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Multifunctional floodplain management and biodiversity effects: a knowledge synthesis for six European countries

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ONLINE RESSOURCE 1

De Blauwe Kamer

www.rijninbeeld.nl



depoldering



picture: www.rijninbeeld.nl

River branch	Neder-Rijn (Lower Rhine)
Province	Utrecht / Gelderland
Community	Rhenen
Start nature development	1984 procurement, 1992 design
Owner / manager	UtrechtsLandschap
Area	120 ha
Accessibility	partially accessible on the paths, partially closed
Measures	<ul style="list-style-type: none"> • lowering the embankment in two places, • construction of a side channel, • heightening the ground level of the meadow, • construction of an isolated shallow swamp, • construction of an inland drainage system

Species group	Before nature restoration		After nature restoration		Evaluation development
	Number of (rare) species	Number of Red List species	Number of (rare) species	Number of Red List species	
Flora*	48-54	22-23	50-66	23-25	
Breeding birds*	36	?	max 75	max 20	
Dragonflies*	17-20	1	35	4	
Butterflies*	24	3	24-27	2-3	
Grasshoppers*	12	1	14	1	
Other species	Beaver, grass snake, Natterjack toad (<i>Epidaleacalamita</i>)				
* = all species					








picture: www.synbiosys.alterra.nl

River branch	IJssel
Province	Overijssel
Community:	Olst-Wijhe
Start nature restoration	1987 floodplain meadow (grazed), 1989 design
Owner / manager	Staatsbosbeheer
Area:	150 ha (70 ha grazed)
Accessibility	partially accessible
Measures	<ul style="list-style-type: none"> • The construction of a downstream connected channel in 1989; • Part of the sand lake is filled in, part of a floodplain meadow was raised; • Construction of an observation hut from the dyke on the northern side of the ditches (1989); and of an observation tower at the brick factory; • The extension of the ditches in 2006 on the south-west side of the territory (third lob); • The construction of a natural border on the north side of the territory in 2005, by removing the hard riverbank substrate and part of the top layer, a sandy border remains, groynes stayed and there is a construction to restrict access by boats.

Results	Before nature restoration		After nature restoration		Evaluation development
Species group	Number of (rare) species	Number of Red List species	Number of (rare) species	Number of Red List species	
Flora*	12-14	7	29	11	
Breeding birds*	31	12	+/-35	11	
Dragonflies*	?	?	27-29	5	
Butterflies*	19	0	29	4	
Grasshoppers*	12	1	13	1	
Fish*	?	?	20	4	
Amphibians*	6	2	4	0	

* = all species

		Leeuwsche Waard www.rijnbeeld.nl		excavation of the floodplain topsoil	
		River branch		Waal	
		Province		Gelderland	
		Community:		Druten	
		Start nature development		1994	
		Owner / manager		Dekker van de Kamp	
		Area:		About 115 ha (sand lake included)	
		Accessibility		partially free accessible (western part), the eastern part is closed	
		Measures		<ul style="list-style-type: none"> • End of 2003: first phase filling up the Kaliwaal; • 2003: north eastern side a temporary quay is constructed; • 2003: Lowering a large part of the space between the shore and the summer dyke; • 2008: Realisation of a large oxbow around the Kaliwaal; • 2008: Elongating the quay along the south side of the Kaliwaal to the Leeuwsche Waard; • 2008: Construction of a new quay on the dyke side of the oxbow 	
Picture of the Leeuwsche Waard (www.rijnbeeld.nl)					
Species group	Before nature restoration		After nature restoration		Evaluation development
	Number of (rare) species	Number of Red List species	Number of (rare) species	Number of Red List species	
Flora*	18	5	32-41	10	
Breeding birds*					
Dragon flies*	18	0	18	2	
Butterflies*			17	1	
Grasshoppers*	7	0	10-11	1	
Other species					
* = all species					


 <p>Oeffeltermeent (http://maasinbeeld.nl/2/?cat=36)</p> <p>Excavation of the floodplain top soil</p>	 <p>Relocation of the dyke</p>																	
	<table border="1"> <tr><td>River branch</td><td>Meuse</td></tr> <tr><td>Province</td><td>Noord-Brabant</td></tr> <tr><td>Community:</td><td>Boxmeer</td></tr> <tr><td>Start nature restoration</td><td>1982 floodplain meadow (grazed), 1989 design</td></tr> <tr><td>Owner / manager</td><td>State Forestry Service/Gravel exploitation companies</td></tr> <tr><td>Area:</td><td>100 ha (most grazed)</td></tr> <tr><td>Accessibility</td><td>accessible on public footpaths</td></tr> <tr><td>Measures</td><td> <ul style="list-style-type: none"> • Construction of a summer dyke, to avoid flooding of rare and valuable floodplain meadows (early 80s) • Excavation of livestock ponds as part of nature restoration (early 90s); • Removal top soil to restore ruderal conditions in part of the area (1991); • Reconstruction and strengthening of river dyke. </td></tr> </table>	River branch	Meuse	Province	Noord-Brabant	Community:	Boxmeer	Start nature restoration	1982 floodplain meadow (grazed), 1989 design	Owner / manager	State Forestry Service/Gravel exploitation companies	Area:	100 ha (most grazed)	Accessibility	accessible on public footpaths	Measures	<ul style="list-style-type: none"> • Construction of a summer dyke, to avoid flooding of rare and valuable floodplain meadows (early 80s) • Excavation of livestock ponds as part of nature restoration (early 90s); • Removal top soil to restore ruderal conditions in part of the area (1991); • Reconstruction and strengthening of river dyke. 	
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Results

Species group	Before nature restoration		After nature restoration		Evaluation development
	Number of (rare) species	Number of Red List species	Number of (rare) species	Number of Red List species	
Flora*	41	26	36	20	
Breeding birds	22	12	22	9	
Dragonflies*	?	?	15	2	
Butterflies*	?	?	23	2	
Grasshoppers*	?	?	8	0	
Fish					
Herpetofauna		0	6	2	

* = all species

Process parameter	change
Natural development	
Hydro-morphodynamics	
Natural grazing	
Seepage	

Pilot project Meers http://www.maasinbeeld.nl/publicaties/ProefprojectMeers.pdf (Peters et al. 2007)			
	River branch	Meuse	
	Province	Limburg	
	Community:	Stein	
	Start nature restoration	1998	
	Owner / manager	Natuurmonumenten (NGO), mineral extraction company	
	Area:	53 ha (grazed)	
	Accessibility	accessible	
	Measures	<ul style="list-style-type: none"> • Widening riverbed over 200m, lowering river bank • (Partly) Filling in deep gravel pit (lake) • Landscaping of the gravel pits • Establishment recreation facilities • Establishing one grazed management unit • Construction shallow gravel channel along river 	

Results

Species group	Before nature restoration		After nature restoration		Evaluation development
	Number of (rare) species	Number of Red List species	Number of (rare) species	Number of Red List species	
Flora*	28	12	57	30	
Breeding birds	13-15	8-11	13-17	8-10	
Dragonflies*	?*	0	22*	2	
Butterflies*	10*	1	15*	3	
Bats*	?	?	3*	3	
Other species					Beaver, Blue-winged grasshopper
Fish					Many important rheophile fish species returned

Process parameter	change
Natural development	
Hydro-morphodynamics	
Natural grazing	
Other processes	

