Berg Life Wiesen bei Winterberg

Impressive.Colourful.Mountain Meadows

A report from six project years dedicated to the mountain meadows of the Sauerland

Life Bergwiesen bei Winterberg

Naturschutzzentrum
- Biologische Station -
Hochsauerlandkreis e.V.

A project of the Biologische Station Hochsauerlandkreis e. V.

Life

NATURA 2000

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Colourful flower meadows were once taken for granted; for centuries they were the typical hay-making meadows. The late time of mowing allowed the grasses and herbs to flower and allowed time for the seeds to mature. Butterflies, grasshoppers, birds and many other animals found habitats in this plant diversity. However, the abandonment of traditional hay farming caused these habitats to disappear.
The LIFE project was aimed at re-establishing the mountain meadows.
In 2011, the LIFE project started with the guiding principle: "With the people of the region - for the region". The efforts were thus focussed not only on the meadows themselves, but also on their users. In close cooperation with local farmers, concepts were developed for how the protected mountain pastures should be managed today in order to sustainably protect them. In return, the farmer should also benefit: new marketing and value creation strategies for the high-quality mountain meadow hay were developed. Summer tourism also plays an important role here in bringing value to the region.
An extensive programme of activities was devised to show the people of the region, as well as visitors from further afield, the value of the mountain meadows. In summer, colourful flowering meadows are an attraction for all those seeking recreation in a natural environment. Away from the Eifel region, the only mountain meadows in North Rhine-Westphalia are to be found in the highest regions of the Sauerland, the Rothaargebirge. This is a unique, identity-forming feature which can be used to promote tourism in the Winterberg area.


Life

LIFE Nature - a funding programme of the European Union

LIFE Nature is a funding programme of the European Union designed to support nature conservation projects aimed at preserving valuable habitats, as well as rare or endangered animal and plant species. A Europe-wide interconnected system of protected areas has been designated for habitat types covered by the Fauna Flora Habitat Directive, as well as bird species protected under the Conservation of Wild Birds Directive. The "Natura 2000" protected area network therefore consists of FFH areas and bird protection areas. The aim is to preserve the biodiversity of Europe for future generations.
The LIFE project "Mountain Meadows near Winterberg" was devoted to the conservation of grassland in the Hochsauerland region. It had three main FFH habitat types in view: mountain meadows, Nardus (Matgrass) grassland and dwarf shrub heaths. These habitats, and the FFH areas in which the project was implemented, are presented in the following sections.
A budget of 1.9 million Euros was made available for the project. 50% of this came from the European Union, 45% from the state of North Rhine-Westphalia and 5% from the Hochsauerland District Council.

NATURA 2000

7 The FFH habitat type "Mountain Meadow"

Mountain meadows - are they pure nature?

In fact, mountain meadows are not a purely natural habitat – even though many people cherish "flowering meadows" as the epitome of „nature“. Meadows can only be retained if they are managed by annual mowing. If this use is discontinued, the meadows degenerate. The area is then colonized by trees and shrubs and eventually becomes woodland. Here in the Sauerland, the end product of this development is generally a beech forest.
So it was man's farming practices that created the meadow and pasture landscapes that support a far greater diversity of species than occur in the natural forest landscape.

Mountain hay meadows in bloom - an abundance of wild flowers

Mountain meadows are meadows of a special kind. Only in the rough, cool and humid mountain climate more than 550 m above mean sea level can the "mountain meadow" community of special plant and animal species develop. The climate, as well as the nutrient-poor soils on slopes and peaks, limit the growth performance of mountain meadows. Typical plant representatives are Wood Cranesbill, Black Rampion, Golden Oat Grass and Northern Hawksbeard. But also specialized butterflies like the Scarce Copper, the Purple-edged Copper and the Forester Moth occur mainly on mountain meadows. Around 50 different grassland plants grow in a single, well-developed mountain meadow in the Sauerland region. The best meadows may contain up to 300 plants. Flowers are therefore abundant, providing a plentiful supply of nectar for bees and other invertebrates. The vegetation is also an important food source for choosy foliage eaters, sap suckers and stemborers.
Although the mountain meadows of our low mountains are not as rich in species as the mountain meadows of the Alps, whose grassland is rightly called the "rainforest" of the temperate zone, they do belong to the most species-diverse habitats of Central Europe with all their grasses, herbs, butterflies, grasshoppers, bugs, cicadas, aphids, flies, wild bees, ants, spiders, small mammals, birds and other creatures.

Mountain meadows have many faces

Every mountain meadow is unique, no two meadows are the same. It all depends on whether the soil is moist or dry, nutrient-poor or -rich, how the land was used in the past, when the hay was mowed, whether the farmer used fertilizer and whether the meadow was used for cattle grazing after the hay mowing.
Many factors determine which species come together to form a community. With luck, the mountain meadow landscape is a colourful carpet of different meadow communities that provide a home not only to species that can survive virtually anywhere but also to particularly idiosyncratic specialists.

Alkaline, nutrient-rich Golden Oat Grass meadow

On soils with a better nutrient supply, the Wood Cranesbill with its large purple flowers is often the characteristic plant.
If it is interspersed with numerous white umbels of the Cow Parsley, and the predominant grasses are higher-growing species such as Orchard Grass, Yorkshire Fog and Meadow Foxtail, the meadow was probably heavily fertilized in the past.

Wood Cranesbill

With its bright violet flower, the Wood Cranesbill is the most striking character flower of mountain meadows. When the seeds are mature, the flower's pistil grows into a "crane's beak" and ultimately ejects five seeds like a catapult.

Black Rampion

The Black Rampion has an unusual flower shape. Unlike other members of the Bellflower family, its dark-purple flower tubes do not open at the end but at the base, where the coalesced petals separate. The popular name Rapunzel means "small root", which derives from the fact that, in earlier times, the roots and leaves were eaten as vegetables.

