During the internal monthly assessment process, dogs are tested twice. The first test is conducted with the puppy trainer present to determine the dog's ability in a secure and familiar surrounding. The second test is conducted without the puppy trainer present. This second test measures the dog's skills in the absence of the comfort and security provided by the puppy trainer to determine its likely behaviour upon working with a new trainer or handler.

Both the technical requirements for the dogs' performance and the test specifications are outlined below.

Requirements for tracking

- The test location is to be unknown to the dog and is chosen by the NPA MDD GTC Assessment Officer.
- The dog is required to search, locate and indicate on "microscopic" pieces of kong in a variety of environments, such as grass, soil, sand and gravel. The pieces must be camouflaged with grass and/or leaves.
- Wrongful indication to, or becoming distracted by, purposely-created ground disturbance in the test area is unacceptable.
- The long-leashed dogs are tested in boxes of 10 x 10 metres. The dog is required to search for a minimum of 30 minutes. The dog and puppy trainer are allowed a five-minute break per 20 minutes of searching. The School's Assessment Officer focuses on the dog's speed, accuracy, intensity, focus and direction.
- The short-leashed dogs are tested on a minimum of 20 lanes and a maximum of 40 lanes of 10 metres in length. The dog and puppy trainer are allowed a

Figure 53. Sample of the Monthly Achievement Test Form



Dog Training Achievements Test

Trainer: Arne

Date: 29.09.2004.

Obediance Test Satisfactory level 1- 10 ☐ Failed ☐

Walk with lead ☐ Call in Dog from siting potion ☐ Sit and stay ☐
Walk without lead ☐ Sit on command ☐ Lie down and stay ☐
Call in free running dog ☐ Lie down on command ☐

Remarks:

Tracking Satisfactory level 1- 10 ☐ Failed ☐

Lenght of track: Age of Track : Track laid by whom:
Number of changed directions:
Environment: Known ☐ Not Known ☐
Type of Reinforcement: Kong ☐ Ball ☐ Food ☐ Clicker ☐ Petting ☐ Trace Petting ☐

Remarks:

Searching on wall Satisfactory level 1- 10 ☐ Failed ☐

Handler interaction: Active ☐ Active when necessary ☐ None ☐
Speed: High ☐ Medium ☐ Low ☐
Concentration: High ☐ Medium ☐ Low ☐ Varies ☐
Intensity: High ☐ Medium ☐ Low ☐ Varies ☐
Size of target: Small (under 5 mg) ☐ Big (Above 5 mg) ☐
Stress: ☐ Focus toward target ☐

Remarks:

Marking on Kong Satisfactory level 1- 10 ☐ Failed ☐

Drive on Kong: High ☐ Medium ☐ Low ☐
Releasing Kong: Easy ☐ Not Easy ☐ After repeated command ☐

Remarks:

Result:

Passed Achievement Test ☐

Not passed Achievement Test ☐

Dog Trainer Signature

Evalution officer

five-minute break after 10 minutes of searching. The School's Asessment Officer focuses on the dog's speed, accuracy, intensity, focus and the search width along the baseline.

- The dog is required to be leashed.
- The dog is required to indicate positive targets by sitting.
- The command word used by the puppy trainer to instruct the dog to search must be "*Søk!*".

The following marking scheme is used to assess the dog's tracking performance:

Criteria	Good	Adequate	Failed
1. The environment:	• Performs in all tested environments without becoming distracted.	• Becomes a little distracted in small segments of the search.	• Stops searching due to changes in the environment.
2. The search:	• Begins search on command. • Displays the correct speed, intensity, focus, stamina and endurance throughout the search.	• Requires support and guidance from the puppy trainer. • Absence of desired stamina and endurance during the search.	• Lack of under-standing for the task. • Does not possess the desired stamina and endurance to fulfil a minimum search of 20 lanes. • Requires support from the puppy trainer several times during the search. • Digs during a search.
3. Indication behaviour:	• Indicates the target substance correctly. • Remains focused until the reward has been allocated.	• Indicates the target substance but sits at an angle to the baseline. • Requires support from the puppy trainer to stay focused.	• Requires help from the puppy trainer several times. • Does not indicate on the required number of target substances • Displays a lack of concentration. • Digs, barks or licks. • Indicates correctly but reverses in anticipation of the reward.

Requirements for interaction

- Correct walk with leash.
- Correct walk without leash.
- Sit on command.
- Sit on command at a minimum distance of 10 metres.
- Lie down on command.
- Returns on command when running free.
- Returns on command from a sitting position at a minimum distance of 10 metres.

The following marking scheme is used to assess the dog's obedience performance:

Criteria	Good	Adequate	Failed
1. Walk with leash:	• Correctly follows puppy trainer on command. • Remains on puppy trainer's left side during normal walk and during change of direction and pace.	• Requires some support from the puppy trainer during segments of the exercise.	• Displays little understanding for the exercise. • Requires support from the puppy trainer during most of the exercise.
2. Walk without leash:	• Correctly follows puppy trainer on command. • Remains on puppy trainer's left-side during normal walk and during change of direction and pace.	• Requires some support from the puppy trainer during segments of the exercise.	• Displays little understanding for the exercise. • Requires the support from puppy trainer during most of the exercise.
3. Sit on command:	• Responds quickly and performs correctly on the command.	• Responds slowly. • Requires a second command.	• Does not respond. • Requires repeated commands.
4. Lie down on command:	• Responds quickly and performs correctly on the command.	• Responds slowly. • Requires a second command.	• Does not respond. • Requires repeated commands.
5. Return on command when running free:	• Responds quickly and performs correctly on command.	• Responds slowly. • Requires a second command.	• Does not respond. • Requires a lot of help from the puppy trainer.

Requirements for carousel searching

- Searches intensely.
- Indicates by sitting and remaining focused on the correct container with the target substance.
- The dog is off-leashed during the search.
- The positive target substance tested for is one micro-sized piece of kong.
- The command word used by the puppy trainer must be "*Søk!*".

Criteria	Good	Adequate	Failed
1. Searching behaviour:	• Begins search on command. • Searches each container.	• Requires minimal support from the puppy trainer .	• Displays little understanding for the task. • Requires correction or support from the puppy trainer several times.
2. Indication behaviour:	• Indicates on correct container by sitting. • Remains focused on correct container.	• Passes the target container two to three times prior to indicating.	• Intensely licks, bites, barks or scratches at the containers. • Passes the container with the target four times without indicating.

Policy

Upon completion of the tests, the results are finalised. Dogs rated as "Good" in all tested events are selected first.

Failed dogs that show potential but require further preparation may be retested within two months.

Section IV

MDD training programme

The MDD training programme consists of three main training processes; imprint training towards operational targets (*Chapter 13*), physical endurance training and maintenance and development training (*Chapter 14*), and transfer preparation training (*Chapter 15*) for selected MDDs for transfer to other NPA centres.

Chapter 16 provides details of NPA MDD handlers in Bosnia and Herzegovina and describes the selection criteria for recruiting handlers, training philosophy, the MDD handler training course, issues related to the matching of an MDD unit and the training of handlers for short- and long-leashed search patterns. Chapter 17 provides details of the School's MDD trainers and describes the skills required, objectives and responsibility of MDD trainers and the MDD trainer training course.

Timeline

MDD training programme: ***18 months +***

Activities:

- imprint training:
  - carousel training,
  - indoor sandbox,
  - training fields;
- maintenance and development training;
- endurance training;
- transfer preparation from NPA MDD GTC.

Chapter 13

Imprint training

Imprint training is a three-stage process used to train dogs to detect operational targets, one target at a time:

- stage 1 uses the carousel;
- stage 2 uses the indoor sandbox;
- stage 3 involves training for detection of the same target in the training field.

The first two stages are implemented in sequence, two to three times a day. As soon as the dog detects a target in the carousel, it is brought to the indoor sandbox to train for the same target. The objective is for the dog to link the odour of the target from the carousel exercises with the odour of the mines in the indoor sandbox. The third stage begins once the dog is consistently detecting the target in both the carousel and sandbox exercises.

