Graduated intensity of Grassland Management in Lower Austria – A Case Study of Puchberg am Schneeberg

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DER LANDSCHAFTSFONDS

AVL ARBEITSGEMEINSCHAFT VEGETATIONSÖKOLOGIE LANDSCHAFTSPLANUNG

ÖKL

Landwirtschaftskammer Niederösterreich

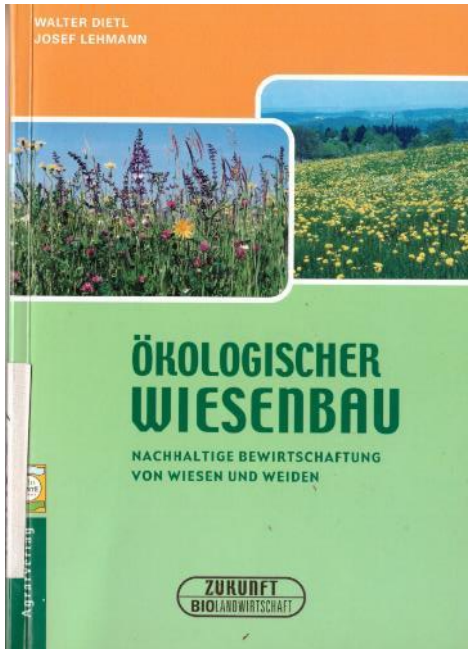
The Project

- Lower Austrian Landscape Funds („Landschaftsfonds“)
- Austrian Council of Agricultural Engineering and Rural Development
- Provincial Chamber of Agriculture in Lower Austria
- Agency for Vegetation Ecology and Landscape Planning

- Graduated intensity of Grassland Management (DIETL & LEHMANN 2004)

- 17 farms, 475 ha
- 2016 – 2017

- vegetation mapping
- analysis of livestook feed
- economic evaluation
- management advice



The Region

The Farms

17 Farms:

- milk production (8 farms), suckler cows, cow breeding
- 10 organic farms (2 since 2017)
- average: 0,9 LSU/ha
- milk yield 5000-8000 kg/year

475 ha Grassland:

- 44% used intensively

The Grasslands

mapping (example)

grassland type, intensity level

500 plots

Braun-Blanquet samples

33 plots

Lolietum multiflorae

Trisetum flavescens
Arrhenatherum elatius
Festuca rubra
Avenula pubescens
Trifolium pratense
Lotus corniculatus
Lathyrus pratensis
Knautia arvensis
Ranunculus acris
Trogopogon orientalis
Rumex acetosa
Crepis biennis
Carum carvi
Leontodon hispidus
Leucanthemum cf. ircutianum
Centaurea jacea
Campanula patula

Pastinaco-Arrhenatheretum (species-rich)

Ranunculo bulbosi-Arrhenatheretum

Festuca nigra
Sesleria varia
Briza media
Carex montana
Bromus erectus
Carduus nutans
Cirsium eriohorum
Carlina acaulis
Helianthemum nummularium
Trifolium montanum
Thymus pulegeoides
Plantago media
Alchemilla vulgaris s.l.
Salvia pratensis
Galium verum
Buphthalmum salicifolium
Adenostyles glabra
Hypericum maculatum
Veratrum album
Astrantia major
Dianthus carthusianorum
Orchis mascula
Orchis militaris

Carlino acaulis-Brometum

Vegetation Ecology - Results

- grassland types and intensity levels (example: largest area)

