



EU LIFE Nature Project

“Restoration and conservation of xeric Grasslands in Germany (Rhineland-Palatinate)”

Background and objectives of EU Life Nature Projects

Throughout Europe, particularly valuable habitats, plants and animals are protected under the aegis of the European Union's nature conservation programme NATURA 2000. In this way, the European natural heritage and its great variety of species and habitats are intended to be preserved and developed for coming generations. A network of nature reserves in the whole of Europe is intended to safeguard the rich natural and cultivated landscapes permanently, thus preserving the biological variety.



The bases for the NATURA 2000 system of nature reserves are the European Bird Protection Directive and the **Flora-Fauna-Habitat** Directive (FFH Directive). The Bird Protection Directive has the long-term protection and preservation of all wild birds and their habitats as its objective. The priority objective of the FFH Directive is preservation of the biodiversity to be found in Europe.

In support of this objective of establishing the NATURA 2000 network of nature reserves, the financing instrument LIFE Nature (*L'Instrument financier pour L'environnement*) was created by the European Union. Since 1992, there have been so-called EU LIFE Programmes, the objective of which is to provide financial support for selected projects in the fields of action environment, nature and non-member countries. Nature reserve projects within the framework of LIFE Nature programmes are intended to contribute towards the preservation and restoration of the natural habitats and populations of species of animals and plants living in the wild.








Initiation of the dry grassland project in Rhineland-Palatinate

Among the habitats classified by the European Union as being especially suitable for or needing promotion are dry grassland communities. In order to protect these rare open country habitats that have been shaped by heat, the EU LIFE Nature Project “Restoration and preservation of Dry Grasslands in Germany (Rhineland-Palatinate)” was established with the assistance of the Foundation Nature and Environment Rhineland-Palatinate. The LIFE project was approved in 2002 as a supplementary “associated project” of the LIFE Nature projects of the same name of the state nature conservation foundations in Saarland and Schleswig-Holstein. The period of the Rhineland-Palatinate project was from spring 2003 until spring 2006, with 4 project part areas in particular being supported financially.

Financing and organisation

The total volume of the project amounted to € 1,094,750 – € 766,325 of which was borne by the European Union as co-financier, € 255,425 by the Foundation Nature and Environment Rhineland-Palatinate as project Beneficiary and € 73,000 by the Ministry of the Environment and Forests Rhineland-Palatinate as project partner.

Financing sources of the EU project “Xeric grasslands in Rhineland-Palatinate”		Amount in €	% of project costs
EU	 	766,325	70%
Beneficiary	Stiftung Natur und Umwelt Rheinland-Pfalz 	255,425	23,33%
Project partner	  Ministerium für Umwelt und Forsten	73,000	6,67%
Sum total project costs		1,094,750	100%

A project manager assumed control for the project as a whole and area groups were established for the individual part areas. Apart from general organisation and co-ordination tasks, the project management's duties included administrative activities, attending meetings on the site, financial controlling and the duty to report, as well as establishing numerous contacts between public authority representatives, local communities, interest groups and land owners. Implementation of the care measures took place through the award of contracts, following a request for tenders, whereby a supervision, check and acceptance of the measures carried out were organised.

The project was carried out and co-ordinated by the Foundation Nature and Environment Rhineland-Palatinate. In this connection, the Ministry of the Environment and Forests Rhineland-Palatinate and the state supervisory authorities supported the project work. This close collaboration guaranteed a successful implementation of the LIFE project and was of great advantage for the co-operation.

Project areas in Rhineland-Palatinate

The part areas affected by the project covered a total of 355 ha, lying in Rhine-Hesse (City of Mainz, Administrative District of Mainz-Bingen and Rhine-Hesse Switzerland in the Administrative District of Alzey), the Nahe valley (AD Bad Kreuznach) and in the Eifel Mountains in Schönecker Switzerland (AD Bitburg-Prüm) and in the heaths by Gönnersdorf and Lissendorf, and also by Üxheim (AD Daun).