Operational targets consist of explosives from anti-tank mines, anti-personnel mines and grenades. Micro-sized pieces of explosive are introduced by first placing it in one of the glass containers containing a micro-sized piece of kong and non-target substances (*Chapter 11*). Once the dog is consistently detecting the correct container, the micro-sized piece of kong is removed. Dogs to be transferred to another country will be trained for the types of mines located in that country.

A key principle behind imprinting is to begin with a very difficult detection problem (one or two pieces of target). If the dog cannot detect this minimum target after several trials, the level of difficulty is decreased by gradually increasing the number of pieces of target until detection is achieved. Once detection is working reliably, the level of difficulty is increased by decreasing the number of pieces of target. Beginning with the most difficult level not only saves time in identifying the dog's scent detection threshold, but also ensures that the dog works at the lower limit of odour concentration from the beginning.

Carousel

The carousel is of the same construction as that used during the puppy programme *(Chapter 11).*

Preparation and maintenance of the carousel

The carousel is maintained as described in Chapter 11.

Decontamination

The method of decontamination is as described in Chapter 11.

Preparation of target substances

Explosives

The dogs are trained to detect TNT explosive from anti-tank mines, anti-personnel mines, and grenades *(Figure 54*). The explosive is broken into tiny pieces, stored in separate airtight containers and left for at least 24 hours. Allowing the explosive to settle for a period increases the level of difficulty of detection.

Figure 54. Explosive target material

Carousel training methodology

The procedures and methodologies are the same as those used during the puppy programme *(as described in Chapter 11).*

Reward procedures during carousel exercises

The reward procedures during carousel exercises are the same as those used during the puppy programme described in Chapter 11.

Exceptions and troubleshooting to carousel training

The exceptions and problems encountered are similar to those encountered during the puppy programme and are described in Chapter 11.

Indoor sandboxes

The indoor sandboxes were built in January 2002 (*Figure 55*). Half the ceiling is completely covered and half is sections of window. This gives a variation in interior environment as the proportions and distribution of shade and sun vary throughout the day.

The sandboxes have a floor-heating and drainage system. Adding water to these two systems creates vaporisation which is thought to increase the availability of odour from sub-surface targets. Drier and warmer climates can also be simulated when preparing the dog for transfer to such areas. These preparations reduce the

time required for the dog to acclimatise to new environments. The indoor sandboxes are also used for training dogs during unfavourable weather conditions and during the winter.

Figure 55. Indoor sandboxes


Target set-up system

Eleven-metre lanes containing three to five mines per lane are established in the indoor sandbox. Different types of landmines, with and without explosives, are placed at different depths in the gravel and sand. The room also has areas for training on empty lanes and on lanes with micro-sized pieces of kong and/or pieces of target.

Training methodology

Preparation

The lanes to be used in the indoor sandbox are prepared prior to the training in the carousel room so that the trainer can begin training in the sandbox immediately after success in the carousel room.

1. The trainer ensures the gravel is "clean" and free of any contaminants from previous exercises. If time allows, at least six hours prior to use, the area is saturated with water and drained to remove any contaminants. The gravel and sand are removed. Fresh gravel and sand are evenly raked over the entire search lane. Preparation several hours before use allows the sand particles to settle.
2. The trainer prepares one empty lane by placing a baseline tape along the length of the 1-metre lane. Using this lane prevents the dog from learning to expect to find a target every time it is in this room. If the dog expects to find a target in every lane, then the dog may give false indications near the end of a lane if no target is detected, in the hopes of receiving a reward.
3. One lane is prepared with surfaced-placed targets. In the initial trials, three to four targets are usually placed in a row spanning the 50-centimetres search width.
4. Several lanes are permanently prepared with different mines placed at different depths. To train for a new type of mine, the mine must be placed and soaked for a minimum of seven days before training begins.

Procedure

1. The trainer brings the dog to the sandbox directly after a correct indication in the carousel room.
2. The trainer randomly chooses one of the types of lanes and begins the search from either end. This randomisation trains versatility and prevents familiarity with the training area.
3. The dog searches the lane according to its trained search pattern (short- or long-leashed).

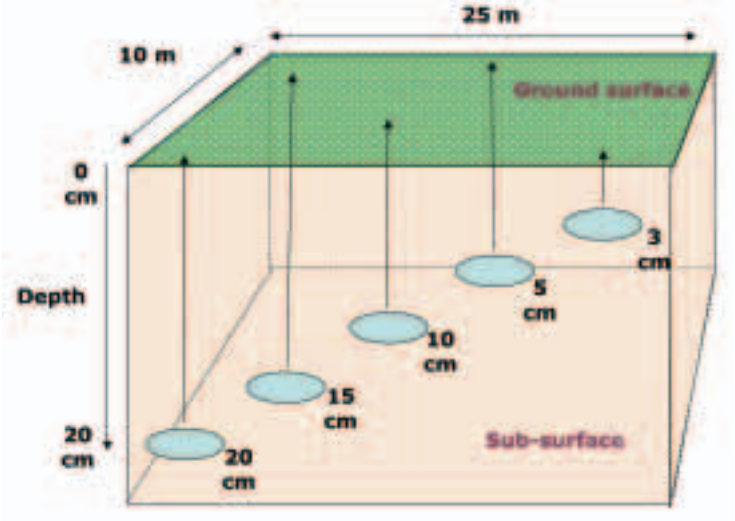
Troubleshooting

Common challenges encountered during training in the sandbox are similar to those encountered during long- and short-leashed MDD training and pressure-search training, and are described in Chapters 8, 9, and 10, respectively.

Training fields

Training fields are divided into 10 x 25-metre boxes. The boxes contain different quantities of a variety of mines, with and without explosives, planted at varying depths. Having boxes with different types of mines at different depths allows for randomisation, which prevents the dogs from learning what or where to expect the mines. The mines are between 3 to 20 centimetres below the surface (*Figure 56*). Mines are placed deepest at the starting point, so the dogs are faced with the most difficult scenarios first.

Figure 56. Positioning of targets in training field boxes



After consistent successful indication of the target in the sandbox, the dog begins training in the training field with the same type of target.

Procedure

1. **Site preparation**: The trainer prepares the site in accordance with the search pattern of the dog. Initial trials are conducted in areas of low-density vegetation.

2. **Dog preparation**: The dog is prepared in accordance with its search pattern.
3. **Search**: Initially, the dog searches only a few lanes at a time. The number of lanes searched is gradually increased in relation to performance. The dog should not be pushed to search too many lanes at this stage of training and work should stop while the dog is searching enthusiastically and before it gets tired.

Troubleshooting

If necessary, the dog can be helped to link these searching contexts by placing tiny pieces of the target used in the carousel and sandbox on the surface of the field.

If a dog misses a target, the trainer completes the lane and then repeats the lane. Repeating the lane indicates to the dog that something may have been missed and that it needs to work harder to detect it. If the dog again misses the target, the trainer stops the search about 50 centimetres after the target and repeats the search either from the beginning or 50 centimetres before the target.

A common challenge when working with dominant or strong-willed dogs is that they start the search before the trainer instructs them to begin. The implication for the dog that *it* is in control can become a problem if not corrected immediately. The dog must always wait for the signal and never be allowed to begin the search without being given the signal. If the dog begins without receiving the signal to start, the trainer stops the dog by firmly tugging on the lead, vocally reprimands the dog with "*Nei!*" and begins the exercise again. If the dog repeatedly attempts to start the search without waiting for the signal, the trainer will initiate some basic interactive training.

If the dog lifts its head, or is not searching intensely, or begins to increase speed, the trainer makes the dog stop and repeats the section in which the inappropriate behaviour occurred.