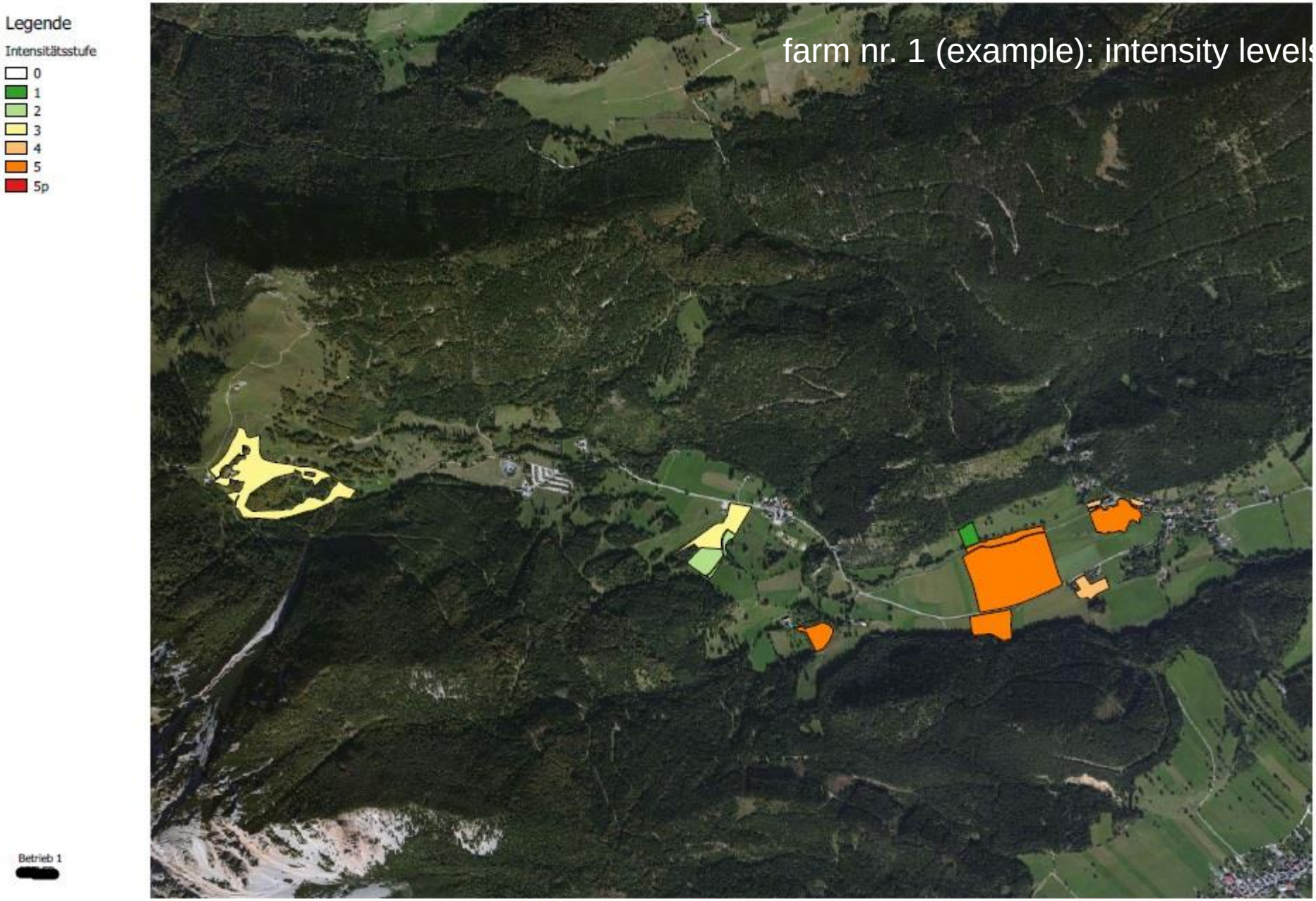
		ha	intensity
Intensivwiese	Lolietum multiflorae etc., meadow	181,32	5
Tal-Magerweide	Carlino acaulis-Brometum etc., foothill zone	51,46	2
Mischgras-Fettwiese	Pastinaco-Arrhenatheretum, species rich	50,31	4
Tal-Fettweide	Festuco commutatae-Cynosuretum	35,19	3
Berg-Fettweide	Crepido-Cynosuretum	23,18	3
Trespen-Gh-Trockenwiese	Ranunculo bulbosi-Arrhenatheretum	18,82	2
Intensivweide, gedüngt	Lolietum multiflorae etc., meadow, fertilised	17,54	5
Weide-HTR	Carlino acaulis-Brometum etc., dry version	17,2	1

- intensity levels (total)

intensity level	ha	%
0	8,57	1,80
1	35,69	7,51
2	85,88	18,06
3	66,23	13,93
4	68,90	14,49
5	185,33	38,98
5p	24,86	5,23
total	475,46	100,00

0: no allocation
5p: intensive use with problems (e.g. Poa trivialis abundant)