Golden Oat Grass

This species of grass gives name to the "golden oat meadows", the vegetation science term for mountain meadows. Golden Oat Grass occurs right down into the lowlands in other types of meadows, but it is far more common in mountain meadows. With its short stalk length of up to 80 cm, it becomes completely invisible in lush lowland meadows. But among the low-growing plants of mountain meadows, this "medium-length grass" towers over the "short grasses" such as Sweet Vernal Grass, Red Fescue and Highland Bentgrass. Billowing in the wind, its soft panicles lend a golden glow to the mountain meadows.



Species of nutrient-rich mountain meadows

Low-alkaline, nutrient-poor Golden Oat Grass meadow

Nutrient-poor mountain meadows are usually dominated by yellow-flowering plants comprising Cat's Ear, Rough Hawkbit, Spotted St. John's Wort and various hawkweeds. Interspersed with these are the blue-violet blooms of the Round Leaf Harebell and the Bitter Vetch.
Nutrient-poor mountain meadows are only preserved if unfertilized or, at most, sporadically fertilized with small amounts of dung. Completely unfertilized meadows whose abundance of low-nutrient indicator species – real starvation artists of the plant world – represent a transition to the Nardus grassland habitat, are found on slopes exposed to the sun in the ski resort areas of Neu- and Altastenberg.

Rough Hawkbit

What differentiates the Rough Hawkbit from the Cat's Ear or the Autumn Hawkbit is its single flower head atop an unbranched, upright stem. This flower head, and above all its green bracts, are conspicuously covered with stiff, pale-coloured hairs. In contrast to the Common Dandelion, the well-known dandelion clock, the Rough Hawkbit only occurs in nutrient-poor meadows, generally in completely unfertilized ones.

Round Leaf Harebell

The Round Leaf Harebell is a dainty plant with a relatively large blue flower. The eponymous round leaves can only be found at the base of the stem and usually wither early. Its other leaves are narrow and pointed.

Spotted St. John's Wort

The Spotted St. John's Wort is the St. John's Wort species of the montane zone.
It is related to the better known Common St. John's Wort, which is used as a medicinal plant. It is also called Perforate St. John's Wort, since when held up to the light the conspicuous dots on its leaves appear to be perforations. The dots are actually translucent oil bodies, which are largely absent in the Spotted St. John's Wort. On the Spotted St. John's Wort there are numerous black spots and stripes on the underside of the yellow petals.



Species of nutrient-poor mountain meadows

Mountain meadows in damp locations

Mountain meadows in stream-side locations, along banks or on slopes where spring water or groundwater emerges, are often dotted with the bright pink flowers of the Meadow Bistort. Damper meadows are also splashed with pink patches at the beginning of June by the Heath Spotted Orchid – one of our native orchids – and in September by the Meadow Saffron.
While most of the meadow complexes on the Winterberg plateau developed as late as the second half of the 20th century from rotationally cultivated fields, the meadows in stream valleys have a long tradition as grassland. They have been farmed for centuries, partly as so-called litter meadows for animal bedding and partly as pastures. In more recent history, an elaborate meadow irrigation system was used.

Globeflower

"Globe" in this case means "ball-shaped". And the conspicuous yellow bloom of the Globeflower really is as round as a ball. One important pollinator is the inconspicuous Globeflower Fly, which lays its eggs in the seeds of the flower. However, it never lays eggs in all the seeds – so both the plant and the fly are able to survive.

Meadow Bistort

Due to the appearance of its flower, the Meadow Bistort is also colloquially known as the "toothbrush flower". As a typical species of the damper meadows it can still be frequently encountered. Its leaves were formerly collected as a substitute for spinach – and still taste excellent today!

Northern Hawksbeard

An important characteristic species of mountain pastures in the Sauerland, and one which does not occur in the Eifel, is the Northern Hawksbeard. The yellow flower heads of this composite sit at the end of branched, thin stems that are around 30 to 60 cm high. After flowering, the plant produces flying seeds equipped with conspicuous, pure white "parachutes".
Germany has a significant share of the total range of this plant and therefore bears a great responsibility for the preservation of the endangered species.



Species of damp mountain meadows

Dark Green Fritillary

Animals of the mountain pastures

Ecologists define a mountain meadow on the basis of the occurring plant species. However, these mountain meadows are indispensable habitats for a far greater number of animals. Not all of them are confined to mountain pastures, but many of them – including highly endangered species – find their last refuges here.

Scarce Copper Butterfly

This brightly-coloured butterfly is the symbol of the LIFE project. Its name comes from the gold-red to orange colour of the upperside of the wing. In the male, this gold-red upperside colour has a metallic lustre. The colourful butterfly flutters over the mountain meadows in July and August.
In Germany this species is now highly endangered and has one of its most important refuges in the mountain pastures of the Winterberg area.
In the project, this striking butterfly is representative of the many endangered animals and plants of the mountain meadows.

Purple-edged Copper Butterfly

This relative of the Scarce Copper Butterfly is a real rarity in the project area. In addition to the reddish-gold colouring, the uppersides of the wings have a deep-purple shimmer at the edges, which is more or less obvious depending on the viewing angle and lighting. The broad, dark edge of the upperside and a characteristic pattern of white-rimmed dark spots on the underside distinguish it from the currently slightly more common Scarce Copper.

Arran Brown butterfly

Within the project area this butterfly, which is highly endangered in North Rhine-Westphalia, was found in 2013 and 2015 at the upper Orke River near Elkeringhausen. Starting out from populations in the central Orke valley, it was able to colonize grassland areas that had been restored in the course of the LIFE project by clearing spruce forests. The development of this true mountain butterfly from egg to adult takes two years. Flying butterflies of this species are therefore only to be seen in every second year. In the Sauerland, this occurs in odd-numbered years.