Frequently a dog will become interested in a scent and sniff the spot without indicating for several seconds. The dog may not indicate immediately either because it is unsure if the scent is of a target or because it is interested in the scent even though it is not of a target. During long-leashed MDD training, the assistant instructs the dog to continue searching past the place of interest regardless of whether there is a training target present at that spot. Likewise, the short-leashed dog handler continues their pace and instructs the dog to continue searching past the area of interest. During training exercises, the trainer does not allow the dog more time because the dog must be able to identify the target without difficulty. Furthermore, if the trainer were to allow the dog more time, the dog may begin to rely on the handler for clues.

Chapter 14

Maintenance and developmental training

Physical stamina and endurance training

Intense endurance and physical stamina training is conducted daily so that the MDD can perform at peak fitness.

The form of exercise in the off-season is dictated by the weather. Such activities consist of:

- having the dog run next to the handler riding a bicycle. These exercises last a minimum of one hour but no longer than two-and-a-half hours;
- walking for a minimum of three hours; or
- mountaineering in natural terrain for a maximum of three hours.

Throughout the mine clearance season the off-season activities are still conducted but the main exercise is swimming which:

- works and builds the dog's muscles, endurance level and cardiovascular system without stressing the joints or spine as is common in activities such as running, jumping and hiking;
- has been shown to increase the MDD's productivity by 25 per cent: the dogs can search for longer while still at their peak performance levels;
- lowers the dog's body temperature on hot days; and
- is time efficient compared to walking, running or mountaineering.

Swimming takes place in an outdoor circular pool with a four-post rotating axis extended over the pool (*Figure 57)*. The dog's lead can be attached to one of the posts, which allows four dogs to use the pool simultaneously while keeping them apart. The pool is emptied and sterilised every two to three days during the spring, summer and autumn. The pool is not used in winter.

Swimming is daily for an hour at a time. When introducing and re-introducing the dogs to the exercise, the full hour is achieved gradually by increasing the time in 10-minute increments each week, starting with just 10 minutes for the first week.

During the swimming, the dog wears a lead which may or may not be attached to one of the posts. Once the dog is in the pool, the trainer either holds the dog's lead or holds a rope attached to one of the posts and alternates between walking and running in three-minute intervals around the edge of the pool. The trainer constantly monitors the dog or dogs: if at any time they start coughing or struggling, the trainer must stop the exercise and take the dog out of the pool.

Training alternates between three-minute intervals of slow and fast swimming. The session finishes on a fast-swimming interval. The slow pace for individual dogs is determined by allowing the dog to swim at its own pace, with the trainer walking beside the dog. The fast pace is double the slow pace. The slow and fast pace of swimming must be defined by each dog's swimming ability. Each dog has its own slow and fast pace.

Figure 57. Swimming pool

MDD maintenance and development training

Maintenance training is designed to *maintain* the MDD's level of skill, while development training aims to *increase* its level of skill. Maintenance and development training of the skills established during the puppy programme and MDD programme *(described in Chapters 3 to 13)* are extremely important elements of the training model.

Through maintenance and development training, unwanted behaviours can be corrected and the performance level of desired behaviours can be increased, thereby allowing the MDD units to perform to a higher operational standard.

During the mine clearance season (May to October) of the NPA MDD Bosnia programme, each MDD unit undergoes a minimum of eight hours per week of maintenance and development training, usually performed after the daily operational work is completed. During the winter off-season (November to April) of the NPA MDD Bosnia programme, the MDDs undergo five hours of daily maintenance and developmental training on a 10-day rotational system. The rotation involves three different training centres in Sarajevo, Mostar and Benkovac. Rotating the MDD units avoids familiarisation with the training area.

On-ground pressure-search maintenance at the School

Outdoor sandboxes approximately 12 x 5 metres (*Figure 58*) are used to maintain on-ground pressure-search training with micro-sized pieces of kong as targets. The floors of the boxes are covered with gravel. As all the targets cannot be recovered after each exercise, the gravel is removed, discarded and replaced with new gravel.

Figure 58. Outdoor sandboxes

Chapter 15

Transfer preparation

Transfer training is the process of preparation for new targets and environments before transfer to an operational theatre. If possible, the dog is given imprinting training on any targets likely to be encountered at the new location that differ from targets on which it has been trained. If new targets are supplied early enough to allow the required soaking time, some new targets can be planted in the indoor sandbox and training fields (*Chapter 13*). The indoor sandbox can simulate the environment of the dog's new station, thus reducing training and acclimatisation.

If possible, a trainer from the receiving station visits the MDD GTC to take part in the transfer preparation training — and a trainer from the School accompanies the dog to the new station to follow up their training.

On arrival at the new station, the dog is given a minimum of three months' refresher training before being reaccredited and becoming operational. During refresher training, the receiving handlers and trainers are trained by the School trainer who accompanies the dog(s). There is a two-week acclimatisation period at the receiving station when the dogs are fed, walked, brushed and receive non-intensive interactive training. This period aims to adjust the dogs to the new surroundings and for the new handlers and the dogs to become familiar with each other.

Retired dogs

On average, operational NPA Bosnia MDDs are seven or eight years old before they are retired. Dogs are retired when they begin to demonstrate a consistent decline in productivity and performance as a result of old age and/or health issues. The timing of retirement is influenced by several factors, such as the availability of replacement dogs, the time of year and whether the dog is still able to perform but requires more downtime.

Dogs retired from the NPA MDD Bosnia programme are usually adopted by the handler or by a close friend of the handler. Contact is maintained through the remainder of the dog's life and the dog is brought to the School regularly for medical check-ups.

Chapter 16

NPA Bosnia MDD handler

The NPA MDD Centre in Bosnia defines an MDD handler as a person who is trained and certified to work with MDDs. Responsibilities include operational minefield searching, development and training, healthcare and maintenance of MDDs.

Positions are advertised through the local paper. The NPA Bosnia MDD Centre will also recruit new handlers from commercial organisations or by recalling handlers on stand-by.

Selection criteria

- Minimum of three months' manual demining experience;
- dog handling experience;
- dog training experience;
- understanding of dog behaviour and health;
- preferred age: 30 to 35 years;
- possession of team-working skills.

Handlers are required to have a minimum of three months' manual demining experience. A three-month demining course is provided to people without this experience. When selecting from people with previous demining experience, preference is given to those who also possess experience of working with dogs and/or have taken related courses on topics such as animal behaviour, animal training or animal handling.

The age of the applicant is also taken into account. The preferred age is within and around the ages of the current staff. At present this ranges from 30 to 35 years. People of this age group are required to be generally physically fit with high endurance levels, mature and reliable and responsible. There are no restrictions on gender, religion or ethnicity, and female handlers are actively recruited.

All members of the NPA Bosnia MDD Project work as a team and must function as a unit. It is extremely important for the potential handler to be compatible with the

other staff members, so as not to disrupt the team's performance. During interviews, trainers are asked to aid in the selection process of potential handlers. Through this process, the trainers are able to select the most appropriate applicants based on their potential compatibility with the present staff. Trainers are not allowed to be present at interviews if they have a relationship (e.g. family) with the applicant.

Training philosophy

The NPA MDD Centre in Bosnia has offered two different training philosophies in the MDD handler's training course. Prior to 1999, the initial training philosophy was that of the traditional military dog school methods. As a result of changing dog puppy trainers in 1999 *(see Annex 3)*, the initial philosophy was replaced by the current practicing philosophy referred to as "the NPA MDD training style ". The NPA MDD training philosophy is an integration of well-known dog training principles and methods. All new dogs are trained using this NPA MDD training style. The original military philosophy is now obsolete at the NPA MDD Centre in Bosnia and is not described here.

The key components of the NPA MDD training style are:

- socialisation and environmental training;
- segment-by-segment training.

Socialisation and environmental training are considered very important (*Chapter 4*). Environmental training and socialisation increase the dog's ability to tolerate changes to the environment without becoming stressed. An anxious and stressed dog is unable to focus on a task and will not perform optimally.

