

LIVESTOCK GUARDING DOGS

The LIFE DINALP BEAR project handbook



Tomaž Berce
Karmen Zahariaš
Aleš Sedmak
Natalia Bragalanti



LIFE
DINALP
BEAR



LIFE13 NAT/SI/000550

Editor: Tomaž Berce

Authors: Tomaž Berce, Karmen Zahariaš, Aleš Sedmak, Natalia Bragalanti

Participating breeders of livestock guarding dogs: Aleš Sedmak, Anita Tomšič, Stanko Pašič, Gregor Ogrizek, Kaja Špruk

Expert review: Rok Černe, dr. Irena Kavčič, Bojana Lavrič, Mišo Šapec, Vesna Oražem

Authors of photographs: Tomaž Berce, Rok Černe, dr. Irena Kavčič, Mirjam Kržič, Blaž Košak, Stanko Pašič, Tamino Petelinšek, Igor Pičulin, Pony ranch Ogrizek, Zdenko Požar, Anita Tomšič, archive of the Autonomous Province of Trento

Cover photograph: Tomaž Berce

Translation: Tea Karlo

Publisher: Slovenian Forest Service

Graphic design: Nuša Stanojević Suwa

Ljubljana, August 2018

The handbook was prepared with the support of LIFE - the European Union Financial Mechanism.

The electronic version of the manual is available on the LIFE DINALP BEAR website: www.dinalpbear.eu

Recommended citation:

Berce, T., Zahariaš, K., Sedmak, A., Bragalanti, N. 2018. Livestock guarding dogs. The LIFE DINALP BEAR project handbook.

ABOUT THE PROJECT

Acronym: LIFE DINALP BEAR

Project title: Integrated management and protection of the brown bear in the northern Dinarides and the Alps

Reference: LIFE13 NAT / SI / 000550

Time frame of the project: 1. 7. 2014 - 30. 6. 2019

Website: www.dinalpbear.eu

You can also follow us on Facebook and Twitter.

E-mail: dinalpbear@gmail.com

Table of Content

1	SHEPHERD DOGS – ARE THEY APPRECIATED ENOUGH?	3
2	LARGE CARNIVORES AND PREVENTION OF ATTACKS ON GRAZING ANIMALS	4
	Predators and those that seize the opportunity	
	Preventive measures	
	Damage prevention or culling?	
3	CHARACTERISTICS OF SHEPHERD DOGS	6
4	HISTORY OF LIVESTOCK GUARDING DOGS	7
5	PROTECTION OF THE HERD WITH LIVESTOCK GUARDING DOGS	8
	Why protect livestock guarding dogs?	
	What do breeders expect from a livestock guarding dog?	
	Advantages and disadvantages of using shepherd dogs	
	Number of dogs per herd	
	Dog nutrition	
	Health care and care of the dog	
	Economics of use of shepherd dogs as a measure to protect the herd	
6	HOW TO GET AN EFFECTIVE SHEPHERD DOG	14
	Working environment	
	Raising a dog - key steps	
7	THE MOST COMMON INCONVENIENCES AND MISTAKES WHEN USING LIVESTOCK GUARDING DOGS	20
	Raising and unwanted behaviour	
	Undesired behaviour of a shepherd dog	
8	LIVESTOCK GUARDING DOG BREEDS	24
9	WHERE CAN I GET A LIVESTOCK GUARDING DOG?	26
	About LIFE DINALP BEAR project	
	Livestock guarding dogs in Slovenia	
	Livestock guarding dogs in Italy	
10	ACKNOWLEDGMENT	31
11	SOURCES AND RECOMMENDED LITERATURE	32



Photo: Tomaž Berce

1 SHEPHERD DOGS – ARE THEY APPRECIATED ENOUGH?

The protection of livestock is a necessary measure that on long term ensures the existence of livestock breeding in areas that we share with large carnivores. It is difficult to imagine that a herd should be left in the pasture without protection, even if there is only one single bear roaming around. We must be aware that an attack can occur even if there is only one bear or wolf in the area of an unprotected pasture.

Small livestock, the type of grazing animals that are most endangered by large carnivores, can be effectively protected in several ways. The animals can be put in a stable or a pen, they can be enclosed in high electric fences at night, or, the third option - protection by shepherd dogs. It all depends on the choice of the breeder, who chooses the protection according to the characteristics of the landscape and according to his own requirements. In any case, the most effective is a combination of different measures.

Livestock guarding dogs belong to the category of the most effective approaches to protect the herd from predators. Shepherds worldwide have been using them for millennia, and it is not a coincidence that the shepherd breeds are preserved to this day. In the last century their use has slightly fallen, however, the idea of using livestock guarding dogs has arisen again, due to the spread of large carnivore populations in areas that they had not occupied for decades.

Especially in the first two years, a considerable amount of time has to be invested in a livestock

guarding dog in order for it to effectively carry out its mission in the pasture, however, it must be emphasized that this is an investment in the future. In Slovenia there are many experienced breeders of livestock guarding dogs who, with joy and dedication, preserve the tradition that in Slovenia has never died out. By working together, we strive to keep the livestock guarding dogs' mission further preserved through numerous examples of good practice of coexistence of livestock and large carnivores.

The manual was prepared under the C.2 action of the LIFE DINALP BEAR project, which addresses the problem of damages caused by brown bears to human property.

The main aim of the manual is to present the protection of grazing animals with the help of livestock guarding dogs in areas where large carnivores are present. The basics of dog training, learning obedience and dog care are described in numerous manuals and books, our aim, however, is to present livestock guarding dogs as working dogs that have, for millennia, been helping people in areas with large carnivores. The dogs of livestock guarding breeds have innate properties that are expected from a guardian of a herd. The manual presents the foundations that lead us from a young dog to an effective guardian of the herd.