In addition to dry limestone grasslands with remarkable stocks of orchids, these regions are distinguished by subcontinental *Koeleria glaucae*, porous limestone pioneer grasslands and mining area *Nardus stricta* grasslands, rich in species, and are of great specialist nature conservation importance.



Furthermore the dry grassland areas in Rhineland-Palatinate are of special bio geographical importance through their location in the border area of Sub Mediterranean / Atlantic and Continental climatic areas. This leads to the existence of animal and plant species specially adapted to these climates in individual areas. In the case of the dry grasslands of the “Nahe valley” and of the “Calcareous wind-blown sand area Mainz-Ingelheim”, these are typical Mediterranean and Continental species, in the dry grasslands of the areas “Heaths by Lissendorf and Hillesheim” as well as “Schönecker Switzerland” typical Atlantic and Sub Mediterranean species. As a result, the stocks in Rhineland-Palatinate hold a key position with respect to their special combination of species and, in addition, are important for networking between further dry biotopes in neighbouring Federal states (North Rhine-Westphalia, Saarland) and neighbouring countries (France).

Importance of dry grasslands and their endangerment

Dry grasslands are among Europe's most seriously endangered types of habitat which have been pushed back into isolated residual areas in the past decades. Earlier, just like today, they shaped and shape our landscape in many and varied ways, and offer a habitat for a unique animal and plant world.

Dry grasslands came into being through human exploitation in areas formerly covered with dry forms of forest. After removal of the trees and bushes, the areas were used for growing regular hay crops or as pasturage for sheep or cattle. Thus here extensive, traditional agriculture has contributed to the development of a particularly valuable cultivated landscape with a unique flora and fauna.

As these dry-warm locations have poor soils, thus soils low in nutrients; these areas are of little importance for present-day agriculture. On account of the growing abandonment of use and thus failure to keep the areas open, these habitats are being increasingly lost and with them the special species occurring also disappear.



Calcareous poor grasslands rich in flowers by Schönecken / Eifel

Depending on the soil substrate, climate and history of their use, dry grasslands are also called semi-dry grasslands, poor grasslands or sand grasslands, differing in each case through the occurrence of special species. The often just sparse growth of plants, in which juniper and other drought resistant trees and shrubs also colonise, promotes a rapid warming up of the soils with solar radiation and at the same time a diversified life of insects, reptiles and birds. The dry grassland areas are often located on slopes exposed to the south, thus showing aridity in summer and a warm microclimate. Numerous animals and plants from the warm regions of the Mediterranean area or the Eastern European steppes have colonised here. Thus dry grasslands accommodate numerous, warmth-loving species of animals and plants, that are threatened in their existence, which have specially adapted themselves to these living conditions.



Koeleria glauca on the Höllenberg by Heidesheim / Rheinhessen

The endangerment to this form of landscape comes above all from a progressive shift of border plants and spread of bushes as a result of the increasing abandonment of traditional agricultural use. Through the advance of plant species from the borders and bushes in the course of the natural succession or on account of afforestation measures, the predominant species are superseded. Furthermore, an increased supply of nutrients leads to the spread of non-indigenous, more competitive species of plants. This intake of nutrients can take place, on the one hand, from the air, through industrial dust and car exhaust fumes and, on the other hand, through an intensification of the use of the areas themselves and adjoining spaces. Intensive utilisation of the areas for leisure and relaxation also means a danger for this sensitive habitat. Thus, among other things, walkers leaving the paths lead to an increased burden on the flora through being trodden on and disturbance of the fauna. Dry grasslands are thus not only among Europe's grassland communities richest in species, but also its most seriously endangered ones.

Benefits and expected results / Objectives of the LIFE project

On account of its geographic location, Rhineland-Palatinate has many arid locations which are the natural basis for dry grassland communities. Today there are still about 1.215 ha dry and semi-dry grasslands. This is equivalent to 2.2 % of the total area of the state.

The objective of the project was the incorporation of selected dry grassland areas in Rhineland-Palatinate into the European network NATURA 2000 by restoring a favourable state of preservation and protecting the habitats.

