A few remarkable beetle species in the nature reserve “de Gelderse Poort”

The nature reserve “de Gelderse Poort” is situated on the German/Dutch border where the Rhine branches into the rivers Waal, lower Rhine and IJssel. The area covers around 21,000 hectares between the Dutch cities Arnhem and Nijmegen and the German city Emmerich. This cross-border territory can be divided into different nature conservation areas such as the Millingerwaard in the Netherlands or the Kranenburger Bruch in Germany. These areas house an impressive number of rare plants and animals like beaver, migratory waterfowl and different groups of insects. Therefore, it’s not surprising that these areas were the subject of intense research in the past. One example of these researches was a scientific study about the ecology of ground beetles in the Millingerwaard (Verdonschot et al. 2007). Also a few faunistic investigations were done by different beetle study groups (Katschak 1991). Particularly these study groups usually work in political limited areas. This is one reason why it is hard to get an overview of all recorded beetle species in the “de Gelderse Poort”. In the following, the most important areas of the nature reserve are discussed and an overview of a few remarkable beetle species in the nature reserve “de Gelderse Poort” is given.

Millingerwaard

The Millingerwaard is situated in the downstream area of the Rhine near to the City Nijmegen, in the Province of Gelderland. This nature conservation area is formed by floodplains along the banks of the Rhine. The diversity of the landscape along the banks is impressive. The topography varies from sandy river dunes and sand banks, old threads of rivers and grassland to swamp and woodland.
An important part of the woodland in the Millingerwaard consists of alluvial forests. An alluvial forest is a hardwood forest found on low levees, ridges and terraces within the floodplains of streams and rivers. This type of forest grows in areas that are slightly elevated above floodplain swamp and are usually flooded for a portion of the growing season. It is greatly influenced by the ongoing disturbance created by a fluctuating river bed which is both eroding and depositing substrates (Sharitz & Mitsch 1993). The Forest Conservation Society has introduced wild horses and Scottish Galloway cattle to the Millingerwaard to graze. A big beaver population houses also in the Millingerwaard. The nature conservation area Millingerwaard is one of the largest recreation area in the province of Gelderland with over 100,000 visitors per year.
**Ooijpolder**

The Ooijpolder stretches along the Rhine from the German border up to Nijmegen. Quite a number of landscape elements are found in this nature conservation area: dikes, river banks, agricultural fields, swamps, ponds, submerged clay pits, gravel and sand dredging areas. Most of these landscape elements are modeled by the water of the Rhine. The flora and fauna is comparable with the nature conservation area Düffel. Only the agriculture is more significant in this area of the “de Gelderse Poort”.

**Düffel**

The nature conservation area Düffel is located in Germany and is adjacent to the nature conservation areas Ooijpolder in the Netherlands. Together both areas form a cross-border reserve with approximately 11,000 ha. After the last ice age, periodical floodings and the associated alluvial deposits has established a pasture landscape in this region. Along the wet meadows and pastures, which are composed of different plant communities, hawthorn hedges, head willow trees and poplars are growing. A lot of different and considerable bird species are also found in this area. The nature conservation area Düffel is an important recreation area that is nevertheless visited by 50,000 sightseers each year.

**Kranenburger Bruch**

The nature conservation area Kranenburger Bruch is located in Germany near the city of Kranenburg. The appearance of this conservation area has been significantly influenced by the post-glacial flooding of the Rhine. Erosion and sediment deposits have formed floodplains, sand banks, gravel banks and gutters. In a slight depression a fen has developed, the Kranenburger Bruch. This fen has evolved over the years into the present fen wood.
Today the Kranenburger Bruch documented the original appearance of many swamp forests, which have existed in the downstream area of the Rhine. Nowadays, the Kranenburger Bruch provides a habitat for many rare birds such as the corncrake, reed warbler, bluethroat, reed bunting and water rail. Further, the Kranenburger Bruch is habitat for a great number of small mammals, amphibians and insects.
**Leistus fulvibarbis (DEJEAN, 1826) (Coleoptera: Carabidae)**

**Biology:**

*Leistus fulvibarbis* prefers humid habitats which are partly shaded. These are waters in forests and vegetation-rich riparian zones. Like every *Leistus* species, *L. fulvibarbis* feeds on springtails. The reproduction period is taking place in autumn.

**Distribution:**

*L. fulvibarbis* is a Mediterranean-atlantic species which is recorded from North Africa, South Europe and West Europe. At the moment, *L. fulvibarbis* spread eastwards and reached West Germany. In the early nineties, *L. fulvibarbis* was caught in the nature reserve “de Gelderse Port” (HANNIG 2010).