Segment-by-segment training involves a series of complex learning tasks. The NPA style tackles these tasks by simplifying them into smaller and more manageable steps taught individually. Once each step is established, the trainer begins to link the steps in a sequence. This method avoids confusing the dog, which could impair the training process.

NPA MDD Bosnia handler training course

The MDD handler course consists of 12 weeks of both theoretical and practical training. The theoretical material covers the following topics:

- introduction of NPA as a humanitarian organisation;
- working dogs: the development/evolution;
- general behaviour knowledge;
- general knowledge of learning principles;
- general training methodology and training philosophy;
- specific NPA (project-related) training methodology and philosophy;
- general knowledge of veterinary services, health checks and treatments;
- general knowledge of interaction training (formerly called obedience training);
- behaviour of dogs and training methodology;
- preparation, maintenance and development of training and test fields;
- specific MDD training and operational techniques;

- operational related training and the practical use of the NPA standing operational procedures (*see Annex 1*);
- problem solving.

The practical component of the training course involves ongoing learning for the handler. The notion of *timing* is continuously emphasised even for experienced and trained handlers. Timing refers to knowing the exact moment to reward. This training skill is achieved through practice and observing the dog at all times in order to be able to predict its behaviour.

Issues related to matching a handler to a dog

Handlers and dogs of the NPA MDD Centre in Bosnia are matched based on **physical stature**, **behaviour**, **temperament** and **attitude**. For example, a highly-strung, dominant dog will be paired with a strong handler. On the other hand, a meeker dog which exhibits submissive traits would be paired with a handler who is capable of being gentle and soothing the dog. If members of the MDD unit are not functioning well together, they will be split up and transferred to other partners. In some cases, handlers work with more than one MDD.

All new handlers are matched to **experienced** and **accredited MDDs**. An inexperienced handler is matched to an accredited MDD to prevent the handler from unknowingly and mistakenly training the dog incorrectly. To some degree, the accredited MDD trains the handler. The handler could do more damage to an inexperienced MDD than an experienced one, on the principle that the dog will always return to its first learning experience of a similar situation. If the handler makes a mistake with an accredited MDD, the dog can be reverted to its original behaviour more easily than if it had never previously learned the procedure correctly.

The handler will be introduced to a potential MDD partner in the first three weeks of the training course. Initially, the handler becomes acquainted with the dog through activities such as brushing, feeding and walking the MDD. This builds familiarity between the handler and the MDD, which helps to build the bond of trust that is critical for functioning as an MDD unit.

Basic interaction training is taught to the handler during this three-week period (*see Chapter 4*). The handler is also taught the correct Norwegian words and tone of voice to use for praise, commands and instructions to the MDDs. The following is a list of words used:

Norwegian MDD vocal commands	English definition
Fot!	Sit directly by the handler's left leg
Sitt!	Sit
Ligg!	Lay down
Slipp!	Drop/release the object in its mouth
Søk!	Search
Venstre!	Turn left
Kom!	Return to handler
Nei!	Stop what it is doing
Sakte/Rolig!	Slow down
Fin/Bra!	Continue what it is doing

After three weeks the handler is assigned to a dog already trained for a specific search pattern, which will either be a long- or short-leashed search. As some aspects of the practical training differ according to which of the two search patterns the handler will work with, the remainder of the practical training is described below in appropriate sections. For the remaining weeks of practical training, the handler is video-taped at the end of each week performing the activities worked on that week. This tape is reviewed and analysed by the trainers and the handler to discuss ways to improve the handler's performance.

All new handlers must pass theoretical and practical tests. Having passed the examination, participants qualify as MDD handlers specialised in operational work with a mine detection dog.

If an MDD unit is confronted with a problem (e.g. the dog or handler is not performing correctly), the unit members (i.e. MDD and handler) will be separated and corrected individually to fix the problem. Only when the problem has been corrected will the handler and the MDD be rejoined to address the problem as a unit.

Handlers of short-leashed MDDs

The training of short-leashed MDD handlers, which occurs at the NPA MDD Bosnia Centre, requires approximately two weeks longer than for long-leashed MDD handlers. This additional time is for training the handler in the correct walking form.

1. **Weeks 1 to 2**: The handler is taught the correct pace, tempo and manner for walking the dog without involving the dog. Another handler may walk in place of the MDD to simulate the correct procedures during these training exercises. The handler should walk directly next to and behind the dog's right shoulder throughout the entire search (*Figure 59*). Due to the close proximity of the short-leashed dog handler and MDD when working, it is essential that the handler learns the correct tempo, pace, distance, body posture and interaction. The close working relationship can lead to the dog depending on the handler for cues, so the handler must learn how to prevent such cues being learned.

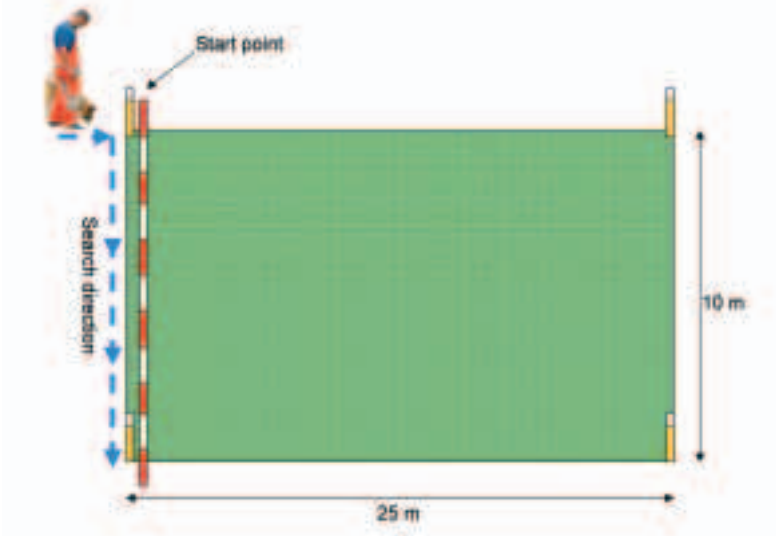
Figure 59. Position and form of handler in relation to dog during short-leashed search

The handler walks along the edge of the baseline in a cleared area while the MDD walks immediately beside the handler searching along the baseline of an un-cleared area. The correct walking method is similar to that of a tight-rope walker. One foot is placed directly in front of the other in a heel-to-toe formation. The pace is approximately 1.75 seconds to 2 seconds per step, with an average of 30 steps per 10-metre lane, and each 10 metres uninterrupted searching lane takes approximately 60 to 90 seconds to complete. During the entire walk, the handler must constantly observe the MDD to ensure it is searching in the correct width span (50 centimetres) and to note any changes in its behaviour.

2. **Weeks 3 to 12**: The handler works with the MDD in all training exercises and is constantly supervised. The first exercises consist of having a baseline with micro-sized pieces of kong placed in a 3:2:3 combination (*see Chapter 10, On-ground pressure-search*). The first trial is conducted by the trainer to illustrate the correct form.

   a) The handler stands at 90 degrees to, and half a metre from the left of the start of the baseline (*Figure 60*). The MDD sits next to the handler's left leg and must be focused on the task at hand. Being "focused on the task at hand" means the dog is sitting straight, ears forward and eyes directed to the search line. If the dog is slouching and/or looking around, the handler must back away from the baseline with the dog and do one or two minutes of basic interaction training. As the dogs are trained and accredited MDDs, these unfavourable behaviours do not commonly occur at this stage.

Figure 60. Positioning of MDD unit at beginning of short-leashed search



   b) The handler leans in front of the dog with the right hand held in a closed fist about 10 centimetres off the ground (*Figure 61*). This closed fist signals the MDD to "get ready". The MDD's posture usually changes from sitting up straight to leaning over staring intently on the closed fist. The handler holds this position for three seconds and then opens the hand with the palm towards the dog, then sweeps above the surface of the ground in front of the dog. This gesture is a signal for the dog to start searching. The handler may also use vocal command "*Søk!*", simultaneously with the hand signal.