In this connection, the stabilisation, development and expansion in area of this form of landscape served in particular to safeguard the variety of biological species. For many species, which are otherwise more native to the Mediterranean area or the Balkans, Rhineland-Palatinate represents the northern limit of propagation. In addition, dry grasslands are home to numerous species which are dependent on warm, sunny locations and are often still spread only over a very small area. Without preservation measures, many of these species would lose their habitat. In order to preserve the unique symbioses, the necessary prerequisites and living conditions should be created.

The objective of the project was that typical dry grassland areas should be preserved, cultivated and promoted in the long term and the species occurring there should be stabilised in number, propagate or colonise again. Thus the flora and fauna, which have adapted to the special prevailing living conditions, and have in the meantime become very rare or are even threatened in their existence, should find a permanent habitat here.

In addition, in order to bring about the sustainable preservation and protection of these valuable dry grassland areas, an intensive involvement of the general public was aimed for. Considerable public relation measures were intended to lead to a sensitising of the population for the LIFE Nature Project and the European nature reserve system NATURA 2000, thus increasing acceptance of them as well as their specialist nature conservation value.

The dry grassland flora – a lavish beauty

Dry and semi-dry grasslands show, in particular, a great wealth of herbs and grasses. From early spring until the onset of winter, violet *Pulsatilla vulgaris*, yellow *Helianthemum nummularium* and colourful orchids give us pleasure with their blaze of colours. The filigree seed vessels of the *Stipa gramineae* are particularly beautiful.



Gentianella ciliata in Schönecker Switzerland



Dictamnus albus on "Harsten" by Schloßböckelheim



Ophrys insectifera in Schönecker Switzerland

The plants have developed special strategies for survival in order to cope with the extreme conditions of the location: in this connection, they must, among other things, greatly reduce the transpiration through their leaves. Thus the *Helichrysum arenarium* and *Pulsatilla vulgaris* protect themselves from powerful irradiation from the sun with a dense coat of hairs, the *Sedum* stores water in its leaves, similarly to a cactus, *Koeleria* and *Bromus* roll in their leaves, in order to keep the area of transpiration small, and annuals, such as the *Draba aizoides* grow and flower in early spring, in order to survive the dry, hot season as an undemanding grain of seed.

Ideal conditions for life are also offered here for species weak in competition, such as orchids, which are supplanted by more powerfully growing plant at locations with plenty of water and rich in nutrients. Twenty-five different species of orchids alone are to be found in this habitat – such as, for example, *Cypripedium calceolus*, *Ophrys insectifera*, *Orchis mascula* or *Himantoglossum hircinum*.

One particular treasure and greatly endangered species of plant is also the *Jurinea cyanodis*, which has become very rare in the whole of Europe and has found a refuge in the calcareous blown sand area Mainz-Ingelheim.

On the basis of scientific studies of the stock of a species in the project areas, before and after the implementation of measures, demonstrably positive changes were determined in the quantity and quality of the number of species. All in all, both arise in the total number of characteristic species of plants was recorded and also an increasing trend in the spread in the individual areas. More on this in the section “Check of success by means of monitoring”.

The dry grassland fauna – a warbling, buzzing and chirping

Dry grasslands also inspire by their great wealth of animal species. They are the habitat for numerous bird species and reptiles, for butterflies, beetles, cicadas, grasshoppers and other insects. Rare species, such as the red-backed shrike (*Lanius collurio*) and woodlark (*Lullula arborea*), *Oedipoda caerulescens* and *Maculinea teleius* are endemic species.



Lanius collurio in
Rhine-Hesse Switzerland



Oedipoda caerulescens in
the Nahe valley



Maculinea arion by Schönecken

Just like the plants, the animals are excellently adapted to the special location conditions. They cope with scorching summer heat and aridity just as well as with raw, cold winds in winter.

In particular “sun-worshippers”, such as the sand lizard (*Lacerta agilis*) or the antlion (*Mymecoleon formicarius*), feel at home in the dry grasslands here. The flight of the swallowtail butterfly (*Iphiclides podalirius*) is a quite special experience and to be seen on the first warm days of early spring.

