

# **Steppe wood habitats in Austria: definition, phytosociology, and conservation status**

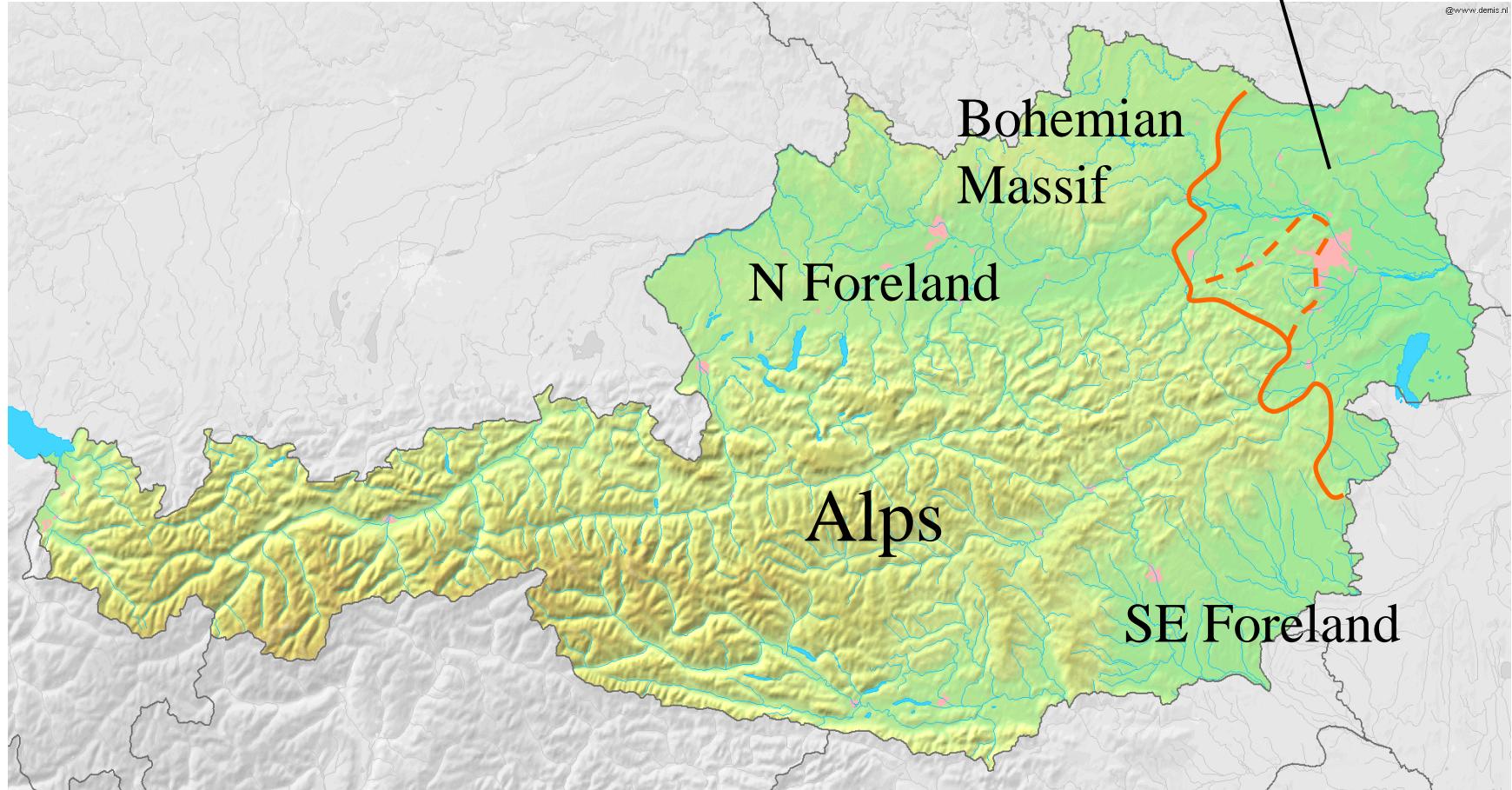
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Wolfgang Willner