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**Elaphrus aureus P. MÜLLER, 1821 (Coleoptera: Carabidae)**

**Biology:**

This ground beetle is diurnal and can be found on muddy water shores and in alluvial areas. *Elaphrus aureus* is a quick runner which feeds on small insects and other arthropods such as small spiders and isopods. The hibernation takes place buried in the ground.

**Distribution:**

*E. aureus* ranges from Western Europe to the Caucasus and from Macedonia to the north part of Germany. In Central Europe *E. aureus* is very rare.

Due to the reduction and fragmentation of its habitat this species is rare and threatened in Germany (GÜNTHER & HÖLSCHER 2004). This corresponds to the situation in the Netherlands. During a study about the ecology of ground beetles, *E. aureus* was caught with a pitfall trap in the Millingerwaard (VERDONSCHOT et al. 2007).
Bembidion modestum (Fabricius, 1801) (Coleoptera: Carabidae)

Biology:

The ground beetle Bembidion modestum is adapted to the pioneer habitat on shores. Due to the reduction of its habitat, B. modestum is very rare and highly threatened in Central Europe. B. modestum feeds predatorily on small invertebrates.

Distribution:

B. modestum is a montane species which is recorded from the Pyrenees, Balkans and Central Europe. In the lowlands, B. modestum is very rare. During a study about the ecology of ground beetles, one sample of B. modestum was caught with a pitfall trap in the Millingerwaard (Verdonschot et al. 2007).
**Odacantha melanura** (Linnaeus, 1767) (Coleoptera: Carabidae)

**Biology:**

This brightly coloured ground beetle lives in the reed belt near water bodies in all their various forms. Hibernation takes place in the stalks of plants such as bulrushes. Also the larvae of *Odacantha melanura* develop in the stalks of plants. *O. melanura* feeds predatorily on small invertebrates such as small spiders and springtails.

![Image of Odacantha melanura](image)

*Figure 4: Odacantha melanura*  
*Photo: Dr. Udo Schmidt*

**Distribution:**

*O. melanura* has a large distribution zone. This distribution zone ranges from West Europe to Siberia in the east. In Central Europe *O. melanura* is widely spread. *O. melanura* was recorded by a member of a beetle study group in the Kranenburger Bruch (Katschak & Köhler 1991).
**Demetrias monostigma** Samouelle, 1819 (Coleoptera: Carabidae)

**Biology:**

This brightly coloured ground beetle lives in sedge stands. *Demetrias monostigma* is highly adapted to the culm zone of the tussocks (Meissner 2000). *D. monostigma* is found in both wet and dry habitats like sand dunes and swampy meadows.

**Distribution:**

*D. monostigma* can be found in Europe, the Caucasus, Kyrgyzstan, Turkestan and West Siberia. *D. monostigma* was recorded in the Kranenburger Bruch in 1991 (Katschak & Köhler 1991).

**Philonthus micantoides** Benick & Lohse, 1956 (Coleoptera: Staphylinidae)

**Biology:**

The nocturnal rove beetle *Philonthus micantoides* is predacious and feeds on other Arthropods. This beetle can be found among other things on moisty grassland under detritus.

**Distribution:**

Until today, *P. micantoides* is only recorded in North Germany, Scandinavia and Siberia. In 1991, *P. micantoides* has been sifted out of detritus in the Kranenburger Bruch (Katschak & Köhler 1991).
**Abraeus granulum** ERICHSON, 1839 (Coleoptera: Histeridae)

**Biology:**

The hister beetle *Abraeus granulum* lives under the bark and in rotten parts of old deciduous trees. Mostly *A. granulum* is associated with its sister species *Abraeus globolus* and the brown wood ant (*Lasius brunneus*) (KÖHLER 1996).

![Image of Abraeus granulum](image)

**Distribution:**

*A. granulum* is widespread across Europe but much rarer than *A. globolus*. During a collecting trip in 1989, *A. granulum* was collected in a nest of *L. brunneus* in the Kranenburger Bruch (KATSCHAK 1991).
Euconnus fimetarius (Chaudoir, 1845) (Coleoptera: Staphylinidae)

Biology:

After the Scydmaenidae have been integrated into the Staphylinidae (Grebennikov & Newton 2009), the ant-like stone beetle Euconnus fimetarius now belongs to the speciose family Staphylinidae.  
*E. fimetarius* lives in detritus, moss and rotten wood. Like every ant-like stone beetle, *E. fimetarius* feeds on mites.  
The hibernation takes place buried in the ground or under fallen leaves.

Distribution:

*E. fimetarius* is distributed in Europe with an excessive concentration in North- and Central Europe. In the Gerlderse Port, *E. fimetarius* was caught in the Kranenbuger Bruch during a faunistic investigation (Katschak & Köhler 1991).