Forester Moth

In the meadows of the Sauerland, the Forester Moth is the only metallic-green representative of the Burnett moths. These small moths are active by daylight. Most species in this family have black wings with red spots that are reminiscent of small drops of blood. The number of Forester Moths occurring in any one year varies greatly, depending on the weather conditions. In "good years" one can often find more than ten Foresters on the flower of a Black Rampion or a Field Scabious, where the somewhat sluggish moths can be closely observed or photographed.

Wart-biter bush cricket

This large bush-cricket has only a few populations in North Rhine-Westphalia (NRW). Almost all former populations in the lowlands, and also many in the mountains, are now extinct. The populations with numerous individuals in the project area are therefore extremely important for the conservation of this species in the state of NRW. The Wart-biter prefers nutrient-poor grasslands with patches of bare soil. In the project area, these requirements are met by the very nutrient-poor mountain meadows in the transition to Nardus grassland. Despite their large size, the well-camouflaged crickets are rarely seen. You are more likely to hear their chirping in hot and sunny weather in July – short bursts of rapidly repeated clicks reminiscent of a snipping scissors at the hairdresser.


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Nardus grassland communities - rich diversity on poor soils

Unlike the mountain meadows, Nardus grasslands are primarily influenced by grazing. Nardus is the scientific term for the rather unremarkable-looking Matgrass. Its spiny, tightly-rolled, tough leaves form low, dense tufts. For Nardus grassland to develop, the natural conditions have to be right: soils poor in lime and nutrients and lots of rain. But the grazing livestock also plays an important role: cattle and sheep refuse to browse the wiry, bristle-like Matgrass, except for the very young shoots. Largely unaffected by grazing, and also free of competition from neighbouring plants that are more severely browsed, this rough, frugal grass is able to spread. Due to the treading by livestock, gaps are also created in the grass sward. Small, competitively weak plants such as the Milkwort, Heath Speedwell and Spring Whitlow Grass are able to gain a foothold in these patches of bare soil.
During the summer flowering period, the blooms of hawkweeds, Rough Hawkbit, Yellow Rattle, Tormentill, Bitter Vetch, Heath Dog Violet, Round Leaf Harebell and the rare Arnica brightly colour the ground between the clumps of Matgrass. The carpets of flowers are a source of food for many insects, including the Dark Green Fritillary. This butterfly with its beautiful orange and black patterned upper wing surface and impressive wing span of up to 5.5 cm can be observed with some luck in the project area.
As tough, frugal, and resistant to browsing and trampling as the plants of Nardus grassland communities are: this habitat has been hard hit in the last century by fertilization, abandonment of grazing and afforestation. In the Sauerland, Nardus grasslands with their colourful flowers have therefore become very rare.

Mountain heaths - a place for survival artists

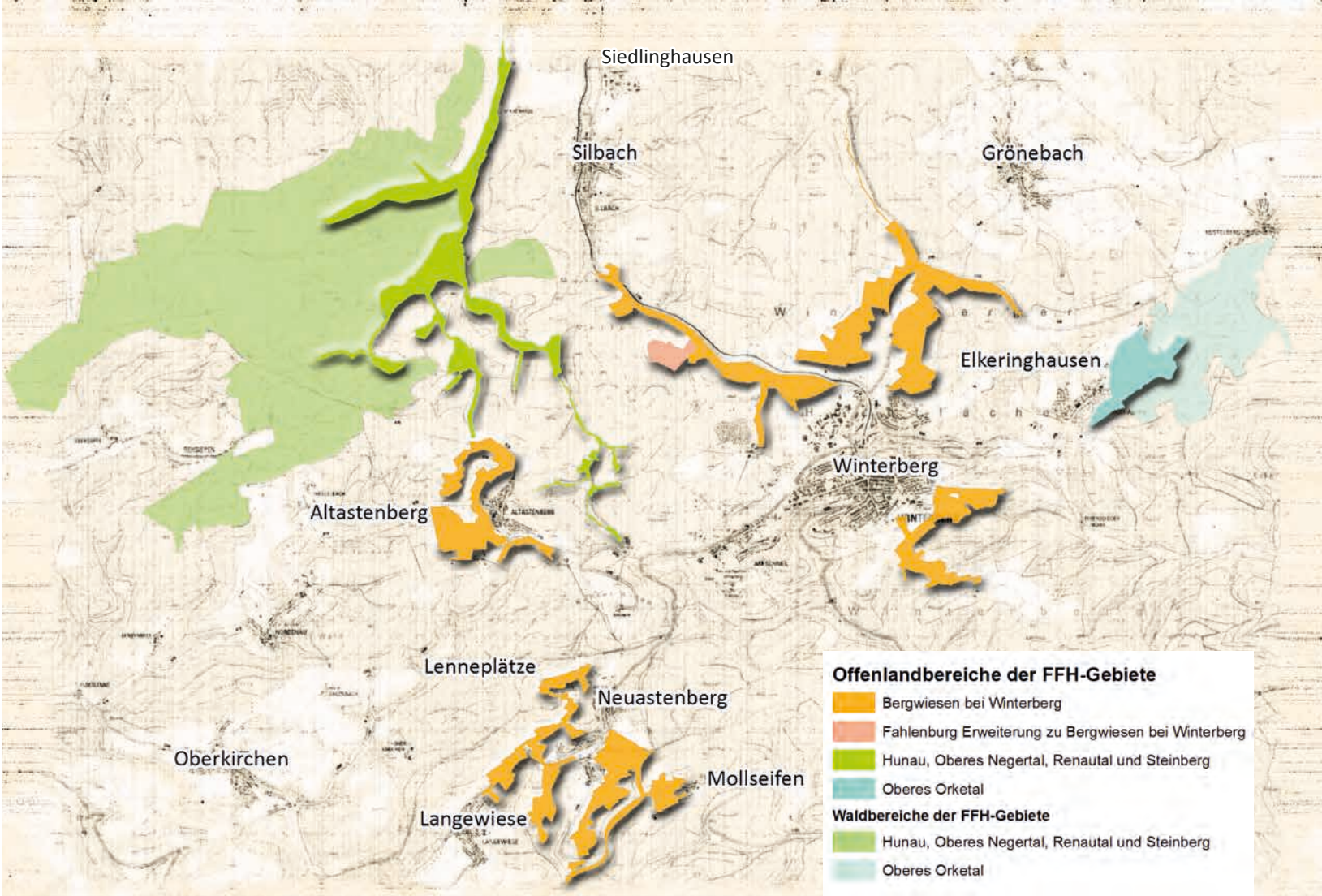
Mountain heaths are the result of centuries of intensive cultivation with zero input of fertilizer. They originated where the use of the forest gave young trees no chance of survival. Heaths were used as livestock pasture and often also for the cutting of sods.
Sod cutting involved removal of the upper layer of soil and its plants with a flat hoe and spade. It was hard and sweaty work. The sods were used as litter, i.e. livestock bedding, in the stables and finally, when mixed with the animals' manure, was spread over arable land as valuable fertilizer.
The already poor and shallow mountain soils lost more and more nutrients due to the heath farming practices. Only a few specialist plants that were real survival artists, such as the Heather, the Blueberry and the Lingonberry, were able to assert themselves under these meagre living conditions.
If the remaining areas of heath are left to themselves, they become overgrown with bushes and trees, and the forest retakes its kingdom. To preserve the heathland, goats and sheep are employed as diligent landscape conservationists. Their feeding habits complement each other perfectly: goats prefer leaves, shoots and even the bark of bushes and young trees. In this way, they prevent emerging shrubs from shading-out the light-demanding species of plants and their associated animals. Sheep prefer herbs and above all grasses, which are strongly competitive plants and would otherwise overcome the rarer species of the heathland habitat.