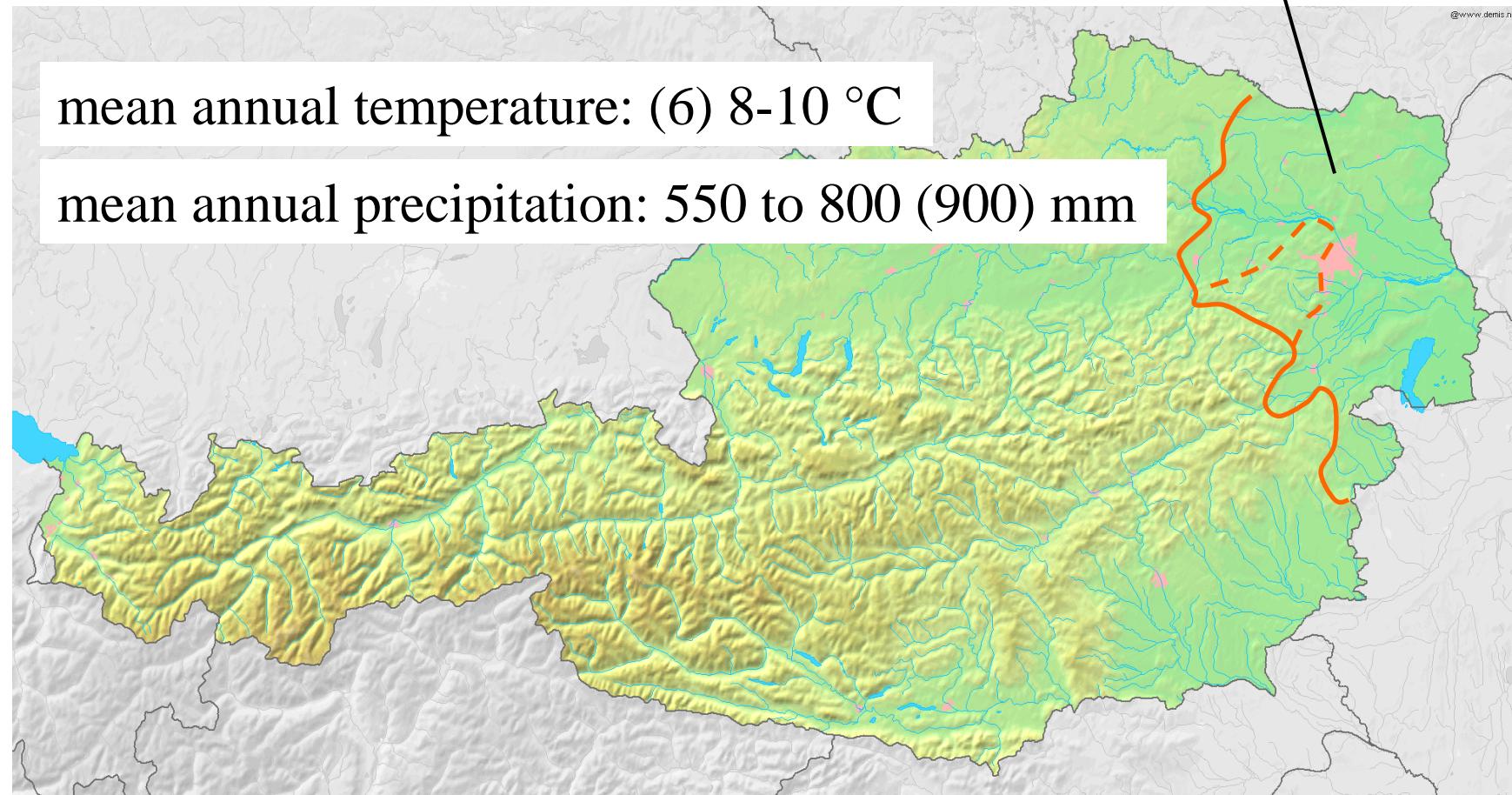
Vienna Institute for Nature Conservation & Analyses (VINCA)