Figure 61. Hand gesture to signal search

c) The handler maintains the standard walking pace along the baseline. If at any time the MDD moves too quickly, the handler stops and leads the dog from the baseline by turning to the right and returning to the baseline approximately 1 metre before the unacceptable search zone and starts re-searching the area properly. If the MDD moves too slowly, the handler instructs the dog to continue the search by the vocal command "*Søk!*" and sweeping the right palm above the surface of the ground.

Troubleshooting

Towards the end of the day, enthusiasm or work drive during the search may decline. The handler can increase the dog's search intensity and motivation by performing activity and passivity exercises (*see Chapter 5*) away from the training box. An alternate method of re-stimulating the dog's motivation is to have the dog search for a few surface-placed pieces of target placed away from the training area. Upon correct detection and indication, the handler initiates an intense session of play-fight.

Handlers of long-leashed MDDs

Long-leashed dog handlers start in the left corner of the training box and stay in the 2-metre safe lane throughout the search.

1. **Preparation of site**: Two white steel pickets 50-centimetre long are placed 30 centimetres apart at the start of the search lane (*Figure 62*). The handler moves these two pickets to the right in 30-centimetres intervals after each lane is searched. Orientation steel pickets 50-centimetres long painted blue or red are stuck into the ground at 1-metre intervals, alternating the colours along the opposite side of the box from the starting point (*Figure 63*).
2. **Preparation of dog**: The MDD is told to sit by the handler's left foot with the command "*Fot*". Prior to all lane searches, the handler must ensure the lead is positioned under the dog's left forepaw (*Figure 64)*. The handler performs the same hand signal for preparing to search as the short-leashed dog handler (*Figure 65)*. At the beginning of all searches, the handler must ensure the dog is calm and focused and may relax it by gentle stroking.

Figure 62. White pickets

Figure 63. Site preparation for long-leashed search pattern

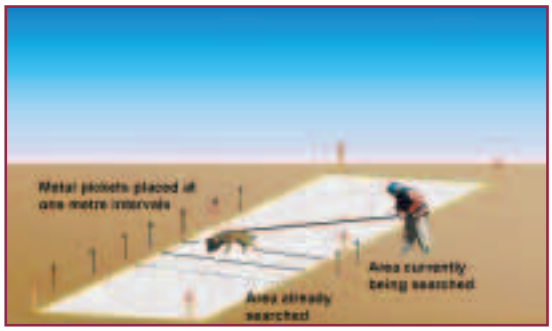


Figure 64. Lead positioning for long-leashed dogs

Figure 65. Hand gesture signalling search for long-leashed dogs

3. **During search**: Throughout the search, the handler must monitor the MDD for any changes in searching behaviour such as a decrease in search intensity, increase in tail wagging and/or repeated increases in search speed. In all these cases, the dog must be instructed to stop the search, turn to the left into cleared area and return to the handler.

Troubleshooting

Towards the end of the day, handlers can perform activity and passivity exercises (as described above) to maintain enthusiasm or work drive.

The following applies only to long-leashed dogs and handlers.

If the MDD increases search speed, the handler initially gently tugs the lead and uses the vocal command to slow down ("*Rolig!*"). To correct increasing speed in specific areas, the handler places 3:2:3 micro-sized pieces of kong (*see Chapter 10*) in those areas to train the dog to search thoroughly.

If the dog continues to search too quickly, the handler instructs it to stop, turn to the left and return to the start of the lane to re-search the same lane.

The handler must ensure that the MDD is searching in the correct direction and within the correct search width. To correct the dog's direction, the handler gently tugs the lead while using vocal instructions to guide it towards the correct direction. The handler must not roughly tug the lead as this may disrupt the dog's concentration. The handler also gives vocal praise once the dog is working in the correct direction.

If the dog is veering to the left, the handler takes one step to the right and tugs the lead with the right hand by lifting the right arm upwards and to the right (*Figure 66*). This causes the lead to press on the dog's left armpit and along the ribs and shoulder, which causes the dog to veer to the right. Once the dog is heading in the correct direction, the handler relieves the pressure from the lead.

If the dog is veering to the right, the handler takes one step to the left, lifts and outstretches the left arm and tugs the lead to the left (*Figure 67*). This presses on the dog's left forepaw causing the dog to veer to the left. Once the dog is headed in the correct direction, the handler relieves the pressure from the lead.

Figure 66. Correcting dog from veering to the left

Figure 67. Correcting dog from veering to the right

Chapter 17

NPA Bosnia MDD trainer

To become qualified as an MDD trainer within the NPA Bosnia MDD Centre, a potential trainer must have a minimum of two years' experience working with and training operational MDDs and must have trained a minimum of three MDDs to successful accreditation. Trainers are responsible for identifying, solving and correcting problems encountered by MDD units and for the maintenance training of both the handler and the MDD.

Key skills of trainers

- The ability to successfully work with and train many dogs of different character, breed, gender, temperament and age. By adjusting their own behaviour and the training techniques to fit individual dogs, they promote maximum individual performance.
- Leadership skills and traits that are respected by other members of the MDD teams.
- The ability to transfer their knowledge to others.

MDD trainers are responsible for supervising the training of MDD units and are required to keep a detailed record of each MDD unit in their section. These records document the daily work capabilities and progress of the MDD units. The records consist of the following details for each MDD unit:

- progress;
- problems encountered;
- segments of training that need improvement;
- how the trainer intends to solve problems.

Trainers will continue to handle MDDs, not just supervise other handlers. This mandatory requirement maintains the trainers' skills and further promotes the performance of the MDDs.

MDD trainer course

The purposes of this course are to develop the ability of a potential MDD trainer to work with a range of dogs and to expose them to alternative training methods. Trainers therefore learn different methods and are encouraged to keep an open mind about alternative techniques.

The course lasts for nine months. The practical component is continuous, while the theoretical part is offered during the off-season (November to April in Bosnia) at the NPA MDD Bosnia Centre so that the training of potential trainers does not interfere with normal operations and acts as a maintenance training system for the dogs during their off-time. During the programme, the apprentice trainers work with several dogs to improve their ability to adjust and modify the training to individual dogs. The course covers the following topics:

- dog anatomy and basic knowledge of veterinary science;
- different training methodologies;
- natural behaviour of dogs;
- NPA philosophy and methodology on MDD training;
- practical performance and planning of training sessions;
- chemistry of explosives;
- first aid for dogs;
- theoretical and practical test.

These materials and topics are presented in a variety of ways, from basic literature and videos to workshops with guest speakers such as vets and trainers from other centres. After passing the examination, graduates of the course are given the title of "MDD trainer" within the NPA MDD Bosnia Project.

Annex 1

NPA Bosnia's MDD standing operating procedures

The School's training techniques have been designed to achieve the objectives outlined for the NPA Bosnia MDD programme's standing operating procedures (SOPs). The following is a general overview of NPA Bosnia's MDD SOPs on the preparation of minefields and the deployment of MDDs.

Operational objectives

All MDD team techniques are part of an integrated concept commonly known as the "toolbox approach". MDDs are deployed in combination with mechanical and manual methods of land preparation to achieve the required standard of humanitarian mine clearance. The main purpose of MDD deployment is to reduce suspected mined areas. MDD teams are not solely used in minefields where rows, lines or groups of mines are known. The MDD teams are deployed usually in areas of low mine density.

The NPA Bosnia MDD Project Team consists of:

- a Regional Project Manager;
- an MDD Senior Supervisor;
- MDD Supervisors;
- MDD Observers;
- MDD Trainers;
- MDD Handlers; and
- Kennel Assistants involved in maintenance of indoor/outdoor kennel facilities and security activities.

It is very important that all persons included in the project team reflect carefully before making decisions as to when, where and how the MDDs are to be deployed for operational tasks.