The project area

Consists of three FFH areas:

- DE-4717-305 "Bergwiesen bei Winterberg" (mit Erweiterung "Fahlenburg")
- DE-4717-306 "Oberes Orketal"
- DE-4716-301 "Hunau, Oberes Negertal, Renautal und Steinberg"

Project measures were implemented in the 760 hectare open land sectors of the protected areas, which have a total size of 2249 ha. The subareas are located around Winterberg and the villages of Altastenberg, Neuastenberg, Langewiese, Lenneplätze, Mollseifen, Elkeringhausen and Siedlinghausen.


Siedlinghausen
Silbach
Grönebach
Elkeringhausen
Winterberg
Altastenberg
Lenneplätze
Neuastenberg
Oberkirchen
Mollseifen
Langewiese
Offenlandbereiche der FFH-Gebiete
Bergwiesen bei Winterberg
Fahlenburg Erweiterung zu Bergwiesen bei Winterberg
Hunau, Oberes Negertal, Renautal und Steinberg
Oberes Orketal
Waldbereiche der FFH-Gebiete
Hunau, Oberes Negertal, Renautal und Steinberg
Oberes Orketal

FFH area "Bergwiesen bei Winterberg"

The 486 ha FFH area on the Winterberg plateau is the centrepiece of the LIFE project and is also of central importance for the preservation of montane grassland in North Rhine-Westphalia. Strongly fragmented into subareas, it comprises grassland complexes of different character. For example, the steep mountain meadow slopes greatly affected by winter sports, Nardus grassland and remnants of mountain heath near Altastenberg and Neuastenberg, the meadow plateau originating from arable fields near Winterberg, as well as mainly grazed damp grassland in the stream valleys of the Upper Ruhr, Namenlose and Odeborn. Among the special highlights of the area are tall forb communities with Alpine Blue Sow Thistle near Altastenberg.
The FFH extension area "Fahlenburg" at the "Namelosetal" is an approx. 14 ha extensive greenland complex earmarked for enhancement under the LIFE project. This grassland complex consisting of nutrient-poor pastures and hay meadows previously held only a small range of fauna and flora. It had been largely restored from afforested land (long before the project) and temporarily served as a wildlife food plot. Despite its isolated location, surrounded by forests, it offers great potential for the development of species-rich Nardus grassland and nutrient-poor mountain meadows.

FFH area "Oberes Orketal"

The overall area is 268 ha in size and is predominantly covered by deciduous forest. The LIFE project was concerned with a section of open land, 54 ha in size, east of Elkeringhausen.
The main component here is a south-facing mountain slope with mountain meadows, pastures and a few areas of arable land, subdivided by strips of forest fringing several head-streams. Among these is the Orke stream, which is fringed by a gallery forest and a floodplain with partly damp pastures and meadows.
On the north-facing opposite slope, the project area comprises some other areas of grassland and some coniferous forests, which were candidates for reconversion to grassland in the course of the project.

FFH area "Hunau, Oberes Negertal, Renautal und Steinberg"

This FFH area is 1495 ha in size, making it one of the largest in the Hochsauerland District. With its branched, near-natural stream system, Alder riparian forest bordering the streams, bog woodlands, large areas of montane beech forests and extensive grassland, it contains a large portion of the characteristic habitat spectrum of a low mountain landscape.
Under the LIFE project, measures were implemented in the approximately 200 ha of open land along the Neger stream and its tributaries. Some of the often damp meadows had no longer been used in the recent past and had already been taken over by tall forbs and trees. Restoration and enhancement measures returned them to a state suitable for cattle grazing. The LIFE project also included measures aimed at restoring hay meadows in the valley grenlands, which are predominantly used for livestock grazing.

Mowed early, fertilized, gone

Traditionally the Winterberg meadows were mowed twice a year, or only once in nutrient-poor locations. The first cut took place around early to mid-July. This provided enough time for the meadow plants to flower and produce seeds - seeds for the next generation of meadow plants. For humans, the hay harvest meant valuable winter fodder for cattle.