Tomaž Berce, editor

2 LARGE CARNIVORES AND PREVENTION OF DEPREDATIONS ON LIVESTOCK

Predators and those that seize the opportunity

There are three large carnivores in Slovenia: the brown bear (*Ursus arctos*), the wolf (*Canis lupus*) and the Eurasian lynx (*Lynx lynx*). All three species are protected in Slovenia, as they are an important part of our environment. The brown bear and the wolf are constantly present in here, and their abundance has increased over the last decade. On the contrary, the lynx was in the past exterminated and resettled, however, the population is today on the verge of survival.

The extent damages caused by the bears varies considerably between the years, which is mainly related to the availability of food in the forests. The recent years have shown a decline in damages caused by the wolf, whereas the damages by the lynx are almost non-observant. In some parts of Slovenia, the golden jackal can also be found alongside large carnivores. The jackal is predominantly a scavenger, but occasionally seizes the opportunity to prey on poorly protected small cattle. However, we must not forget that the small livestock are sometimes attacked also by the dogs that freely roam and chase wildlife and also grazing animals. According to what has been said, it can be argued that the protection of grazing animals in the areas with large carnivores is necessary.

Preventive measures

In Slovenia there are many examples of good practices of breeders and farmers from areas where large carnivores are constantly present. Some pro-

tect their animals with electric fences and electric nets, some enclose their sheep into a stable or a pen overnight, while others entrust their herds to guarding dogs. The most reliable is undoubtedly the combination of various measures, for exam-



ple, electric nets and livestock guarding dogs. In general, it can be said that every good owner prevents the damage to the best of his abilities. However, if the damage does occur, then the farmer is entitled to compensation, which is decided by the Environmental Agency of the Republic of Slovenia.

Damage prevention or culling?

The recent years have brought about a lot of talk about the sensibility and feasibility of measures to prevent the attacks of carnivores on grazing

animals in comparison to culling. On one hand, culling reduces the number of predators in the environment, thus influencing their density at the local level, whereas the implementation of protective measures prevents damage in the long run. It cannot be expected that large carnivores will not be present if the environment is suitable. The occurrence of damage is also likely even if only a single bear or just a few wolves move in the surroundings of poorly protected or unprotected pastures.

If predators in the environment get used to easily accessible prey, they might return to that location and the damage occurs again. Since sheep do not have developed mechanisms for escaping from predators, they are easier prey compared to game species, which have adapted to the presence of predators through evolution and has a well developed ability to avoid them.

The protection of the herd is an important challenge for animal breeders, one they are faced with every day, especially during the grazing season. The existence of pastures in areas with large carnivores is therefore possible only with the adequate protection of grazing animals. In Slovenia and in most parts of Europe we rarely come across large areas of wilderness, where large carnivores could live without the influence of people, which is why finding long-term solutions is necessary for the existence of large carnivores and livestock breeding.

The combination of high electric nets and livestock guarding dogs protection is considered one of the most effective measures to prevent damage to small livestock. Photo: Tomaž Berce



3 CHARACTERISTICS OF SHEPHERD DOGS



Karst shepherd is one of the most frequent breeds of livestock guarding dogs in Slovenia and also a Slovenian indigenous breed. Photo: Anita Tomšič

4 HISTORY OF LIVESTOCK GUARDING DOGS

According to the DNA studies in dogs, scientists conclude that the domestication of dogs began in Europe or Western Siberia somewhere between 19,000 and 32,000 years ago. At first the dogs were used for hunting, however, even in the early period of coexistence, the large, molossian-like dogs alerted and protected people from wild animals.

The evidence of small cattle domestication dates back to 9000 BC, which coincides with the dogs protecting the first herds. As herds became more numerous, the nomadic way of life began to develop. Geographically and temporally the latter coincides with the beginnings of the development of shepherd dogs, which began about 4,000 years ago with the gradual shift of small cattle from Central Asia to the west and finally throughout Europe. As a consequence a conscientious selection developed in different parts of the world regarding the guarding dogs, which accompanied herds, and was further strengthened with the advent of agriculture and permanent settlement.

Two types of dogs with different characteristics and abilities started to develop. The smaller, more agile and vigorous dogs with a more pronounced hunting instincts kept the herds together, herded fugitive animals, and were willing to cooperate with people and comply with their demands. The dogs that are today considered shepherd dogs, which include also official dogs, developed from them over time.

The more calm, independent and sometimes quite stubborn dogs with a stronger body constitution and a hardened hunting instinct - the ancestors of today's livestock guarding dogs - began protecting the herds. In different parts of the world, dogs for the protection of herds, which



*The novel **Ovčar Marko** by Janez Jalen, which includes a Karst shepherd. Photo: Tomaž Berce*

were physically and according to their work ability adapted to the local geographical conditions, the special features of the living environment and the way of rearing domestic animals came into existence. Regardless of where they originate from, the livestock guarding dog breeds have similar working abilities and temper, while those who originate from similar backgrounds are often similar also in appearance.

For millennia the livestock guarding dogs were bred mainly due to their working abilities and not because of their attractive looks. It was not until the middle of the 19th century that we began to classify dogs according to the breed and came up with breed standards. It was then that the role of dogs began to change, but even though their appearance often became even more important than the working abilities, the specific behavioural characteristics of the ancestors of breed dogs are largely preserved in their present descendants.

Did you know?



Karst shepherd is the only Slovenian livestock guarding dog breed that is also recognized by the international organization FCI. In the *Glory of the Dutchy of Carniola*, Janez Vajkard Valvasor wrote about the special features of the breed.

5 PROTECTION OF THE HERD WITH LIVESTOCK GUARDING DOGS

Why protect with livestock guarding dogs?

Tested through millennia, the livestock guarding dogs are guardians of grazing animals. The use of dogs in combination with electric fences is considered one of the most effective methods used by many breeders in Europe and around the world. Basically, the very presence of dogs discourages predators from the pasture, since they draw attention with their self-confident posture, barking and marking the territory. Once a dog becomes attached to a herd, it defends it heartily its whole life, which is why the time needed to raise a livestock guarding dog is a long-term investment.