Among the animal species, that are especially endangered and to be protected under the FFH Directive, are the butterfly species *Euphydryas aurinia* and *Euplagia quadripunctaria*, the stag beetle (*Lucanus cervus*), and also the *Myotis bechsteini* and *Myotis blythii*.

In addition, the project part areas are significant as breeding and feeding habitats for innumerable bird species. Seven species of bird are classified as requiring protection under

the Bird Protection Directive – eagle owl (*Bubo bubo*), Eurasian nightjar (*Caprimulgus europaeus*), peregrine falcon (*Falco peregrinus*), red-backed shrike (*Lanius collurio*), woodlark (*Lullula arborea*), european honey buzzard (*Pernis apivorus*), grey-headed woodpecker (*Picus canus*) – and find an area of retreat here.

The reaction of the fauna to the care measures carried out was studied more closely – as in the case of the flora – by means of terrain surveys. Above all, a stabilisation of the general stock of species as well as positive developments in the case of the number of individual species were determined. In addition, on account of the marked improvement in the habitat quality, a further colonisation and spread are to be reckoned with. Further information on this in the section “Check of success by means of monitoring”.

Measures for safeguarding and restoring the dry grassland areas

Within the project in Rhineland-Palatinate, many measures were successfully promoted and implemented in the four part areas “Heaths by Lissendorf and Hillesheim”, “Schönecker Switzerland”, “Calcareous blown sand area Mainz-Ingelheim” and “Nahe valley”.



Area before, during and after bush removal works with forest mulches near Gönnersdorf / Eifel in October 2005

Comprehensive management plans were prepared for the sustainable development of the regions. These included care and development plans, as well as grazing concepts, because the preservation of the habitats is closely coupled to the development of an agricultural use compatible with the environment. In connection with the planning of measures, the individual conditions of the four project part areas were taken into account. In addition local farmers were also involved in the running and implementation of the care measures. In this connection, the voluntary commitment of the regional nature conservation associations and citizens is also to be stressed, as well as the voluntary help by school classes or the Federal Army.



Helping nature during school time in the Mainzer Sand



German army soldiers during clearing works at Pinnert by Gönnersdorf / Eifel

Through the withdrawal of agriculture from low-yield locations, the dry grasslands are

threatened with being overgrown by bushes and other thickets. One main focus of attention for the implementation of the project was thus on measures for the restoration and care of the regenerable dry and steppe grasslands.

These include first care measures, such as the removal of bushes, thinning out and tree-clearance works. In the course, of this bushes and thickets growing on over 76 ha were removed. This represents an increase of about 40 % compared with the area planned in the project application. Furthermore, in order to promote the more sensitive species, such as orchids, in some areas the felt-like cover made up of leaves and dry grass was cleared. This had accumulated over the years of non-utilisation, leading, in addition to the dense, scarcely penetrable covering of plants, to an unwanted supply of nutrients.



Clearance measure at Rattenberg in Schönecker Switzerland / Eifel

Within the framework of the restorative care, it was intended to prevent any renewed growth of bushes above all by removing stumps. The treatment of the areas necessary for this often took place by further cutting down measures, using machines, or further mulching. In addition, this represented a preparation for subsequent, carefully directed sheep and goat grazing which is intended to ensure the long-term preservation of the dry grassland areas. Sheep grazing was organised over 70 ha for a period of two years. As additional individual measures, among other things, mobile pasture fences were purchased, buffer strips and stepping stone biotopes were laid out or hedging care measures were carried out in the respective project part areas.



Goat grazing in the Kirbach valley by Üxheim



Cattle grazing at Pfaffengarten by Gönnersdorf



Sheep grazing at Icht by Schönecken

For the long-term control of the development of the areas and to safeguard these terrains for nature conservation, selected areas were to be purchased. Instead of the planned 21.2 ha, 25 % more areas with almost 26.5 ha were acquired in the target district. In this way, in individual regions it was possible to network isolated residual biotopes with outstanding success.

Control of success by means of monitoring

In order to be able to carry out a check of the development based on scientific data, a monitoring of the recording of stock was to take place in all the areas. On the basis of a prior selection of target species from the species of animals and plants typical for the area, the success of the measures implemented was to be assessed.