The change in agricultural practices threatens the sensitive mountain meadows.
Modern agriculture has hardly any use for late-mown hay. To give a high yield of milk, today's "high-performance cows" require particularly high-energy feed. For this reason, dairy farmers now almost exclusively feed their cows with silage instead of hay. The heavily fertilized silage meadows are mown up to four times a year and hold only a few species of grass and Dandelion. This has absolutely nothing in common with a species-rich mountain meadow.
The abandonment of traditional hay farming practices, excessive liquid manure application and early mowing before seeds reach maturity have caused the colourful meadows to disappear, taking with them the animals that totally depend on this habitat. Where an intensification of agriculture is not possible, land is afforested or planted with Christmas trees. The increasing use as horse pastures also led to the loss of many mountain meadows.

Hay - of vital importance for the survival of mountain meadows

The future of the endangered mountain meadows inextricably depends on the continuation of hay farming: Only when the meadows are mowed late in the year, i.e. not until July, do the seeds have time to mature. Drying of the hay on the ground by repeated turning for a period of several days is very beneficial. It allows a particularly large number of seeds to fall out of the seed heads and gives "unready" seeds time to mature. In this way, farmers can ensure the continued existence of the species-rich Sauerland meadows without any extra work effort.
However, getting the hay dry in the meadow is not always easy in our rainy mountain region. For the farmer, the production of silage makes his work much easier. The cut grass just has to be left for a short time to wilt, and after a few hours can be put in the silo while still wet. In addition, fertilization and early harvesting provide larger quantities of fodder with a higher protein content – meaning more economical milk production.
However, this kind of cultivation spells doom for the mountain meadow plants. Most species of mountain meadows do not bloom until June and can tolerate little or no fertilization. If a meadow is already mown in May, hardly any plants get a chance to flower. Without flowers there can be no seeds and without seeds the mountain meadow plants cannot survive.


Ohne Heu nix los
Die Kunst des

The aims of the LIFE project were to

- restore former mountain meadows, Nardus grassland and mountain heaths, or enhance the ecological condition of existing ones
- organize the use of mountain meadows in cooperation with the farmers, such that both can benefit: farmers and mountain meadows
- improve the knowledge and appreciation of mountain meadows

From dark spruce forests to colourful mountain meadows

Where there were still spruce plantations before the LIFE project commenced, there are now colourful flowering mountain meadows and Nardus grasslands.
In the 1950s and '60s, agriculture was becoming less and less economical and tourism increasingly became one of the most important sources of income in the Winterberg region. Mountain meadows were afforested with the alien Spruce, and more recently also with Christmas tree plantations. For the landowner a financial gain, for the animals of the mountain meadows a hard loss.
The LIFE project was able to remove this economic pressure on the land by purchasing areas or making long-term lease agreements. Conifer forests and Christmas tree plantations were cleared, producing land for the restoration of mountain meadows and Nardus grassland. After the tree felling and clearance of the land, the ground was mulched, tilled or harrowed to prepare it for subsequent seeding by spreading seed-bearing green hay over it.

From island to network

In order to ensure the survival of rare plant and animal species, existing habitats must not only meet their requirements, but must also be sufficiently large and linked up with others. For many butterflies, for instance, it is important that individuals can interchange between different populations. In the densely forested low mountain landscape, it is particularly the many-branched, open stream valleys with grassland floodplains that provide essential connecting corridors. However, Spruce plantations in these valleys develop into insuperable obstacles and turn many good mountain meadows into inaccessible biotope islands.
One central objective of the LIFE project was therefore to connect up the remaining mountain meadows, Nardus grasslands and small-area dwarf shrub heaths. It is therefore particularly valuable if – as in the valley system of the upper Ruhr – plantations with a barrier effect are again transformed into species-rich grassland. This conservation measure enables the development of a large coherent habitat for rare species of animals and plants.

New diversity for degraded meadows

One of the project's most important tasks was to enhance species-poor meadows so that they regain their original diversity. In a number of grassland sites within the project area the characteristic mountain meadow plants had been lost. The reason for this was degradation due to unfavourable farming practices in the past – for example usage as an intensive silage meadow, as a ploughed field, as permanent pasture or as a wildlife food plot.
Seed transfer by spreading green hay on tilled strips of land, systematic manual sowing with seed of locally-native species and planting-out specially-cultivated young plants were the methods used in order to bring back the typical inventory of "target species".