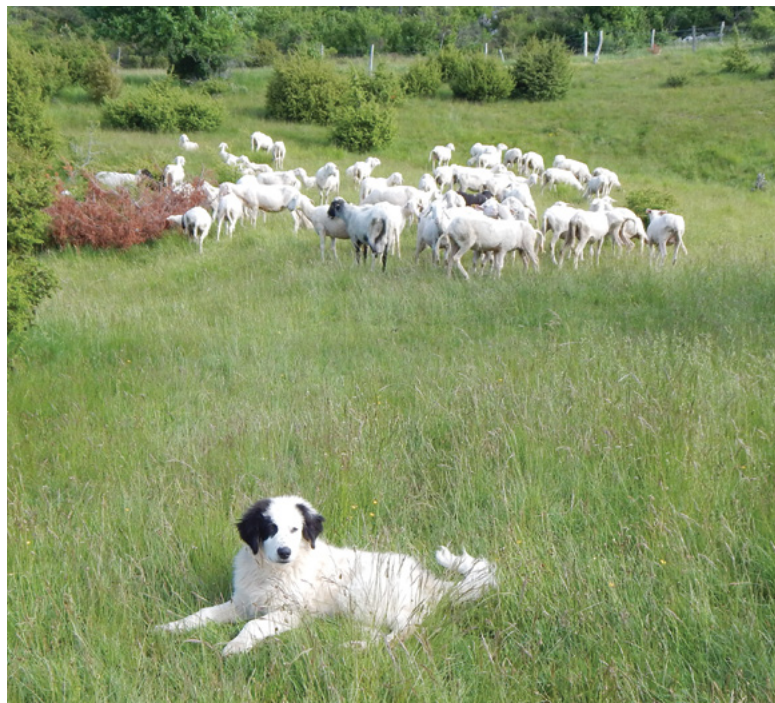
What do breeders expect from a livestock guarding dog?

A livestock guarding dog is expected to:

- **protect the herd from predators by its presence,**
- **prevent or reduce animal losses,**
- **be an integral part of the herd and constantly present in the vicinity of the herd,**
- **be trustworthy and perform its tasks reliably and efficiently.**

This can be achieved with shepherd dogs, which are:

- **attached to the herd,**
- **attentive to the herd and its environment,**
- **protective of the herd and the territory.**



Livestock guarding dogs spend their life at the side of the herd. Photo: Tomaž Berce



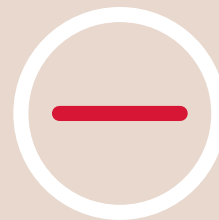
Did you know?

Livestock guarding dogs are less active and look lazy during the day, as they like to lay in the shade near the herd. This shows a covert vigilance, as they have the herd and the environment always under control. At the slightest unusualness they quickly raise their head and become alert. Their main activity begins and ends in the dark, since it is the night that represents the greatest threat to the herd, which is why it is then that livestock guarding dogs carry out their mission.

Advantages and disadvantages of using shepherd dogs



- Effective protection of small cattle and other grazing animals from predators.
- Reduction of losses in the herd (economic aspect).
- Averting of predators from the pasture area (with its presence on the pasture and by marking the territory alone).
- Less work with an adult dog (2 years old).
- Less work with the herd (e.g. the closing in a stable or an enclosure).
- Reliable long-term investment.



- A lot of work with the dog in the first year and a half (less work if the young dog is put in a pasture that is already protected by an adult dog).
- The risk that the dog will not develop into an effective guardian of the herd. The suitability of the dog for herding is conditioned by its personality, the inherited characteristics and experience.
- The area where the shepherd dogs are held must be enclosed (with electricity).
- In remote areas or in areas with many visitors, hikers or mushroom pickers, it is more difficult to protect with shepherd dogs. In these areas we recommend using more peaceful breeds.
- The effectiveness of protection is conditioned by the number of dogs (at least three dogs), which represents a big financial burden.

Number of dogs per herd

In order for the protection to be effective, several dogs, or at least three, should guard the herd. Imagine that the herd is approached by a pack of five wolves. It would be difficult to defend it for a single dog, even if it is brave and big enough, since the wolves can divide the herd, some of them holding the dog on one part of the pasture, while the others attack the herd on the other. The effectiveness of protecting with livestock guarding dogs thus increases with the number of dogs. Three dogs can stand up to such a pack of wolves, as they themselves act in a pack and distribute tasks.

Advantages of a larger number of dogs:

- **a group of dogs acts as a pack** and the division of work occurs: the females are usually those who are more active and check the state of the pasture, while the males remain with the herd;
- once in a group, each dog relies on the **help of the other members of the pack**, thus being more confident and determined;
- **older dogs discipline and educate the younger ones**, which thus learn:
- if the dogs are bored, especially when they are young and playful, they prefer to play with other dogs than with other animals in the herd.

Adding dogs to a herd protected by an adult, experienced dog

When our first dog grows into an independent guardian, we can add some help in the form of a younger dog, which will learn the skills of the adult, while at the same time, the “older” one will pay attention to the younger's behaviour, raising it and minimizing its playfulness. The formation of a livestock guarding dog group thus progresses gradually.

Dog nutrition

Livestock guarding dogs are calm dogs that spend most of the day inactive, and that are, taking into account their size and weight, quite modest in their diet as they do not eat large amounts of food.

Most breeders choose simple foods that contain both raw meat and briquettes. The food must also contain all the necessary nutrients in the correct ratio. The dog can be fed both with raw and cooked meat, however, it is advisable that it does not get both together. It is also important that the food is not salty. As far as raw meat is concerned, there is not need to be afraid that the dog would link the meat to the animals it is protecting.



Did you know?

When an ewe has a lamb, the guarding dogs may eat the remainder of the placenta, which prevents the predators from being attracted. Such behaviour is perfectly normal and does not affect the dog's attitude towards the animals in the herd.



Increased number of dogs increases the reliability of protection from predators. Photo: Tomáš Berce

A healthy dog must occasionally also get bones, however, always only raw, fleshy and appropriately large, for example, tails of young animals or poultry necks. Hard and barebones cause constipation, they can split and damage the dog, or the dog can break its teeth. Less suitable are also pig bones, since they cause diarrhoea.

It is recommended to feed the dog on the pasture or in a stable, that is, on the territory where the animals that the dog protects are kept. The food must be protected so that other animals cannot reach it.

Young dogs should be fed three times a day until the age of six months, then at least twice a day for one year, and adults at least once a day. We must also ensure that the dog always has enough fresh drinking water at its disposal.

Health care and care of the dog

Only healthy guardians can successfully carry out their work, which is why their health status must be checked regularly.

Although the dogs are preventively protected against rabies and infectious diseases of dogs with regular vaccinations, they can also fall ill due to other causes. When we notice changes in the normal behaviour of the dog (apathy, decreased appetite or changes in water drinking), the veterinarian must be informed.

During the whole body examinations we must pay particular attention to the following:

- teeth (tooth fractures, gum damage, stuck bones or sticks, etc.),
- eyes (inflammation, injuries),
- earlaps (injuries) and ears (inflammation),
- paws: damaged pads, tracers, claws,
- fur: bites, wounds, parasites (fleas, ticks, areas without fur).

We can treat minor injuries by ourselves, but other than that, we should let the veterinarian do his job. At regular intervals we take care of protection from internal and external parasites. In the case of a non-sterile bitch, we must identify the first signs when it starts to heat in time and take appropriate action.

Did you know?

Dogs are rarely truly involved in a fight with large carnivores. Since the bites to the neck are the most dangerous, the dog can be protected with a special spiked collar that is wider than ordinary and has outward facing sharp spines.



A collar with sharp spikes protects the dog from bites to the neck. Photo: Rok Černe

Economics of use of shepherd dogs as a measure to protect the herd

Before purchasing a shepherd dog, we must estimate the cost of such a herd protection measure. The assessments presented in the table were prepared in collaboration with experienced breeders of shepherd dogs.

Type of expense	Description	Expense (€)	Note	Annual expense estimate (€)*
Purchasing a cub**	Dog with a pedigree	500-1000	Price depends on the bred. One-off expense	90
	Dog declaration	18	One-off expense	2,25
Food	Meat, briquettes, supplements	50-100 / month	Depending on food quality	900
Vaccination	Rabies	38 / vaccination	3 years in a row, then 3 years of pause and then another vaccination	35
Veterinarian	Depending on different factors	Depending on type of procedure	Least foreseeable expenses!	100
ASSESSMENT OF THE OVERALL ANNUAL COST (€)				1200

* The average annual cost is divided into the period of the intended use of the dog, that is 8 years

** For the chipping of cubs, the first vaccination against infectious diseases and the acquisition of a passport should be provided by the first owner or breeder.

When calculating the costs, we must take into account also the positive side of shepherd dog protection; **less losses and damage to animals** (veterinary care) in the herd due to the plundering of carnivores, the herd is more calm (impact on milk and increment) since its guardian takes care of it, while the breeders can sleep calmly since they have a reliable keeper of the herd.

6 HOW TO GET AN EFFECTIVE SHEPHERD DOG

The effectiveness of shepherd dogs depends on:

- INNATE PROPERTIES,
- APPROPRIATE EDUCATION.

The task of the breeder is to ensure suitable conditions for the development of the inherited characteristics of a guarding dog, so that the dogs then perform their mission instinctively. Commitment and will to work with a dog are therefore key elements that every dog owner must possess!

Working environment

Each dog must be provided with basic care:

- water,
- food,
- shadow,
- shelter for young dogs,
- vaccination and veterinary care (injuries and parasites).

Livestock guarding dog on a pasture

Electric fence

The arrangement of the pasture before the arrival of the herd which will be protected by the livestock guarding dog is of crucial importance. It must be ensured that the dog will not run away from the pasture, since an escape would reduce the safety of the herd, and also endanger the dog (traffic, other dogs) as well as humans. The mentioned is prevented by putting up an **electric fence**. When doing so we must keep in mind that the dog is much more ingenious and skilful than sheep, which means that it can easily slip away. The advantage of electric fences in front of ordinary fences is the fear that the dog will gain from the pain caused by the electric impulse.

Warning signs

Unwanted visits to the pasture can be prevented by putting up **warning signs**, which warn the passers-by that a working dog, performing its duties as the guardian of the herd against intruders is behind the fence. The signs should be placed on all potential passages and densely enough so that passers-by do not overlook them. At the entrance to the pasture, a sign with owner's information (name and surname, address, telephone) should be placed.



Warning sign informing about the presence of a livestock guarding dog on the pasture. Author: Igor Pičulin

Livestock guarding dog in a stable

Winter time is the most suitable period for the inclusion of a young dog in a herd, as we will have ample time to observe the dog in the herd which is closed in a restricted area. For young dogs we must prepare a shelter in which they can withdraw from the animals, yet remain in close contact with

them. In the beginning the dog should be placed in a small herd of calm and tolerant animals, and be regularly observed. Adult dogs must also be kept in constant contact with the herd during the winter so that they stay closely connected to it.



*Livestock guarding dogs spend all their time with the herd, even during winter, when the animals are kept in a stable.
Photo: Tomáš Berce*

Raising a dog - key steps

1. Choosing a puppy

The importance of the livestock guarding dog's pedigree

Our ancestors carefully selected dogs with characteristics which helped them work. Through the millennia, the shepherd breeds of dogs developed the characteristics that we know today. The purity of the pedigree means more possibility for:

- expected and wanted instincts,
- predictable physical and character traits,
- long-term preservation of the positive characteristics that are expected from the dogs.