Methods in mine clearance

As mentioned above, a combination of mechanical, manual and mine dog detection techniques are used in NPA Bosnia mine clearance. Areas to be cleared are first flailed to a depth of 10 centimetres and left for a minimum of seven days. The area is then organised into 10 x 25-metre boxes by manual teams and are usually first searched by a long-leashed MDD followed by a short-leashed MDD.

Mechanical technique

Mechanical ground preparation is a type of mine clearance activity in which the vegetation is cut and a layer of ground is disturbed. Two remotely-controlled machines are used currently, the Tempest T5 and the Mine Cat. A third machine, the Mine Lifter, which is manually operated, is still undergoing accreditation testing.

The standard for mechanical ground-preparation is that the ground's surface is broken to a minimum depth of 10 centimetres and left for a minimum of seven days. The main objectives are to remove all vegetation, to create a uniform terrain and to reduce the risk of tripwires, booby-traps and intact mines. The act of turning the surface crust also allows the sun to dry out the soil, thereby decreasing the moisture content.

Manual technique

After mechanical ground-preparation, manual teams are deployed to clear 2-metre-wide lanes which form the outlines of boxes with a maximum length of 25 metres and a maximum width of 10 metres (*Figure 1*). A "box" is an uncleared rectangle framed on its four sides with 2 metres of manually-cleared walking paths or cleared area. The uncleared area within the box is intended for work by MDD teams. The cleared 2-metre lanes surrounding the boxes are safe areas which medics can enter and exit quickly carrying a stretcher.

The way the area is boxed increases the deployment capacity of MDDs, which ultimately increases the rate of clearance. The 10 x 25-metre boxes enable one team to be working in one box while another team is working in the next box yet still complying with the minimum safety distance of 25 metres between each team. Boxing also allows for easier site management. On the other hand, manual teams may face difficulties in attempting to create precise outlines of boxes due to irregular terrain and environmental obstacles. To decrease these difficulties, the manual teams create groups of three boxes.

MDD team deployment

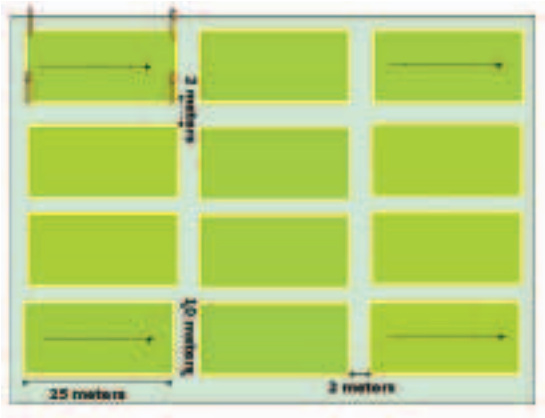
Once the boxes have been prepared and a minimum of one week has elapsed since the area was mechanically prepared, the MDD capacity is deployed. Full clearance is achieved by deploying MDDs with two different search techniques, short-leashed and long-leashed.

In most cases, the long-leashed MDD conducts the initial search followed by the short-leashed MDD. The initial search is defined as the first time the suspected area within a box is investigated by an MDD unit (an MDD and its handler). NPA can deploy MDDs with either search pattern to conduct the initial search. The final search is the second search conducted by a different MDD regardless of the search pattern.

The final search cannot be performed by the MDD that conducted the initial search. After an MDD completes this final search, the area is defined as cleared.

Figure 1. Manual preparation

a.



b.

The corner selected as the starting position will vary according to wind direction. The optimal wind direction is from behind the handler to the handler's left. In this scenario, the MDD will not be likely to catch scent off the wind that would cause the MDD to lift its head from the search, nor to veer to the right into uncleared areas.

Marking system

The marking system indicates that MDD operations are being carried out in a particular site and provides a clear orientation to all parties involved in mine action operations as well as to civilians in the area.

The five major elements in the general structure of the marking system are box sticks, yellow NPA mine-tape, metal rods, steel pickets and baseline tape. All box sticks are wooden, with 50 centimetres above the ground and the top 10 centimetres of the sticks painted either red or white. Red-tipped box sticks are used for marking an uncleared box and are located every 5 metres around the box. An uncleared box is "fenced-in" by attaching the yellow NPA mine-tape to the bottom of each red-tipped box stick. White-tipped box sticks replace the red-tipped box sticks to indicate that the area within the box has been cleared. The number of the box is written on the white portion of the box stick. The metal rods are 15 to 20 centimetres long and 10 millimetres in diameter. These rods are permanently anchored into the ground at each corner of the cleared box and identify the corners of the box searched by the MDD Team.

The steel pickets used in the long-leashed search pattern are 50 centimetres long and are painted white, red or blue. The white steel pickets mark the start and end of a search lane. Two white steel pickets are placed in the ground, 50 centimetres apart, at the start of the lane. These white steel pickets are made into an 'X' to indicate the

end of the working hour or day in an incomplete box. The blue and red steel pickets are called orientation pickets and are used during the long-leashed search pattern. The pickets are placed 1 metre apart in alternating colours on the opposite side of the box to where the MDD begins their search. These pickets serve as a guideline for the handler to ensure the MDD is searching in a straight direction.

A baseline tape is used in the short-leashed search pattern. This baseline tape must have a minimum length of 11 metres and a minimum width of 3 centimetres. The baseline tape is painted red and white in 50-centimetre intervals. The purpose of the baseline tape is to identify the border between cleared and uncleared areas. Each end of the baseline tape is secured to the ground by a steel picket. The baseline tape is placed along the 10-metre side of the box, at right angles to the 25-metre side of the box. The baseline tape is moved a maximum of 50 centimetres to the right of the handler after each lane search. The baseline tape is located between the handler and the MDD during the entire search: the handler walks along the edge of cleared area and the MDD searches along the edge of the uncleared area.

Search patterns

Long-leashed MDDs

In most cases, a long-leashed MDD conducts the initial search of an area. All long-leashed MDDs are trained to start the search within the 2-metre manually-cleared area and to search 10 metres forward in a straight line to the opposite end of the lane. Upon completion of the lane and on vocal command, the MDD is trained to turn left into the cleared area and return to the handler.

The lead of the long-leashed MDD is required to be at least 11 metres long, marked in inches every 50 centimetres and is always positioned under the left forepaw of the MDD. The positioning of the lead is a safety measure. In the event that the MDD veers to the right, the handler is able to manipulate the dog to the left and into a cleared area. The marked lead allows the handler to identify the distance from the baseline to the site at which the MDD indicated.

To maximise productivity and reduce the suspected area, all the long-leashed MDDs must be deployed. Under certain circumstances, long-leashed MDDs can be deployed to conduct both the initial and final search of an area. The required conditions are that no target substances were identified within a 25-metre radius during the boxing process or the first search by the long-leashed MDD.

In order to deploy a long-leashed MDD for final searches, all designated boxes must be divided into a maximum of 10 x 10 metre boxes by manual techniques. The handler must choose a position and direction opposite to that of the initial search. This change in direction creates a cross-worked pattern and is implemented to further ensure the MDD Team searches over the entire area.

Short-leashed MDDs

Short-leashed MDDs are most frequently used in the final clearance search. Short-leashed MDDs are accompanied by the handler who walks next to the MDD during the entire search. This pattern allows the handler to closely monitor the MDD and increases the confidence of the end-users.

In some instances, short-leashed MDDs can be used for the first and final searches. When the initial search is conducted by a short-leashed MDD it is mandatory that a short-leashed MDD be used for the final search. As this combination is very time consuming, it would usually only be used during a shortage of long-leashed MDDs.

Pros and cons of short- and long-leashed MDDs

The transfer of a long-leashed MDD to another handler occurs more smoothly and easily than the transfer of a short-leashed MDD. This is because long-leashed MDDs work more independently during operations than short-leashed MDDs.