Vegetation Ecology - Results



Analysis of Livestock Feed

farm nr.	FSN	FSNAME	Wiesentyp	intensity level	MJ NEL/kg fresh grass 1st mowing	livestock feed 1st mowing	fresh grass 2nd mowing	fresh grass 3rd mowing	livestock feed 2nd and 3rd mowing
13	2	OBERER ACKER	Intensivwiese	5	6,93	6,29			4,97 HAY 2
5	1	BIRENT	Intensivwiese	5	6,75				4,94 HAY 2
16	6	OBERFELD	Intensivwiese	5	6,45				
4	21	POINT	Mischgras-Fettwiese	4	6,42	5,68 HAY	6,00		
13	4	UNTERER ACKER	Intensivwiese	5	6,39	6,24			
8	5	ACKER OBERN HAUS	Intensivwiese	5	6,30			5,29	5,43 HAY 3
14	21	HENGSTTALWIESE	Mischgras-Fettwiese	4	6,29		5,63		
14	11	KONRADWIESE	Intensivwiese	5	6,28		5,42		
8	14	ADIS WIESE	Intensivwiese	5	6,28				5,47 HAY 2
12	1	UNTERE ACKER	Intensivwiese	5	6,22	6,12 SIL	5,88		5,61 SIL
4	7	UNTERREITH	Intensivwiese	5	6,14		6,10		
14	3	HAUSACKER.	Ackereinsaat	0	6,06		5,42		
2	5	ACKER	Wechselwiese	5p	6,04	6,19 SIL	5,71		5,54 SIL
5	10	HAUSACKER 1	Intensivwiese	5		6,01 SIL			
1	2	EINZAIN	Intensivwiese	5	5,99		6,09		
12	4	GRO»ER ACKER	Intensivwiese	5p	5,99		5,83		5,68 SIL
10	11	BACHACKER	Mischgras-Fettwiese	4	5,90	5,87 SIL			4,77 HAY
1	3	BRAITEN	Intensivwiese	5	5,83		6,03		
17	1	LANG- ACKER	Intensivwiese	5	5,82				5,65 SIL
9	4	UNTERER GARTENA	Ackereinsaat	0	5,63	5,71 SIL		5,49	4,67 HAY 2
11	3	GARTEN	Intensivwiese	5	5,61				
11	5	LEITEN HERUNTEN	Mischgras-Fettwiese	4	5,56		6,49		
3	3	LINKE STRASSE	Intensivwiese	5	5,47	4,80 HAY			
6	1	HAUSWIESE 1	Mischgras-Fettwiese	4	5,46				
1	9	REITERER WIESE	Intensivwiese	5	5,46				
16	2	UNTERFELD	Trespen-Gh-Trockenwiese	2	5,42				
6	16	EICHT	Wechseltrockene Trespenw	1	5,39	5,90 SIL			
16	2	UNTERFELD	Mischgras-Fettwiese	4	5,38				
8	9	BODENANGER 1	Mischgras-Fettwiese	4	5,36			5,72	4,97 HAY 2
10	1	STEINRIEGL	Mischgras-Fettwiese	4	5,35	4,54 HAY			
9	5	F_RTRIFTACKER	Ackereinsaat	0	5,23	5,35 SIL	5,17		5,39 SIL
2	6	GESTEIN	Trespenwiese (Mäh-HTR)	1	5,22	4,58 HAY	5,73		
6	17	WIESE 1	Intensivwiese	5		5,16 SIL			
15	2	HINTERN HAUS1	Trespen-Gh-Trockenwiese	2	5,15	4,83/4,21 HAY			
11	1	STEINFELD WIESE	Trespen-Gh-Trockenwiese	2		5,12 SIL	5,73		
3	2	RECHTE STRASSE	Intensivwiese	5	5,06	4,69 SIL			5,44 SIL/5,19 HAY 2
10	3	PUCH	Intensivwiese	5	4,99	4,11 HAY	5,47		
15	1	KIRCHENWIESE1	Trespen-Gh-Trockenwiese	2	4,95				
9	14	HAUSWIESE	Weide-HTR	1		4,64 HAY			

Economic evaluation

farm nr.	agricultural land ha	milk	organic	LSU/ha	extensively used grassland %	forest ha	agricultural income 2017 EUR	public funds 2017 EUR
2	17,5	x		1,2	26,1	30	9.170,00	12.005,00
4	35,0		x	0,9	14,3	77	20.753,00	40.142,00
7	36,2		x	0,8	36,1	80	16.769,00	28.798,00
8	35,2			1,1	3,0	11	10.129,00	27.110,00
9	26,4	x		1,0	45,5	22	24.346,00	25.530,00
11	11,9			0,9	39,1	32	4.539,00	10.405,00
14	35,2	x	x	1,0	13,5	39	42.218,00	26.533,00

conclusions:

- Income is correlated much more to farm size than to intensity.
- Public funds cover 35,7-51,2% of the cross margin on milk producing farms and 54,3-63,6% on farms with suckler cows.
- Public funding is the main factor that keeps species-rich grasslands in use.

results/advice: farm level

- even stronger graduation in the intensity of grassland use is adviceable:
  - feed of high quality, mainly for milking cows, can only be produced on grasslands with a rather high level of intensity
  - limited availabilty of organic manure and options for equalisation payments are economic arguments for extensive grassland use
- decissions to choose best plots for intensity levels
- limits of sustainability
- The average variable costs of grassland cultivation are about 380.- EUR/ha.

results/advice: policy level

- Small scale milk production is declining without many other options. That leaves many open questions.
- Modern milk production maily needs intensively used grasslands.
- Among the model farms, about 40% of the grasslands can not be intensified, often just due the great distance to the farm.
- **A certain level of public funding is necessary to keep species-rich grasslands in use.**

Grasslands on the edge of abandonment?




Thank you for the attention!