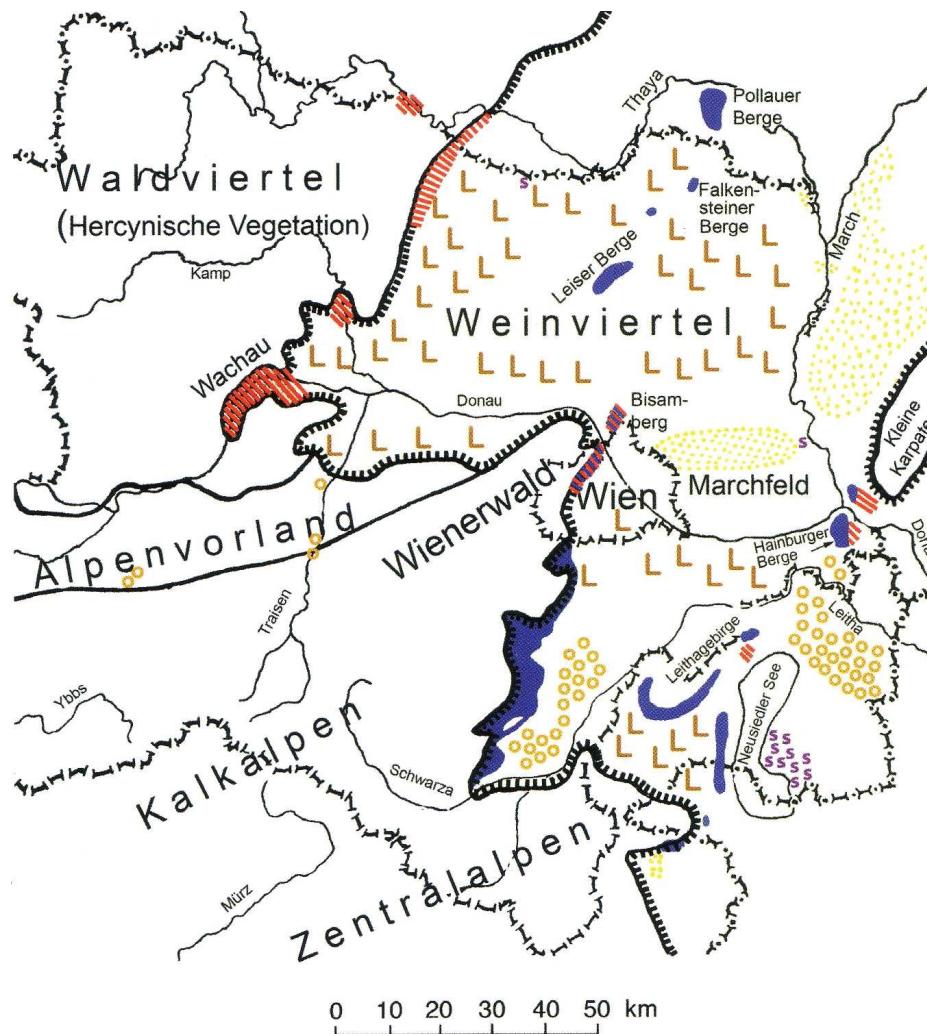
Vienna, Austria

## Pannonic region of Austria



## Pannonic region of Austria





siliceous rocks

loess

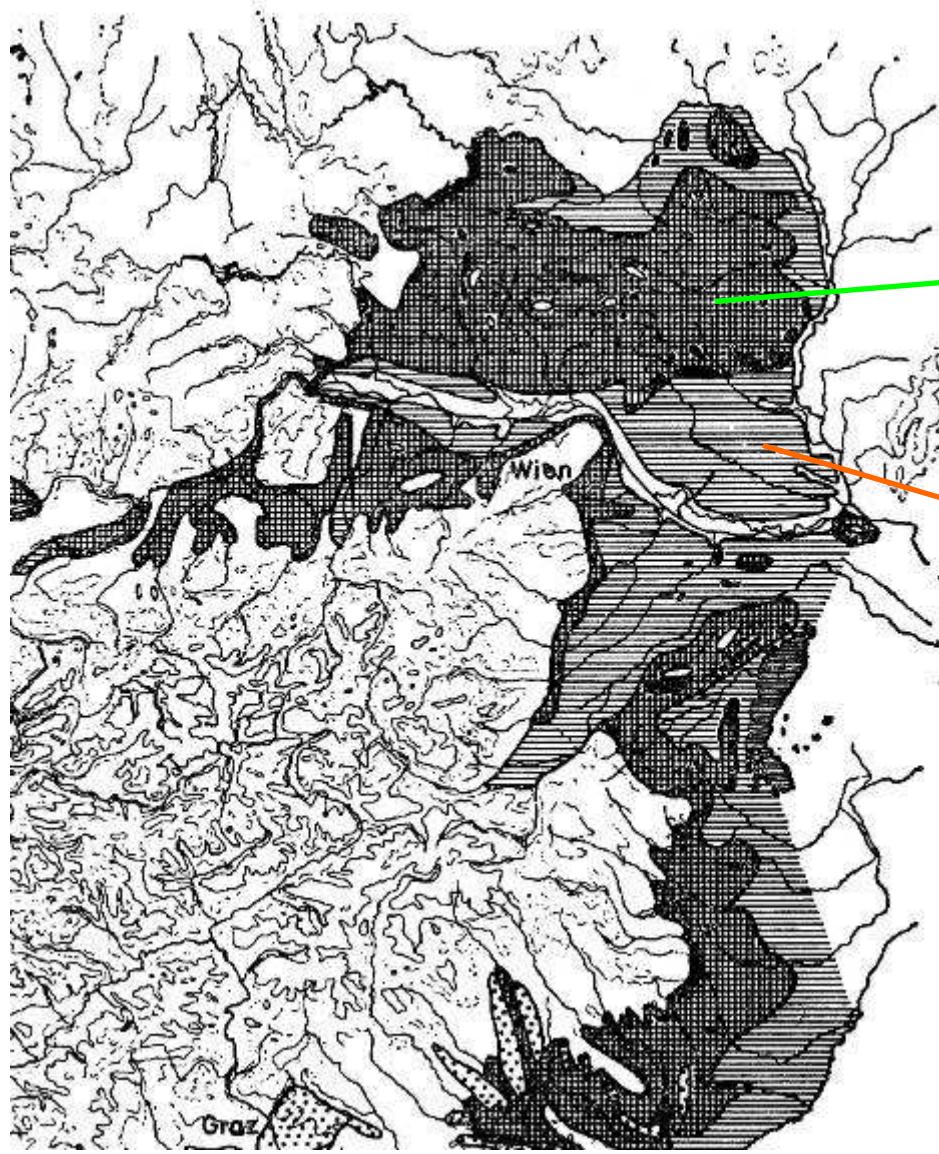
sand

dolomite

limestone

gravel

steppic vegetation in Austria



oak-hornbeam forests

subcontinental oak forests

natural oak forest types  
in eastern Austria  
according to Mayer (1974)



## **mixed pedunculate oak forests**

## sessile oak - bitter oak forests

## **oak-hornbeam forests**



from Bohn et al. (2000)





Ukrainian Forest steppe zone



NE Austria („Weinviertel“)



# Definition and phytosociology of steppe woods

The thermophilous oak forests of Austria are classified within two EU priority habitat types:

- 91H0 („Pannonian woods with *Quercus pubescens*“)
- 91I0 („Euro-Siberian steppic woods with *Quercus* spp.“)

and one non-priority habitat type:

- 91M0 („Pannonian-Balkanic turkey oak- sessile oak forests“)

# Classification of thermophilous oak forests (Quercion pubescenti-petraeae s.lat.) by F. Starlinger in Willner & Grabherr (2007):



3 association groups

**Xerophilous**

*Carex humilis*  
*Anthericum ramosum*  
*Aster amellus*  
*Buphthalmum salicif.*  
*Sesleria albicans*  
*Amelanchier ovalis*

**Mesophilous**

*Buglossoides purpur.*  
*Polygonatum latifolium*  
*Viola suavis*  
*Viola mirabilis*  
*Geum urbanum*  
*Ulmus minor*

**Acidophilous**

*Serratula tinctoria*  
*Lychnis viscaria*  