On the other hand, it takes approximately three to four months longer to train a long-leashed MDD than a short-leashed MDD. The long-leashed MDD must be trained to search a lane in a straight line without any visual cues or guidance. The handler directs the MDD with vocal commands and manipulations of the lead, while the short-leashed MDD is guided by the baseline tape and by the handler, who accompanies the MDD down the lane.

It is more productive to use one long-leashed MDD and one short-leashed MDD in an area. In order for two long-leashed MDDs to search an area, the boxes must be 10m x 10m not 25m x 10m. This increases the manual demining required to box these areas. When using two short-leashed MDDs for an area, an increase in down-time results from complying to the required 25-metre safety distance.

The short-leashed handler needs to learn how to walk correctly, at the correct tempo, pace, and distance. The short-leashed MDD is more influenced by the handler than the long-leashed MDD. Therefore, the handler must be extremely well trained for this influence to be positive. The short-leashed search pattern enables the handler to direct and identify with pinpoint accuracy the spot at which the dog is to search and to which spot the dog indicated. This method also provides an immense amount of confidence to the end user of the cleared land, since they are able to see that the handler is physically in the minefield side-by-side with the MDD going over every square centimetre of that area.

Free-running search pattern

As the School no longer supports the free-running search pattern, it will only be briefly mentioned. The free-running search is conducted by MDDs off lead for clearance of destroyed houses and ruins. Through the use of mechanical techniques, the suspected contaminated material is collected by using armoured front-end loaders such as the Caterpillar 928 F. The material is spread out to a maximum thickness of 30 centimetres onto cleared land. The material is searched twice by two different MDDs. The handler remains in a safe area during the entire search and directs the MDD via vocal commands and the use of a laser pen.

Indication

The term “indication” refers to a trained MDD response with the purpose of signalling to the handler a detected target. The MDD is trained to sit and to focus intently at the site upon detection of the target material. The handler must constantly examine and recognise any changes in the MDD’s behaviour during deployment. Any changes in behaviour, such as an increase in tail wagging or an increase in deep inhalations,

are recognised as an alert to a positive indication: for safety reasons the handler will withdraw the MDD prior to the trained "sitting" behaviour.

A correct indication is the detection of a target substance such as a mine, UXO, or any quantity of explosive or any part of a mine or UXO. An incorrect indication is the detection of an object or substance that is not within the group of trained target substances. A false indication occurs when the MDD performs the trained "sitting" behaviour without any obvious reason.

Actions taken upon correct indications

Different actions are taken after an indication during operations. The action depends on the search pattern being used at the time of indication. Upon all indications, the handler leads the MDD to a safe area and then notifies their supervisor. The MDD Team Supervisor informs and arranges for manual deminers to clear a 2-metre diameter around the point of indication.

Upon an indication from a long-leashed MDD, the handler records the distance from the baseline to the spot the MDD indicated by using the units of measurements on the lead. The handler instructs the MDD by vocal command to turn left into the safe area and return to the handler. During short-leashed search, the handler places a plastic-cone-shaped marker along the base-tape 50 centimetres in front of the actual site of indication and then leads the MDD into the safe area.

Maintenance training during operations

During operations, a cleared area is transformed into a maintenance and training area for the dogs prior to and during their operations in the field. Different types of mines are planted at depths varying from 2 to 20 centimetres and left for at least seven days. In this area, the handler can test the MDD prior to operations to ensure the MDD is functioning at maximum performance by detecting all target substances and objects. This area is the only place during operations in which MDDs are rewarded. MDDs are not rewarded while conducting operational searches. Therefore, this area is also used to increase the MDD's search drive between operational searches.

Operational schedule

NPA Bosnia MDD teams work a 10-day cycle with two days off. During daily operations, each team usually works for one hour followed by a one-hour break. The hour break includes the time for the handler to lead the MDDs to and from the designated resting area, which can sometimes take up to 10 minutes, and for the MDDs to get sufficient rest. This daily work schedule is adjusted according to the working conditions, temperature, climate and the dogs' conditions. For instance, during an operational day with a temperature of 38°C, an MDD with a heavy dark coloured coat will require more frequent breaks.

Annex 2

Climatic and environmental conditions in Bosnia and Herzegovina

Bosnia and Herzegovina's climate varies by province. Herzegovina and the southern area has a modified Mediterranean climate with an average annual precipitation of 600 to 800 millimetres (24 to 31.5 inches) while the central and northern area of Bosnia has a modified Pannonia or Alpine climate with an average annual precipitation of 1,500 to 2,500 millimetres (59 to 98 inches). Average temperatures in Sarajevo range from -5°C (31 degrees Fahrenheit) in January to 19.6°C (67 degrees Fahrenheit) in July.

Due to seasonal constraints, such as the presence of snow or flooding (*Figures 1 and 2*), MDDs are able to be operational for only a few months of the year. The presence of ground clay makes mine detection extremely challenging because the soil surrounding the mine cannot readily absorb the chemicals leaking from the mine.

Figure 1. Snow-covered minefields

Figure 2. Flooding

Annex 3

Overview of the NPA Bosnia MDD Project

The Norwegian People's Aid (NPA) is a humanitarian organisation of the Norwegian Labour Movement. Its objectives are to work independently in preventive health care and environmental projection, mental assistance and accident prevention, youth activities, programmes for fostering social contact in the immediate environment and relief work based on solidarity both domestically and internationally (NPA, 2003).

Overview of the NPA Bosnia MDD Project

The following is a brief account of only a few of the many operations NPA Bosnia MDD teams have successfully participated in and completed. The NPA MDD Project started in 1996, in Dragonia outside the city of Tuzla, Bosnia. MDD teams from Mozambique supported the project in its initial stages. Such support included the clearance of a UXO- and mine-contaminated area in the region, from Ilidza towards the centre of Sarajevo. As this area contains the only major road connecting Sarajevo and Ilidza, it was part of an emergency project. Upon completion of their work, the dogs from Mozambique were returned to their country. Also during 1996, the NPA Bosnia MDD Project received four dogs from Sweden with their Swedish instructors from Humanity Dogs (Hundskolan).

In 1997, the NPA Bosnia MDD Project temporarily relocated its facilities and kennels to what is currently known as the Distribution Centre (DC) training area.

As of 1998, the original Swedish dogs were still with the NPA Bosnia MDD Project. Hundskolan was contracted to deliver five more MDDs in July 1998. The NPA Bosnia MDD Project's first MDDs became operational in September 1998. In 1998, NPA MDD teams supported UNHCR mine action units in operations around the village of Solakovici on the outskirts of Sarajevo.

In 1999, the facilities were moved to a place known as "The Warehouse" in Rajlovac, outside Sarajevo. The NPA Bosnia MDD Project collaborated with new suppliers from Norway in 1999 and ordered seven dogs. With these suppliers, a new training philosophy was introduced based on a segment-by-segment training system. Also

in 1999, the NPA Bosnia MDD Project participated in land clearance in Stup, a major section of Sarajevo's frontline. The NPA MDD teams also undertook house clearance in this area. During winter 1999 in Vrapcici, NPA MDD teams supported demining operations close to the Neretra River.

NPA MDD teams cleared 65 per cent of all land cleared in Kosovo during 2000. The MDD teams were also used to clear anti-tank minefields around Sarajevo's International Airport.

During June 2001, MDD teams were deployed in combination with mechanical methods to clear areas in the village of Bare, which had more than 50 registered minefields with clusters or lines of mines, and was heavily infested by UXO. In another operation, the NPA MDD teams cleared an area in Lazine during winter 2001. This area was the frontline between the Bosnia and Herzegovina Army and the Bosnian Croat army (the HVO) outside Mostar.

During winter 2002, NPA MDDs cleared land surrounding the Bunica River in Parila, enabling the return of refugees and agricultural activities. By 2002, the MDD Project had produced 37 per cent of all the cleared areas in Bosnia and Herzegovina.

Annex 4

NPA Bosnia MDD Project testing procedures

To ensure the quality of the demining work, the MDD units are regularly subjected to intense training, maintenance and testing procedures. Although the testing procedures are mandatory, emphasis is also placed on the training processes.