In 2003 and 2005 an inventory of the species of animals and plants was carried out in selected areas of all the part terrains. In order to achieve a comparability of the test results of

both monitoring surveys, as far as possible they took place on identical dates, as well as at around the same time of day, and care was taken to have weather conditions as similar as possible. In addition, several mapping walks were carried out in each part area in the course of which a record was made of the stocks within the various groups of species. In addition to recording the species found, the individuals were counted and the finding places were entered in a map.

Typical species of dry grasslands with confirmed occurrences in the areas studied (selection):		
Butterfly species typical for the area	Bird species typical for the area	Plant species typical for the area
<i>Cartericephalus palaemon</i> <i>Issoria lathonia</i> <i>Iphiclides podalirius</i> <i>Papilio machaon</i> <i>Callimorpha quadripunctaria</i> <i>Lysandra coridon</i>	<i>Lanius collurio</i> <i>Lanius excubitor</i> <i>Sylvia communis</i> <i>Saxicola torquata</i> <i>Emberiza cia</i> <i>Perdix perdix</i>	<i>Gentianella germanica</i> <i>Gentianella cillata</i> <i>Pulsatilla vulgaris</i> <i>Ophrys apifera</i> <i>Orchis mascula</i> <i>Globularia punctata</i>

Positive trends were determined in the number of species and individuals for all the part areas studies within the scope of the monitoring. Many a rare species was found in additional places, and more widely spread species turned up in new project areas. In addition, however, there are also a few species that were not seen again after the first sighting of them, or decreasing numbers of individuals were determined.

However, when assessing the monitoring results, the short period of time between the surveys and since the implementation of measures, as well as influencing factors, such as the weather, have to be taken into account. Thus, on account of the heavy precipitation in spring 2005, a large number of early flowering plants were found; on the other hand, the dry early summer in 2005 caused a decline in the late flowering species due to the weather. The "summer of the Century 2003" also caused a particularly great occurrence of butterfly species. However, in the case of groups of animals, such as the butterflies, other natural factors, such as parasite infestation, also lead to fluctuations in population which have to be taken into account. In addition, there is also a certain source of error through the person making the survey in that, for example, inconspicuous species can be overlooked, and measures carried out shortly before the survey partially influenced the mapping successes.

Despite all these factors influencing the results, monitoring surveys represents an important part of the control of success. In general, it was possible to determine a stabilisation in the stock numbers, as well as an enlargement and optimisation of the types of habitat. In addition to the check of the success, these results are intended to make a carefully directed control of subsequent projects and measures possible. In this connection, a continuation of the monitoring as a supplement to the series of studies and as a further check of the inventory would be sensible.

Sustainability through carefully directed publicity work

An essential element for the successful implementation of the project objectives and the acceptance of the nature conservation project is the involvement and information of the public. Thus in all the project areas, a total of 10 information meetings were offered and 14 natural history guided tours and field trips.

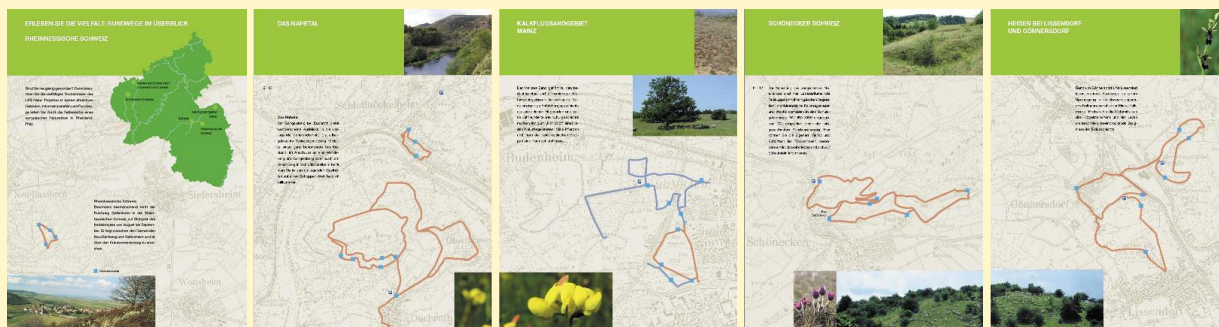


Field trip by a group of students of the University of Bonn with Prof. Dr. Wolfgang Schumacher, 20.05.05