Mixed-breeds and dogs of unknown origin are more likely to develop instincts (e.g. predatory instinct) that are not desired in guardians of herds.

Dogs from the working line

It is recommended to select a cub from the working line, which means that the parents of the dog are in regular contact with the animals and actively perform the tasks of a livestock guarding dog. Dogs from the working line are more likely to inherit those characteristics that are expected from the guardian of a herd. The cubs of breeders of dogs from a working line usually begin getting to know other animals already during the first few weeks after they are born, either through sniffing or by observing animals.

2. Early contact with animals - growing up in the herd

The role of a livestock guarding dog is to live with the herd and guard it. Without constant contact with the animals in the herd, it is impossible to get attached to them, therefore it is crucial that the cub grows up among them. Since this bond begins to form very early, **the cub should be included in the herd already at the age of 8-9 weeks.**

An experienced breeder of livestock guarding dogs will recognize the first signs indicating whether the cub is suitable to be a shepherd dog and will be able to advise the interested party when choosing the cub.



*It is recommended to select a cub from the working line.
Photo: Stanko Pašič*

It is interesting to note that adult livestock guarding dogs also show behaviour, typical of the young ones:

- showing subordination to the animals in the herd (snout licking, exposing the abdomen, calming down by yawning);
- playing,
- animal tracking,
- staying with the herd,
- barking in case of abnormalities.



It is important that cubs begin getting to know animals when they are eight weeks old. Photo: Tomaž Berce



A young dog must have a place to which it can withdraw from the animals. Photo: Tomaž Berce



Young Karst shepherd acquainting itself with the lamb by sniffing. Photo: Irena Kavčič

Including a young dog into a herd protected by an adult dog

If the herd is protected by an adult, an already formed dog, the young one must be included gradually in order to prevent the defensive response of the existing dog. **The raising of the young dog will then fall onto the adult dog, as the young one will imitate it, while the adult one calms it down to prevent the occurrence of unwanted behaviour.** If we have only begun with the protection with livestock guarding dogs, the cubs are added to the herd individually and sequentially, so that only one cub is in the herd, since the playfulness of several cubs at once could lead to the dogs not getting attached to the animals in the herd.



Adult Yugoslavian shepherd dog or Sharplaninac, and a year and a half old Bosnian and Hezegovinian – Croatian shepherd dog or tornjak. Photo: Tomaž Berce

3. Consistent education

Regular monitoring

From the first weeks to about the age of a year and a half, the dog is regularly and frequently supervised, which is done both secretly and directly beside the herd. Thus it is possible to determine whether and when we can trust the dog. Regular supervision and frequent presence also provide a quick response in case of inconvenience, which is of crucial importance for eliminating unwanted behavioural patterns that could develop into bad habits. **Elimination of unwanted behaviours must therefore be timely, effective and consistent.** Learn more in Chapter 7.



Special attention is paid to the observation of a dog when it is first moved to the pasture with the herd.

Photo: Mirjam Kržič

4. Getting to know the borders of the pasture and electric fences

Every owner wishes for the livestock guarding dog to stay within the intended area. In order to achieve this, the dog must recognize the borders which should be respected, and this is learned by regular walks along the borders of the pasture. Joint trips along the borders of the territory are also the opportunity for the dog to get used to your putting on the collar and being attached to a leash, and for teaching it the “heel” command and the basics of obedience.

A dog that escapes from the pasture can travel several kilometres and is repeatedly exposed to traffic. To prevent escaping, we must ensure that the dog is never successful when looking for an exit. It also helps if the dog has no reason to leave, which is far more difficult to achieve. **The sooner a young dog realizes that the obstacle cannot be crossed or that it is painful (electricity), the more likely it is that it will respect the border.**



Electric fence prevents escaping from the pasture.

Photo: Tomaž Berce

5. Basic socialization of a dog

A guarding dog must **know the people it will most often meet**, however, and at the same contact with people should be minimized. A livestock **guarding dog does not need attention and play with people**, since it otherwise gets attached to humans instead of the herd that it will protect. The wish to be in contact with people is the most common cause for a dog to run away from the pasture, and we therefore have to act preventively.

It is also advisable that the dog knows the veterinarian who will periodically examine it. It is best that we conduct all the visits to the dog in the place where the herd is located. All the visitors must also always be accompanied, since the dog recognizes an unknown person as an intruder.

6. Getting to know other animals and dogs

The dog must also gradually become familiar with all the animals that are not part of the herd, but that it will occasionally meet, which refers especially to other dogs, such as sheep-dogs or family dogs. We familiarize the dog with the other animals while it is growing up, however, by meeting only one animal at a time.

Even more attention must be paid to the dog during lambing. During that time the dog must be regularly supervised and its responses monitored, as it will then meet the new members of the herd. The dog should observe the lambing together with us and from a reasonable distance, while we ensure that it remains calm.

7. Castration, sterilization - yes or no?

Castration of males or sterilization of females is the owner's decision and depends on whether he / she is planning to have more litters in the future. It should be pointed out that **these two procedures do not affect the working abilities of the dogs and do not reduce their effectiveness in protecting the herd.**

The males calm down after the castration, since they are no longer interested in the females in the vicinity of the pasture, especially those who are in season. Sterilized female dogs may remain by the herd all the time, since they are never again in season and therefore do not need to be moved during season. Both procedures also prevent unwanted mating.



Did you know?

Good livestock guarding dogs move slowly so as not to upset the animals. Instead of walking among animals, they slowly bypass the herd.