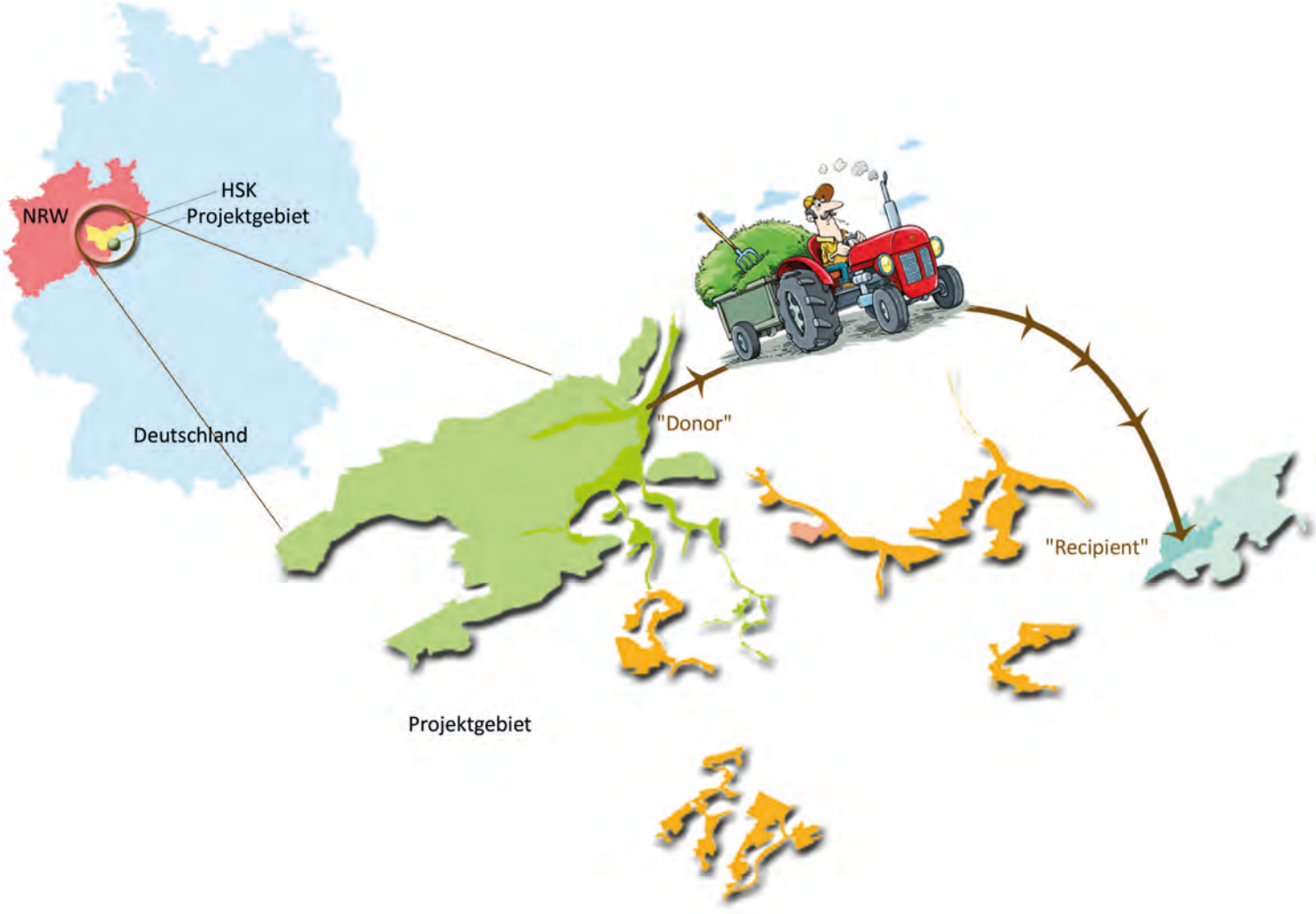

PÖTTINGER

Seed transfer - the fast-track procedure for species diversity

Even if ideal meadow management in line with the conservation objectives is ensured, it would take decades for the desired plant communities with their characteristic species to re-establish themselves on cleared areas of forest or on degenerated grasslands.
For the LIFE project, a "fast-track procedure" was therefore used: seed transfer by spreading green hay over the site of the new meadow. The ground must be well prepared for this. Using a tiller or a rotary harrow, the seedbed is created in the former forest floor or in strips of ground in the degraded grassland. At the end of July, when the seeds of most meadow plants are mature, the hay is transferred from the species-rich donor area. Mowed and picked up directly with a self-loading trailer, the seed-bearing hay from the donor area is spread over the fine crumbly soil of the recipient area. The newly established mountain meadow plant communities are already particularly colourful in the second year after planting when, for example, the often transmitted Ox-Eye Daisy blooms for the first time.

An innovation from Switzerland for the Sauerland - the brush harvester, a hand-guided seed collection machine

Seed transfer in green hay can only take place during the very limited period of seed maturity. The project team therefore sought a solution that made suitable seeds available for sowing at other times of the year, too. They found it with the aid of a Swiss team in the form of an Australian seed harvesting machine that had been modified by scientists and tinkerers. Although the sight of the street-sweeper-like device being pushed over a meadow is a bit strange at first, it has proven to be an effective method of harvesting seeds during the LIFE project.
The machine's rotating brush roller strips the seed pods from the plant and swirls them into a collection container. The material thus obtained is subsequently dried on wood racks and then packaged in paper bags. Unlike the method of transferring seed in green hay, use of the brush harvester means that the farmer has no major loss of hay. The stored harvester material can be applied as needed. Especially for smaller areas or for patches of damaged ground, such as those left by rooting wild boar, the seed collected in this way is ideal.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Deutschland
"Donor"
"Recipient"
Projektgebiet

Why not simply use commercially available seed?

Seed transfer by spreading green hay or collecting seed with the brush harvester for later sowing are certainly not so simple as "sowing from a purchased seed bag". However, the chosen methods guarantee that only locally-native plants are sown in new meadow areas.
It is true that so-called "regio-seed" is now commercially available, with wild plant seeds produced separately according to regions of origin. However, the seeds are derived from only 22 regions in Germany. Within such a large region as the "Rheinische Bergland", many plant species form numerous subspecies or "taxons" which are outwardly hardly distinguishable from each other. It is even possible that these taxons could eventually give rise to new species. If they are artificially mixed, this falsifies the natural flora. For the project, the applied principle was therefore: the suitable seed donor area has to be as close as possible to the recipient area.

The most precious among the very valuable

Arnica, Wig Knapweed and Globeflower are very rare and endangered species. They place very special demands on the location and cannot be established by the seed-transfer method. For these reasons, the three species were specifically planted in suitable locations, where the aim was to support small relict populations or re-establish former populations. For this purpose, their seeds were collected by hand with the help of numerous volunteers. In the botanical garden of the University of Marburg, more than 1,000 of these plants were cultivated and planted out in the following year. As early as the summer after that, young Arnica plants, Wig Knapweed and Globeflowers were in bloom.