Operational status

Operational status of an MDD unit is granted only by the Project Manager. In order to achieve operational status, each member of the MDD unit must successfully complete a series of tests both as a team and individually. First, the handler must pass the internal MDD handler course and must be a certified deminer. Next, the MDD unit must pass the internal certification test followed by the accreditation test conducted by an impartial third party. The accreditation test is organised and conducted by the Bosnia and Herzegovina Mine Action Centre (BHMAC).

The operational status of the MDD is automatically revoked after annual leave, sick leave or any other disruptions of work lasting more than five days. In order for the MDD to have their operational status reactivated, the MDD must pass the daily test of capability.

Internal certification test

The certification test involves searching a total of 600 square metres over a three-day period. An area of 300 square metres is first prepared by machines then planted with four pieces of explosives (two 5-gram pieces and two 10-gram pieces) and three pieces of dispersed mine of less than five square centimetres each. Another 300 square metres is prepared with five mines of four different types. All target objects must have a minimum soaking time of at least 12 months.

The MDD unit is issued an Internal Operational Status Certificate on successful detection and identification of all target objects accompanied by high search intensity and correct indication behaviour. Once the MDD unit has achieved the Internal Operational Status Certificate they are qualified to undertake the BHMAC accreditation test.

Accreditation test

When an MDD unit qualifies to take an accreditation test, the NPA Senior Supervisor will notify the BHMAC. As all accreditation testing is conducted at a site unknown to NPA, it is at the BHMAC's discretion to choose the time and location for the test. The details of the accreditation test are decided by BHMAC in accordance with general international standards and guidelines.

The accreditation tests generally consist of a search of 400 square metres divided into four 10 x 10 metre boxes, one that is empty and three that have a total of five buried mines and two surface mines. The buried mines can be of different types and at different depths, not exceeding 15 centimetres. The handler will be told the number of targets to be located and is allowed no more than five false indications.

Upon passing the BHMAC accreditation test, the MDD unit is certified to be deployed for operational tasks within Bosnia and Herzegovina. Since this certificate is valid for only six months, all NPA MDD units undergo an accreditation test twice a year. Where there is any change to the accredited MDD unit, such as a transfer of the MDD to a new handler, the unit must undergo the whole accreditation process from the beginning.

Internal monthly test and evaluation

All MDD units are subject to a monthly internal test and evaluation. The BHMAC must be notified in advance of the details of these monthly internal tests and evaluations. Although this is an internal event, the BHMAC has the right to be present and observe the activities. NPA's MDD Senior Supervisor is responsible for planning and executing this internal test and evaluation.

The test field for the internal monthly test is an area with a minimum of 200 square metres that has been mechanically prepared. The target objects must be buried at least two weeks before the test. All results of the test are submitted to BHMAC and recorded in the internal monthly test form.

In the event that an MDD unit fails this test and evaluation, the team will immediately be suspended from operations and undergo training for a minimum of one week, after which the team is retested.

Daily test of MDDs' detecting capability

Prior to operational deployment in the minefield, all MDD units must pass a daily test. This test may also occur upon request during any part of the operational working day to test the detection quality of the MDD unit. The daily test is conducted under the supervision of the MDD trainer. To successfully pass the daily test, the MDD must indicate all target objects within the test area and display intense search behaviour.

The daily test area is at the work sites, either in safe or cleared areas. The test is conducted on an area of approximately 20 square metres containing two to three target objects. Target objects vary from small fragments of explosives, fragments of dispersed mines and/or mines. Any target objects that are placed on the surface must be less than 2.5 centimetres in diameter and be visually obscured with grass or leaves or otherwise obscured. Fewer than half of the target objects are permitted to

be placed on the surface. All target objects must be at least 2 metres from each other. The minimum soaking time of any daily testing area is seven days. All results and details of these tests are recorded in the Daily Test Form.

If an MDD unit fails the daily test, the unit is immediately suspended from operational deployment and the team's operational status is temporarily revoked. All boxes and areas cleared within the last three days by this unit are re-cleared by another MDD unit. The revoked MDD unit undergoes five days of intensive training and must successfully complete a new daily test prior to reactivation of their operational status.

Daily reporting of operations

In 2001, the NPA Bosnia MDD Project improved its reporting and recording procedures of activities during operations by installing a thorough documentation system. The daily activities during operations are initially recorded on documentation forms in the field. These records are transferred to a central database in the Mine Action Centre. This system enables future access and analysis of the records. Furthermore, the ability to identify the areas cleared by particular teams builds up a feeling of responsibility in the MDD units.

MDD Supervisors are responsible for recording the activities of their units on an hourly basis during operations. Other recorded activities include the schedule of teams to boxes, dimensions of boxes, sketches of boxes, box code, unit code, number of indications and remarks. Since the environment is known to sometimes affect the performance and productivity of the MDD unit, the daily reporting forms also include environmental records of humidity, climate and hourly temperature.

Annex 5

NPA MDD GTC training areas and kennel facilities

Field training areas

The NPA MDD Global Training Centre (School) stresses the importance of training in an operational scenario and an extreme effort has been made to develop extensive training areas. The areas for MDD training were selected and developed to be as similar to operational scenarios as possible. The aim was to replicate the soil types and ground conditions, vegetation types and densities, pollution, waste and any other external environmental influences the MDD unit may encounter during operations. The training areas must contain the operational target objects and substances such as mines or UXO, fragments of mines or UXO, or explosives present in areas of operations.

The School has a total of 150,000 square metres of training area consisting of boxes containing a total of 2,300 mines and UXO buried in 1997. These training areas include a variety of vegetations at different densities. The dogs encounter similar environmental stimuli in training which they may encounter in operations. Mines that resurface are not replanted because to do so would create ground disturbance. MDDs are sensitive to ground disturbance and will naturally take an interest in that area regardless of the mine. NPA has many training areas, including Žuc, Rajlovac, Mostar, Brcho and at the GTC (*Figure 1*).

Figure 1. Training areas located at the GTC

Figure 2. Žuc training area

The Žuc training area (*Figure 2*) has been provided by the municipality. The area is also used by the local shepherds for their cattle, sheep and goats. The presence of these free-wandering animals allows the dogs to become accustomed to distractions, ultimately resulting in the dog focusing intently on its task and ignoring distractions.

The Rajlovac training area contains a variety of mines buried at shallow depths of 4 to 6 centimetres below the surface. These shallow mines allow for training during inclement weather, including light snow.

Kennel facilities

The kennel accommodates all dogs and all dog-related equipment at the Global Training Centre located in Blagovac (*Figure 3*), just outside Sarajevo. The kennel facilities (*Figure 4*) have a total of 30 pens including 7 puppy boxes. All pens offer an indoor and outdoor environment for each dog. The pens designate for dogs older than 3 months are designed to separate the dogs physically and visually from one another. This design is purposely non-stimulating to encourage the dogs to rest while kennelled and be fully motivated when outside of the pen. The puppy boxes are designed and situated to allow for visual contact with other puppies.

A pharmacy is located on the premises, and is equipped for maintenance health care and basic veterinary care. There are portable pens on site in the event isolation cages are required to quarantine dogs.

Figure 3. The Global Training Centre

Figure 4. Kennel facilities

a.

b.

c.

d.

e. Puppy boxes

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Glossary of acronyms

BHMAC	Bosnia and Herzegovina Mine Action Centre
CRS	continuous reward schedule
GICHD	Geneva International Centre for Humanitarian Demining
GTC	Global Training Centre
IRS	intermittent reward schedule
MAC	mine action centre
MDD	mine detection dog
NGO	non-governmental organisation
NPA	Norwegian People's Aid
SOP	standing operating procedure
UNDP	United Nations Development Programme
UNMAS	United Nations Mine Action Service
UNOPS	United Nations Office for Project Services
UXO	unexploded ordnance

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