Figure 6: Euconnus fimetarius

Photo: Dr. Udo Schmidt
**Longitarsus ferrugineus (Foudras, 1860) (Coleoptera: Chrysomelidae)**

**Biology:**

This leaf beetle belongs to the subfamily Alticinae. This subfamily is characterized by the ability to jump. This is also reflected in the morphology of the hind legs. The femur of the hindlegs is greatly enlarged.

*Longitarsus ferrugineus* prefers moisty habitats where the adults feeds on *Mentha* species. The larvae of *L. ferrugineus* develop in the root system of the host plant.

**Distribution:**

*L. ferrugineus* is endemic in the Western Palaearctic but not present in every region of this large range of distribution.

In the Netherlands for example, *L. ferrugineus* has been found only twice. The last time that *L. ferrugineus* has been discovered in the Netherlands, was in the Millingerwaard (Vorst 2005).

**Notaris scirpi (Fabricius, 1792) (Coleoptera: Curculionidae)**

**Biology:**

The preferred habitats of this weevil are marshland, banks and ditches.

*Notaris scirpi* feeds on sedges and possibly also on bulrushes. The larvae of *N. scirpi* develop in the roots of the host plant.

The hibernation takes place buried in the ground.

**Distribution:**

*N. scirpi* is widespread across Europe but rare. Due to the reduction and fragmentation of its habitat, this species is threatened in some areas of its range of distribution.
Hylobius transversovittatus (Goeze, 1777) (Coleoptera: Curculionidae)

Biology:

This weevil is diurnal and can be found on muddy water shores, alluvial areas, marshland, banks and ditches. Contrary to the other species of the genus Hylobius, which lives and feed on coniferous trees, Hylobius transversovittatus feeds monophag on Purple loosestrife (Lythrum salicaria).

Distribution:

H. transversovittatus can be found in North-, Central-, and East Europe. H. transversovittatus is also distributed in South Europe but only in a few areas. H. transversovittatus is recorded only from the Millingerwaard in the area at issue. But it might be reasonably assumed, that H. transversovittatus can be also found in other parts the nature reserve, because the host plants of H. transversovittatus is very common in the nature reserve “de Gelderse Poort”.

Figure 7: Hylobius transversovittatus

Photo: Georg Slickers
**Nanophyes brevis** BOHEMAN, 1845 (Coleoptera: Nanophyidae)

**Biology:**

Like most species of the Nanophyidae which occur in Central Europe, *Nanophyes brevis* lives and reproduce on *Lythrum salicaria* L. (Lythraceae), a common plant growing in a wide range of wet habitats.

The larvae of *N.brevis* develop in the fruits of the host plant. The new generation appears in the end of summer (DIECKMANN 1963).

**Distribution:**

*N.brevis* ranges from Portugal in the west to Caucasus in the east and occurs in all Mediterranean countries of Europe. In Egypt, *N.brevis* reaches the African continent (DIECKMANN 1963).

In Central Europe, *N.brevis* is a rare species. In Germany, *N.brevis* is known only from the southwestern parts (RHEINHEIMER & HASSLER 2010).

Few years ago, *N.brevis* was recorded for the first time in the Netherlands (T.Heijerman, personal communication).

In the nature reserve “de Gelderse Poort”, *N.brevis* can be found on both sites of the border but only in a few locations and in a relatively low abundance.

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Figure 8: *Lythrum salicaria*, hostplant of *Hylobius transversovittatus* and *Nanophyes brevis*  
Photo: Manfred Heyde
**Bagous limosus (Gyllenhal, 1827) (Coleoptera: Curculionidae)**

**Biology:**

*Bagous limosus* lives semiaquatic in stagnate waters like lakes, ponds, ditches and pools. Sometimes *B. limosus* can also be found in slowly flowing waters.

By literary data, *B. limosus* lives and develops on pondweed. (Dieckmann 1983) mentions *Potamogeton lucens*, *P. matans* and *P. crispus*. The larval development is still not entirely clear. It is believed that the larva lives inside the stem of the host plant.

The adult beetle lives submerged on the host plants where it can be found from spring to autumn.

Hibernation takes place outside of the water under leaves or in the ground.

**Distribution:**

*B. limosus* is indigenous in Europe, Siberia and North Africa. In Central Europe *B. limosus* is relatively widespread but always rare. In some areas *B. limosus* is presently extinct (Rheinheimer & Hassler 2010).

In 1989 one beetle was found in the nature conservation area Kranenburger Bruch (Katschak 1991).

It might be reasonably assumed that *B. limosus* can also be found in the nature conservation area Millingerwaard, because the host plants of *B. limosus* are very common in this area of the nature reserve “de Gelderse Poort”.

![Potamogeton natans](http://example.com/potamogeton.jpg)  
*Figure 9: Potamogeton natans*  
*Photo: Christian Fischer*
Literature:


