LIFE "PATCHES & CORRIDORS"

A HABITAT NETWORK FOR THE VIOLET COPPER (*Lycaena helle*)

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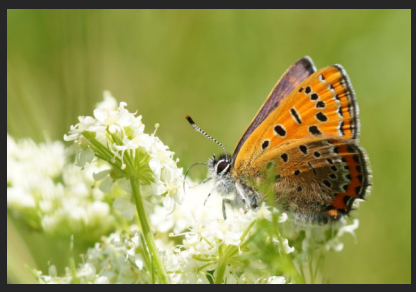
Objectives

The Violet Copper is protected by the European Habitats Directive as "a species in need of strict protection". The EU funded LIFE Project "Patches&Corridors" (2017-2022) wants to improve the conversation status of this butterfly and different habitats of common interest in the Eifel, a mountainous area in western Germany, next to the Belgian border. Main objective is the establishment of a habitat network within and between Natura 2000 sites, which bear (sub-) populations of the Violet Copper. In the past different projects have been conducted to promote this species in several nature conservation areas of the region. However, until now the dispersal of individuals of this butterfly species between these sites is not possible. But for the long term maintenance of the species, adequate measures to facilitate migratory movement are indispensable. Thus a habitat network should be established by applying adequate restoration measures within and between different Natura 2000 sites. The development and management of wet meadows, hydrophilous tall herb fringe communities and alluvial forests as well as field margins and road verges as patches and corridors shall enable a large scale movement of the Violet Copper. Actions and means involved are presented here.



Actions & means involved

A precondition to connect populations of the Violet Copper is the identification, development and conservation of stepping stones and corridors.

- Purchase and lease of land envisaged for the purpose of restoration and management
- Removal of fir forests from the alluvial plain
- Establishment of extensively used meadows on fir forest clearings
- Reintroduction of management in wet fallows by either annually alternating mowing or grazing with low stocking rates, both in late summer/early spring
- Initializing the development of bog woodland, alluvial forests and forests of slopes, screes and ravines
- Improvement of alluvial forests by selective forestry and initial planting of bistort rootstocks (*Bistorta officinalis*)
- Reintroduction of Which Elm (*Ulmus glabra*) on sites typically inhabited by forests of slopes, screes and ravines
- Control of the invasive neophytic plant Himalayan Balsam (*Impatiens glandulifera*)

Fig. 1-4: *L. helle*, its distribution in Europe and the location of our project area

Monitoring

To survey the measures' efficiency, a project-related monitoring is necessary of

- the habitat connectivity by monitoring the dispersal of the Violet Copper with the Capture-Mark-Recapture method
- the suitability of the different management-practices (mowing, grazing, selective forestry) concerning the benefit for the Violet Copper (adults and caterpillars)
- the development of habitats of community interest by observation and documentation of its biodiversity (flora&fauna)

Fig. 5-6: Diverse Mountain hay meadow and a characteristic inhabitant – *Erebia medusa*

Expected results

- Purchase/lease of up to 27 ha/10 ha of land
- Removal of up to 19,5 ha fir forests
- Restoration of up to 4,5 ha mountain hay meadows
- Management of up to 35 ha wet meadows
- Restoration of up to 15 ha woods
- Improvement of up to 10 ha woods
- Initial planting of bistort (*B. officinalis*)
- Planting of up to 1000 Which Elms (*U. glabra*)
- Elimination of the Himalayan Balsam (*I. glandulifera*)

Fig. 7-8: CMR of butterflies and a monitoring of eggs/larvae will be conducted

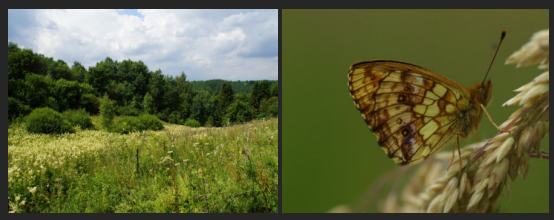


Fig. 15-16: Hydrophilous tall herb fringe communities - a habitat for *Brenthis ino*

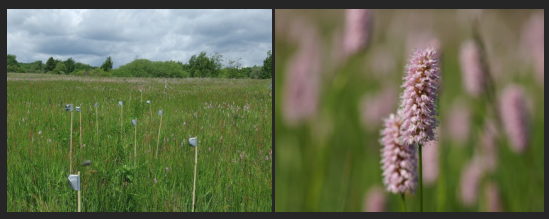


Fig. 9-10: Transects counts (of eggs/larvae) and a mapping of Bistort are a monitoring option

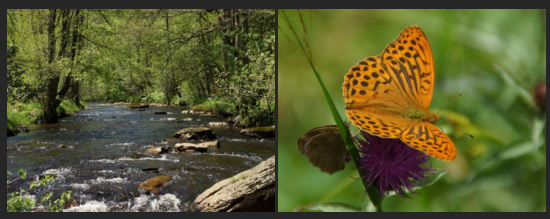


Fig. 17-18: Deciduous forests in our valleys serve as habitat for *Argynnis paphia*

Fig. 11-12: Wych Elm (*U. glabra*) will be planted, Himalayan Balsam (*I. glandulifera*) eliminated

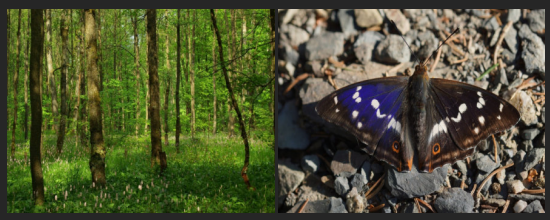


Fig. 19-20: ... as well as for *Apatura iris*

Fig. 13-14: Data on Ground beetles (Carabidae) and moths will be collected

Fig. 21-22: Non-native coniferous forests will be removed from the alluvial plain

LIFE

The LIFE programme is the EU's funding instrument for the environment and climate action. The general objective of LIFE is to contribute to the implementation, updating and development of EU environmental and climate policy and legislation by co-financing projects with European added value.

Natura 2000

is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right. It stretches across all 28 EU countries, both on land and at sea. The aim of the network is to ensure the long-term survival of Europe's most valuable and threatened species and habitats, listed under both the Birds Directive and the Habitats Directive.

Butterfly species in the project region, Northern Eifel mountains

1 *Aglais urticae*
2 *Anthocharis cardamines*
3 *Apatura iris*
4 *Aphantopus hyperantus*
5 *Aporia crataegi*
6 *Araschnia levana*
7 *Argynnis aglaja*
8 *Argynnis paphia*
9 *Boloria aquilonaris*
10 *Boloria eunomia*
11 *Boloria selene*
12 *Brenthis ino*
13 *Callophrys rubi*
14 *Carterocephalus palaemon*
15 *Celastrina argiolus*
16 *Coenonympha arcania*
17 *Coenonympha pamphilus*
18 *Colias croceus*
19 *Colias hyale*
20 *Erebia medusa*
21 *Gonepteryx rhamni*
22 *Inachis io*
23 *Issoria lathonia*
24 *Lasiommata maera*
25 *Lasiommata megera*
26 *Leptidea sinapis*
27 *Lycaena helle*
28 *Lycaena hippothoe*
29 *Lycaena phlaeas*
30 *Lycaena tityrus*
31 *Maniola jurtina*
32 *Melanargia galathea*
33 *Neozephyrus quercus*
34 *Nymphalis polychloros*
35 *Ochlodes sylvanus*
36 *Papilio machaon*
37 *Pararge aegeria*
38 *Pieris brassicae*
39 *Pieris napi*
40 *Pieris rapae*
41 *Plebeius argus*
42 *Polygonia c-album*
43 *Polyommatus icarus*
44 *Polyommatus semiargus*
45 *Pyrgus malvae*
46 *Thecla betulae*
47 *Thymelicus lineola*
48 *Thymelicus sylvestris*
49 *Vanessa atalanta*
50 *Vanessa cardui*

Additional species rarely found

51 *Apatura ilia*
52 *Argynnis adippe*
53 *Aricia agestis*
54 *Cupido argiades*
55 *Cupido minimus*
56 *Hesperia comma*
57 *Melitaea cinxia*
58 *Nymphalis antiopa*
59 *Pieris mannii*
60 *Satyrium pruni*
61 *Satyrium w-album*
62 *Euphydryas aurinia*

Extinct species

63 *Clossiana euphrosyne* †
64 *Coenonympha tullia* †
65 *Colias palaeno* †
66 *Limentis populi* †
67 *Lycaena virgaureae* †
68 *Melitea diamina* †
69 *Phengaris alcon* †

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