7 THE MOST COMMON INCONVENIENCES AND MISTAKES WHEN USING LIVESTOCK GUARDING DOGS

Raising and unwanted behaviour

Raising a livestock guarding dog is a process that lasts until the dog is two years old. **If we notice unwanted behaviour, we must suppress it as soon as possible. Unwanted behaviours should be immediately stopped by correction, and the dog prevented from repeating them, so that such a behaviour does not become a habit.**

Most importantly, the dog should **be alerted the moment** we notice unwanted behaviour. **When the first inconvenience occurs, the dog should be warned with a strong and loud: “NO!”, which usually works for young dogs.**

If the behaviour is repeated, we devote more time to observing the dog in a covert way, while ensuring that the dog does not detect us, since dogs can, in our presence, behave differently than otherwise.

In case an oral warning does not help, the dog must be alerted with a more strict behaviour, for example by hitting the ground near the dog with a stick. The actions that scare the dog at that moment, for example loud sounds, usually suffice.

Correcting must be short and decisive. We must prevent the inappropriate behaviour from turning into a habit. The warning or correction must occur immediately upon the start of improper behaviour, or even better, just before it, when we notice that the dog is preparing to do it. **Do not forget: every time the dog manages to repeat the unwanted behaviour, such behaviour is further strengthened.**

One of the more common mistakes made by livestock guarding dog owners is that they trust the young dog too soon and start leaving it with the herd without supervision.

Suppression of errors must always be:

- ON TIME
- CONSISTENT
- ENERGETIC
- EFFECTIVE

False expectations of the breeders

The dog is not a working machine or a device that is to be let loose on a pasture to do its job. This can be expected only from an adult dog, which has been with the herd since it was a cub and has been consistently raised for two years.

Before deciding whether to include a livestock guarding dog in a herd, we must be sure that working with a livestock guarding dog really suits us. The most useful information and advice can be obtained by visiting an experienced breeder who uses guarding dogs for protection.



Undesired behaviour of a livestock guarding dog



1. Excessive playfulness of the dog - chasing of animals in the pasture

Young dogs are naturally playful and deal with boredom in various ways. If they are in the pasture alone with the herd, the excess energy can be directed at playing with animals, however, these animals do not perceive dog games in the same way as dog peers. When animals run, the dog is even more motivated and will therefore chase them with even more enthusiasm and more frequently, which causes restlessness and stress among the animals in the pasture.



Solution:

- Leave a few safe toys in the pasture for the young dog, which it will then carry around the pasture and chew on. Its energy will thus be spent on playing with these objects and not chasing animals.
- If the behaviour is repeated, put a vleka ali obešanka around the dog's neck. Both objects prevent the dog from running, thus preventing the pursuit of animals.
- Every once in a while allow the dog to play with other (tolerant!) dogs, however, only for a short time, so that it does not get attached but only spends the excess energy.



A young torjak chasing a lamb. Photo: Tomaž Berce



A young Karst shepherd with a hanging tool, which hinders the dog when moving. Photo: Irena Kavčič

Dog tied in the pasture?

A livestock guarding dog that is tied in the pasture cannot perform its duties and is therefore useless. At the same time it can also be an easy victim of potential predators.



! 2. Biting of animals

A dog can develop a natural instinct of biting animals. They bite especially younger animals and in more exposed parts of the body, such as ears, tails and fur. In a similar way a young dog would play with its peers that respond in the same way. However, the animals in the herd do not play like that, thus becoming prey in the dog's eyes, which must not be allowed and we must immediately react.



Solution:

As with all unwanted behaviours, we should take action as soon as biting occurs, since a quick response is of crucial importance. By observing the dog we will recognize the signs that foretell biting and prevent it by sharply alerting the dog just before it does so.



The result of biting is visible damage to earlap or other exposed parts. Photo: Irena Kavčič



The dog must be made aware of unwanted behaviour as soon as it is observed. Later alerts and corrections (for example only once we have noticed the bitten ears of a sheep) are futile, since the dog does not know why he was warned or punished.

! 3. Escaping from the pasture

There are three most likely reasons for a dog to escape from the pasture:

- **Attachment to a person:** the dog is more attached to the owner than to the herd and is therefore returning home.
- **Boredom:** outside the pasture there is something more interesting, and the dog is rewarded by escaping.
- **Easy escape:** the dog gets used to escaping because nothing hinders it (there is no fence or it is poor, for example without an electric current).



Solution:

We must ensure that escaping does not become a habit. An electric fence that will represent not only physical, but also psychological obstacle due to the fear of pain (contact with electricity) should be put up. We should acquaint a young dog with the electro fence as soon as possible and not play too much with it so that it does not get too attached to us.



The escaping from the pasture is prevented by a sufficiently high electric fence in which the electric current is constantly present. Photo: Tomaž Berce

Beginners' experience

Janez Kržič, Prevalje pod Krimom

At the **Kržič farm** in Prevalje pod Krimom the sheep and goats herds are protected from large carnivores with the help of electric nets and livestock guarding dogs. In February 2017, a young tornjak named Kala was included in the herd, and soon became accustomed to goats, thus becoming part of the herd. In the spring she then joined them in the pasture for the first time and spent her first grazing season there. At the beginning of 2018, a young female Karst shepherd Tisa joined the farm. It was carefully selected from the litter with the help of an experienced expert in the Karst, breeder Anita Tomšič. The young puppy immediately surprised with self-confidence and determination, which indicates that it will become an excellent animal guardian. The dog is currently included in a separate herd of adult goats, where it is forming and acquiring experience. In March 2018 the owners of the farm decided for a new reinforcement, and from Sedmak farm brought a young female dog Bela. Bela's first contact with animals occurred already in the litter, and then later on it spent the first months with a small herd of calm sheep. Once it was estimated that the oldest bitch Kala was mature enough, the breeder, Aleš Sedmak, advised including the young puppy Bela in the herd protected by Kala. The dogs immediately took to each other and did not cause any trouble. The owners are extremely satisfied with the dogs and claim that getting them was an excellent investment in the future of the farm, since the animals graze in areas where they are exposed to large carnivores.