*Potentilla alba*  
*Luzula luzuloides*  
*Veronica officinalis*

**91H0**

**\* Pannonian woods with *Quercus pubescens***

PAL.CLASS.: 41.7373, 41.7374

- 1) Xerophyle oak woods of the periphery and hills of the Pannonic plain dominated by *Quercus pubescens* on extremely dry, southern exposed locations on shallow, calcareous soils. Because of these extreme site conditions, the woods are often fragmentary and low-growing, sometimes only shrubby. The herb layer is rich in species and often contains xerothermic species from dry grasslands or forest fringes. Occasionally *Tilia platyphyllos* and *Fraxinus excelsior* can become dominant.
- 2) Plants: *Quercus pubescens*, *Q. cerris*, *Fraxinus ornus*, *Sorbus domestica*, *S. torminalis*, *Colutea arborescens*, *Cornus mas*, *Pyrus pyraster*, *Arabis pauciflora*, *A. turrita*, *Buglossoides purpurcaerulea*, *Campanula bononiensis*, *Carex michelii*, *Euphorbia polychroma*, *Lactuca quercina*, *Limodorum abortivum*, *Millettis melissophyllum*, *Orchis purpurea*, *Potentilla alba*, *P. micrantha*, *Pulmunaria mollis* ssp. *mollis*, *Tanacetum corymbosum*, *Viola suavis*, *Euphorbia angulata*, *Lithospermum purpureo-coeruleum*. 41.7373 - *Quercus virgiliiana*, *Cotinus coggygria*, *Amygdalus nana*, *Cornus mas*, *Astragalus austriacus*, *A. monspessulanus*, *Carex humilis*, *Dictamnus albus*, *Geranium sanguineum*
- 4) White-oak woods often form mosaics with dry grasslands.