Appreciation – Value creation – Protection of valuable natural assets

This motto is the guideline for the LIFE project. How can we achieve appreciation for the mountain meadows? How can the mountain meadows create value for the region?
Because one thing is clear: if people know the value of the mountain meadows, if people profit from them, they will also fight for their preservation.
In a lively exchange with local stakeholders, a concept was developed for the creation of present-day value from the usage of traditional hay farming practices.
Naturally, this concept focussed first and foremost on the farmers, because only if hay-making is worthwhile will farmers still be able to afford the indispensable landscape management work in the future.
But special consideration was also given to utilising the mountain meadow landscape to the benefit of tourism, because the colourful mountain meadows are not just a natural treasure for Europe, but additionally a genuine characteristic feature of the Sauerland, with great potential as an image carrier for the region.

Hay-making has to be worthwhile

For the Sauerland farmers, who mainly keep dairy or beef cattle, hay production naturally has some "disadvantages" compared to silage-making. Hay making on the species-rich meadows can only pay off if the special quality of the mountain meadow hay is specifically exploited and marketed. The late-mown mountain meadow hay is rich in herbs and crude fibres and produced without the use of liquid manure and pesticides. Used as a valuable supplementary fodder, it supports the cattle's health. It is also particularly popular with horse owners because silage and hay from highly fertilized intensive meadows are known to cause health problems in horses.
The LIFE project set up a website www.bergwiesen-winterberg.de as a contact exchange for Sauerland mountain meadow hay. This provides farmers with a platform on which they can market their excellent hay, which is often organic-certified.
In the course of the LIFE project, further ideas emerged for different uses of the hay. It is true that the production and delivery of very special hay qualities, for example for use in the wellness sector or even in gastronomy, does not play an important economic role. However, it generates special attention and appreciation when locals and guests experience the "gold" from our mountain pastures in the "hay banja" sauna, a hay bath or a hay menu. And among the souvenirs at the tourism information centre you will also find gifts of a special kind: colourful hay pillows that exude the scent of freshly mown meadow flowers even in winter.

With the farmers - for the farmers

In cooperation with the local farmers and supported by the Hochsauerland District's "Untere Landschaftsbehörde", the regional authority responsible for nature conservation, solutions enabling profitable and ecologically sound management of many meadow areas were found.
The Cultural Landscape Management Program (KLP) of the nature conservation authority made it possible for farmers to receive a financial compensation for the lower yield of mountain meadows. In return, the farmers undertake to work the meadows in a manner compatible with nature conservation – so-called "environmental stewardship". They do not apply high-nitrogen fertilizers or pesticides and mow the meadows at traditionally late dates, usually only after the middle of July.

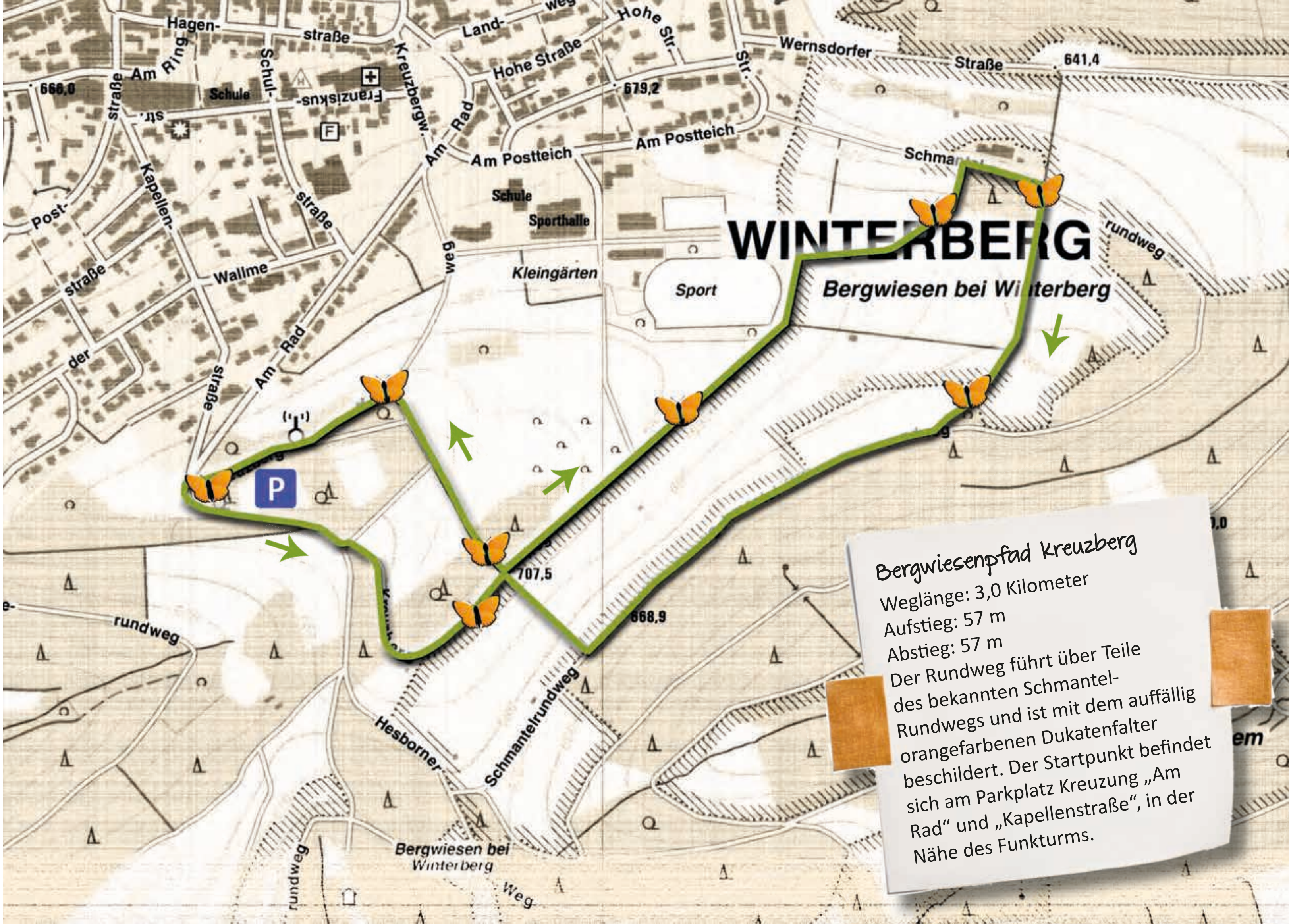
Summer nature experience under ski jumps and lifts