*Breeder Janez Kržič with tornjak Kala.
Photo: Mirjam Kržič*



*Breeder Igor Mlekuž and tornjak
Tor on the mountain Krnica pod
Kaninom. Photo: Zdenko Požar*

Igor Mlekuž, Bovec

Breeder Igor Mlekuž from Bovec brought to the farm a young tornjak named Tor, which he got through the LIFE DINALP BEAR project in March 2018. Tor comes from the neighbouring farm Sedmak from Juršče. During the grazing season the dog is located on the mountain Krnica pod Kaninom, and in winter it will move to Bovec, together with the herd. The new owner is satisfied with the dog. He says that the youthful Tor sometimes pulls his leg, but that generally they get along well. The young tornjak is most happy when the herd is gathered around it, but most attached to the goat named Srnica. For a good upbringing of a dog it is essential that the dog is included in the herd and in constant contact with the animals.

8 LIVESTOCK GUARDING DOG BREEDS

In Europe and around the world, there are a lot of breeds of livestock guarding dogs. They evolved through history according to the needs of the shepherds, which is why they differ both physically and in terms of personality. The most common breeds of livestock guarding dogs in Slovenia are:

TORNJAK



Photo: Tomaž Berce

SHARPLANINAC



Photo: Stanko Pašič

KARST SHEPHERD



Photo: Tomaž Berce

CAUCASIAN SHEPHERD DOG



Photo: Poni ranč Ogrizek

MAREMMA AND THE ABRUZZESS SHEEPDOG



Photo: Arhiv Avtonomne province Trento

KUVASZ



Photo: Tomaž Berce

PYRENEAN MOUNTAIN DOG



Photo: Anja Kosi

9 WHERE CAN I GET A LIVESTOCK GUARDING DOG?

About the LIFE DINALP BEAR project

The LIFE DINALP BEAR project (Integrated management and protection of the brown bear in the northern Dinarides and the Alps) is an international project that involves four countries: Slovenia, Croatia, Italy and Austria. One of the main goals of the project is to reduce the number of conflicts arising between man and brown bear, among other due to the damage to human property caused by the bears. The damage is most commonly caused on small cattle and this manual presents one of the ways to prevent such damage.

Livestock guarding dogs in Slovenia

The LIFE DINALP BEAR project has established cooperation with five experienced livestock guarding dog breeders, who use their dogs for the protection of small livestock from large carnivores and are constantly present at the herd. The talk is therefore not about family dogs, but rather working dogs. Consequently we have established a network of working lines, where the interested farmers of grazing animals can get livestock guarding dogs with pedigree at a co-financed price. The main goal of the activities in the field of livestock guarding dogs in the project is the promotion of the use of livestock guarding dogs for protection of small cattle from the brown bear and other predators. The idea of working with livestock guarding dogs originates from the SloWolf project, where 12 dogs were distributed among breeders. With the LIFE DINALP BEAR project we wanted to continue the good practice and connect with experienced breeders who have first-hand knowledge that can be handed over to the recipients of young dogs, and who can act as advisors and offer help to beginner owners. We are sure that the participating breeders will perform their work diligently also in the future.

The recipients of young dogs are offered counselling, and we regularly visit them and monitor the dog's inclusion in the new environment. The main role in this is played precisely by the breeders that the recipients got their young dogs from.



Foto: Tomaž Berce

Collaborating breeders

ALEŠ SEDMAK



Photo: Tomaž Berce



Photo: Tamino Petelinšek

About the breeder

The Sedmak farm has been involved in the breeding of small cattle and other grazing animals for almost 20 years. Grazing without the help of livestock guarding dogs is unimaginable in Pivško, which is why they have three to six dogs that are constantly by the herd, day and night, in summer and in winter. There has been no damage during this period. In their herd they have tornjaks and a female Central Asian shepherd dog.

ANITA TOMŠIČ



Photo: Anita Tomšič



Photo: Mirjam Kržič

O VZREDITELJU

At the family farm in Pivško where they have been breeding sheep for more than a decade, has since the beginning been present a livestock guarding dog which provides additional protection from large carnivores. The breeder is convinced that Karst shepherds are excellent for performing the tasks of herd guardians, which is why the collaboration with the project is one of the steps towards the promotion of this autochthonous breed in Slovenia.

GREGOR OGRIZEK



Photo: Poni ranč Ogrizek



Photo: Poni ranč Ogrizek

About the breeder

The Pony ranch Ogrizek farm has been breeding different kinds of animals for 15 years. They mostly breed horses, ponies, llamas, and also small cattle and pigs. They have been also breeding dogs for 25 years, 15 of those professionally. They have raised more than 60 Caucasian shepherd dogs and at least a third of them perform the tasks of herd guardians in pastures. At the farm they teach people and animals how to coexist.

KAJA ŠPRUK



Photo: Blaž Košak



Photo: Blaž Košak

About the breeder

On a smaller farm on the edge of Ljubljansko barje, a large part of the activities is aimed at breeding dogs for sheep herding, however, the need to protect the herd has recently led to the breeding of livestock guarding dogs. They decided on protection with the help of different breeds, including two tornjaks with which they participate in the project.

STANKO PAŠIČ



Photo: Stanko Pašič



Photo: Stanko Pašič

About the breeder

Na kmetiji se zadnjih 30 let ukvarjajo z rejo drobnice in konjev. Pašnike pred medvedom in drugimi plenilci varuje elektrograja, na pašniku pa so stalno prisotni pastirski psi. Že 25 let se ukvarjajo z vzrejo šarplanincev, od koder je k novim lastnikom šlo na desetine odličnih varuhov črede. Vzrejo izvajajo v okviru registrirane psarne Laneni dol.