Field trip and inauguration of the information boards in Gönnersdorf with Gerd Ostermann, Klaus Cölln, army representatives and many others on 27.08.05

Furthermore, 20,000 copies of a special information brochure were prepared. This provides information about the origin, preservation and care of dry grassland areas shows their importance and the threats to them and explains the EU LIFE programme, as well as NATURA 2000. In addition, the four project part areas and detailed maps of the hiking trails to be found there are explained in brief.



Details from the maps in the information brochure on the hiking trails provided.

These information hiking trails are a further important aspect of the public relations work. Within the framework of a nature tour, the paths in all part areas were laid out in such a manner that a carefully directed routing of the visitors would be achieved. The information boards erected by the paths are here intended to provide a comprehensive picture of the special features of the respective areas with its rich selection of species of flora and fauna, their origin and importance, as well as the difficulties with the preservation and care. All in all, 33 such information boards have been erected in all project part areas.



Signposting of the hiking trail in Schönecker Switzerland

In addition to carefully targeted press work, the Internet web site www.life-trockenrasen.com was set up jointly with the associated projects in Saarland and Schleswig-Holstein. On the homepage of the project sponsor www.umweltstiftung.rlp.de comprehensive information about the nature conservation project is also to be found. In addition, 10,000 folders each for the identification of the most important animal and plant species, as well as 2,500 corresponding posters for each were prepared as a supplementary and supporting measure.



Erection of the Information boards in the Mainzer Sand



Selection of publications – Folder for the identification of fauna (front cover); fauna poster; xeric grassland information brochure; flora poster; folder for the identification of flora (front cover)

Nature conservation as a mission

Within the framework of the EU LIFE nature conservation project “Restoration and Preservation of Dry Grasslands in Germany (Rhineland-Palatinate)”, an enormous effort has been made in Rhineland-Palatinate under the direction of the Foundation Nature and Environment Rhineland-Palatinate in order to preserve and safeguard our natural heritage of sub-Mediterranean semi-dry and dry grasslands in the long term. This natural area is not only the home of many animals and plants, but also enriches our landscape.

Characteristic for the appearance of these dry biotopes are the stock of remarkable orchids and other warmth-loving animal and plant species. Juniper heaths and semi-dry grasslands in the Eifel, sand grasslands of the calcareous wind-blown sand area by Mainz, dry grassland in the rocky areas of the Nahe valley around Schlossböckelheim and Rhine-hesse Switzerland belong to this unique landscape form. The habitat is characterised by its high biodiversity and of special importance for the nature conservation applied.

The European Union promotes such nature conservation measures for the implementation of the Europe-wide network NATURA 2000. The objective is to free overgrown semi-dry, poor and sand grasslands rich in species from wildly occurring bushes and trees, to preserve them in the long term by grazing sheep and thus keep the unique animal and plant world.

After it proved possible to achieve a successful restoration and preservation of the dry grassland biotopes in the selected areas in Rhineland-Palatinate, the sustainable safeguarding process has to be managed by means of continuing care and grazing. In order to preserve the dry grasslands beyond the period of the project, too, the State of Rhineland-Palatinate is thus giving permanent support to the care of the biotopes. So many further generations after us will also be able to admire this special and unique landscape with its variety of species.

Name Beneficiary	Stiftung Natur und Umwelt Rheinland-Pfalz
Contact person	Moritz Schmitt
Postal address	Rheinallee 3a D-55116 Mainz
Telephone	+49 (0)6131 240 518 32
Fax	+49 (0)6131 240 518 70
E-mail	Moritz.Schmitt@umweltstiftung.rlp.de

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Text: Manuela Hopf, Moritz Schmitt

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