Tourists know Winterberg primarily as a winter sports resort. Together with the tourism agency Ferienwelt Winterberg, the LIFE project launched campaigns enabling the holiday guests to experience and enjoy the colourful summertime face of Winterberg. Many visitors were astonished that particularly species-rich mountain meadows and Nardus grassland had developed on some ski and tobogganing slopes.
In the autumn hiking season of 2015, the first mountain meadow experience week took place in Winterberg. The focus of this event was placed on herb-rich mountain meadow hay. Restauranteurs of the region conjured up delicious hay menus, a hotel opened the first hay sauna in the Hochsauerland region and children learnt all about hay farming on a local farm.
The festival "Bergwiesenblüte 2016" attracted visitors with an even more extensive programme. Many local stakeholders participated with a range of different actions on the subject of sport and other activities in the flowering landscape. In addition to the campaigns of the local tourism business, the many public events of the LIFE project, such as a mountain meadow festival, a photo competition and many guided hikes, were also particularly aimed at holidaymakers. At workshops, future "Mountain Meadow Networkers" acquired additional knowledge, in order to be able to pass on the fascination for mountain meadows by acting as a landscape guide or event manager.
Since the spring of 2016, the travelling exhibition conceived as part of the LIFE project has been housed in the "Bergwiesenzentrum Altastenberg". On the upper floor of the "Haus des Gastes" the visitor becomes immersed in the world of mountain pastures and can entertainingly get to know this unique habitat. The outdoor variant of this is provided by a 5 km circular mountain meadow hiking trail in Altastenberg and a 3 km one in Winterberg.

Bergwiesenpfad Altastenberg

Weglänge: 4,8 Kilometer
Aufstieg: 89 m, teilweise steil
Abstieg: 89 m

Der Naturweg bei Altastenberg startet am zentralen Parkplatz des Skigebiets südwestlich des Ortes (Historischer Pfad 1, Winterberg). Von dort aus folgt man der auffälligen Beschilderung - dem orangefarbenen Dukatenfalter.



Bergwiesenpfad Kreuzberg

Weglänge: 3,0 Kilometer
Aufstieg: 57 m
Abstieg: 57 m

Der Rundweg führt über Teile des bekannten Schmantel-Rundwegs und ist mit dem auffällig orangefarbenen Dukatenfalter beschildert. Der Startpunkt befindet sich am Parkplatz Kreuzung „Am Rad“ und „Kapellenstraße“, in der Nähe des Funkturms.


HARVIA


Duftikus

WiesenWonne - the mark of quality from the Sauerland mountain meadows

Mountain meadow honey with the taste of flower-filled summers, hay packs for a soothing bath, fragrant hay pillows, a mountain meadow experience tour with a GPS device, a yoga class in flowering meadows or herb-rich hay fodder for small animals – all of these good things come from mountain meadows: enjoyable, natural, regional.
The quality mark "WiesenWonne" was developed under the LIFE project and certifies the tested products and activities from the mountain meadow landscape of the Sauerland. It stands for valuable products from traditional hay farming and crafts, as well as new ways of exploring the colourful world of mountain meadows to discover, enjoy and relax.

What has the LIFE project accomplished?

In the years 2011 to 2016 the following measures were implemented under the project Mountain Meadows near Winterberg:

- Around 92 ha of land were purchased in the FFH areas, leased long-term or made available by the Hochsauerland District Council and the Town Council of Winterberg for the restoration of valuable habitats. For the restored mountain meadows, Nardus grassland and mountain heaths, the cultivation practices most suitable for their development and conservation were established.
- Around 14 hectares of spruce forests and Christmas tree plantations were transformed back into species-rich mountain meadows and Nardus grassland. This created new land for local farmers.
- On an area of roughly 65 ha, degraded mountain pastures were restored and characteristic species were reintroduced – primarily by means of seed transfer in green hay, sowing of regionally-native seed and planting of cultivated plants.
- 13 ha of Nardus grassland and heath were optimized by removing bushes or matted grass.
- 2 ha of spruce forest were transformed into near-natural deciduous forest (alder-ash woodland).
- 9000 metres of new pasture fences were installed to allow regular grazing of Nardus grassland and heathland, and 900 metres of unneeded fences were removed.
- The FFH area Bergwiesen near Winterberg was extended by 14 ha within the framework of the LIFE project.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- Two mountain meadow hiking trails near Altastenberg and on the Kreuzberg near Winterberg make the mountain meadow landscape accessible via attractive circular routes and explain the measures implemented under the LIFE project on a total of 16 information boards.
- With the colourful LIFE project exhibition, a small "mountain meadow centre" was established in the "Haus des Gastes" in Altastenberg as a meeting place and starting point for tours to discover the value of the mountain meadows, Nardus grassland and mountain heaths.
- A usage concept developed solution approaches for organizing the indispensable hay farming on a more profitable basis and achieving more "appreciation through value creation" on the tourism sector.
- The website www.bergwiesen-winterberg.de was set up to provide information about the project
- A project film shows the habitats and the efforts made in the course of the project for their protection.

The project team would like to sincerely thank all those who put their skills, their good ideas and their work into the project, whether they are representatives of the authorities, contractors or volunteers. Special thanks go to to the farmers. In the LIFE development areas, they tolerated the extensive project activities and often participated with advice and assistance in the implementation of the measures involved.
Even after the project's completion, they support the often far-reaching requirements imposed on farming practices and ensure that the newly developed habitats are preserved through use and management in keeping with the conservation objectives.

Imprint

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