Professional associates

Mišo Šapec

He started breeding tornjaks in 2005, only a year after he brought his female tornjak from Bosnia. Wishing to help the new owners of tornjaks with the raising to the greatest possible extent, he first completed his education at KD Grosuplje, where he later passed the exam for the instructor at the KZS.

He registered the kennel from Mali Vrhek at FCI in 2005, and he also worked hard on the recognition of the breed in Slovenia. He participated in the presentation of the breed in Zagreb, on the basis of which the breed was in 2007 officially recognized. As a breeder he has had 6 litters up to now (over 42 puppies). He was a member of the State Farming Commission for Tornjaks, Sharpplani-

necs and tornjaks at the KZS.

He also often visited livestock guarding dog breeders in Bosnia and Herzegovina, where he became familiar with the work of these dogs. In Slovenia he cooperates with sheep breeders who use tornjaks for herd guarding. On the LIFE DINALP BEAR project he works as a professional assistant for the tornjak breed.

Karmen Zahariaš

Karmen is an instructor in dogs training licensed by the Kennel Association of Slovenia. She has been conducting courses of dog breeding and training without interruptions for more than 25 years, trying to incorporate in her efforts new

insights from the study of dogs as an animal species. Her special interests are the growing up and the social life of dogs, their behaviour and communication, and the behavioural differences between the different types of dogs, depending on their origin and areas of use. Occasionally she also lectures on these topics, participates in kennel workshops and publishes articles in

various magazines. As a field consultant she also participated in the SloWolf project, where she gained great experience in the field of livestock guarding dogs and their importance in protecting grazing animals from large carnivores. On the LIFE DINALP BEAR project she works as a professional assistant in the field of dog breeding.

Livestock guarding dogs in Italy

As part of the LIFE DINALP BEAR project, 36 livestock guarding dogs were distributed in the Italian province of Trento in order to protect the herds, namely the breed of the Maremma and the Abruzzes shepherd dogs. The origin of the dogs is confirmed by the Association of breeders of the Maremma and the Abruzzes shepherd dogs. In the field the Province of Trento regularly cooperates with the recipients, and by monitoring the dogs checks the inclusion of

the cubs in the new environment. Their goal is to provide the dogs with an appropriate environment where they could develop the inherited properties in combination with appropriate up-bringing. The dogs are therefore regularly visited by a veterinarian who is trained in breeding of livestock guarding dogs. The veterinarian checks the health status of the dogs in the field and advises owners on the key steps to raising an effective herd guard.



*One of the dogs that was given by the Autonomous Province of Trento (Italy).
Photo: archive of the Autonomous Province of Trento*

10 ACKNOWLEDGMENT

The manual was created in cooperation with numerous breeders and owners of livestock guarding dogs, who have been dealing with the presented herd protection for many years. Without their invaluable experience, any project activity in the field of livestock guarding dogs would be purely theoretical; the dog breeders and dog recipients from the LIFE DINALP BEAR project are those who deal with the practice every day as experts or beginners, and the manual is thus an ideal opportunity to put their insights into the written word. The acknowledgment also goes to all the participants on the project, especially the cynologist Miš Šapcuter and experts in the field of large carnivores, who professionally reviewed the manual: Rok Černe, Bojana Lavrič, dr. Irena Kavčič and Vesna Oražem. I also thank all the photographers and the illustrator Igor Pičulin for creating the warning sign.

We therefore thank all those who hand their knowledge on and thus preserve the noble tradition that we received from our ancestors.

11 SOURCES AND RECOMMENDED LITERATURE

- Berce, T., Černe, R. 2016. Reja domačih živali in sobivanje z zvermi – Varovanje drobnice pred velikimi zvermi. Zavod za gozdove Slovenije. Naročnik: Ministrstvo za kmetijstvo, gozdarstvo in prehrano.
- Coppinger, R., Coppinger, L. 2001. Dogs: a startling new understanding of canine origin, behaviour, and evolution. Bibliovault OAI Repository, the University of Chicago Press.
- Dawydiak, O., Sims, D. E. 2004. Livestock Protection Dogs: Selection, Care and Training. Second Edition. Alpine publications, Loveland.
- Emeršič, M., Zahariaš, K. 2011. Pastirski psi – varuhi črede. Brošura je izdelana v okviru projekta SloWolf (LIFE08 NAT/SLO/000244 SloWolf). Ljubljana, Univerza v Ljubljani, Biotehniška fakulteta, Oddelek za biologijo.
- Kavčič, I., Vidrih, M., Černe, R., Zahariaš, K., Emeršič, M., Skrbinšek, T., Muhič, P., Žgavec, R., Udovič, U., Sulič, T. 2013. Primeri dobre prakse – poročilo akcije C.6 pripravljeno v okviru projekta LIFE+ SloWolf. Ljubljana, Univerza v Ljubljani.
- Žgavec, R., Lah, M., Emeršič, B., Krajnc Sluga, B., Žafran., D. 2006. Strokovne osnove za izvajanje ukrepa odvrčanja velikih zveri s pastirskimi psi. DVLKOS, Ljubljana.

SUMMARY OF KEY INSTRUCTIONS

- The key task of the breeder or owner of a livestock guarding dog is to create conditions in which the dog will develop the inherited properties that are expected of it.
- The cub is included into the herd at the age of 8-9 weeks.
- Raising a livestock guarding dog is a process that takes at least the first two years of a dog's life.
- The effective territory border – electric fence that has two tasks: it prevents the predators from accessing the pasture and it prevents the dog from escaping from the pasture.
- If the dog keeps escaping:
 - the herd remains without a guard,
 - is exposed to traffic hazards,
 - is potentially dangerous for humans and other animals.
- Warning signs are placed around the pasture, clearly indicating that there is a dog that protects the herd from intruders behind the fence.
- In order to increase the safety of the herd from large carnivores, the herd should be guarded by at least three dogs.

For more information on protection of human property from brown bears and other large carnivores, please visit www.varna-pasa.si.