**91I0**

\* Euro-Siberian steppic woods with *Quercus* spp.

PAL.CLASS.: 41.7A

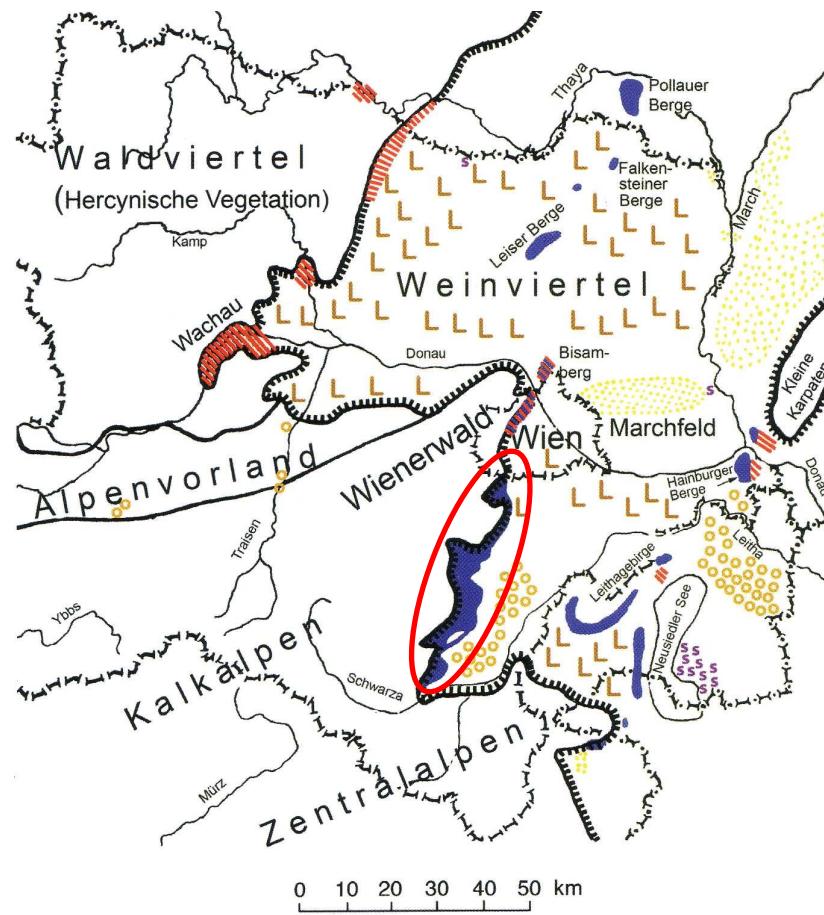
- 1) Xero-thermophile oak woods of the plains of south-eastern Europe. The climate is very continental, with a large temperature range. The substrate consists of 'Loess' (Chernozem soils). *Quercus robur*, *Quercus cerris*, *Q. pedunculiflora* and *Quercus pubescens* dominate in the treelayer of this habitat type, which is rich in continental stepic vegetation elements and geophytes of the *Aceri tatarici-Quercion Zólyomi* 1957.
- 2) Plants: *Quercus cerris*, *Q. pubescens*, *Q. robur*, *Q. pedunculiflora*, *Q. petraea*, *Acer campestre*, *Acer tataricum*, *Sorbus torminalis*, *Tilia tomentosa*, *Cornus sanguinea*, *Crataegus monogyna*, *Euonymus verrucosa*, *Ligustrum vulgare*, *Prunus spinosa*, *Pyrus pyraster*, *Rhamnus cathartica*, *Ulmus minor*, *Buglossoides purpurocaerulea*, *Carex michelii*, *Dactylis polygama*, *Galium dasypodium*, *Geum urbanum*, *Lathyrus niger*, *Polygonatum latifolium*, *Pulmonaria mollis* spp. *mollis*, *Tanacetum corymbosum*, *Tulipa biebersteiniana*, *Vincetoxicum hirundinaria*, *Viola jordanii*.
- 4) This habitat type, which formed the natural vegetation of south-eastern Europe, is today very fragmented. In Austria they are often degraded by invasion of *Robinia*.

Which habitat type are

- not extremely dry (or even mesic) oak woods on limestone, dolomite or marl?
- oak woods on clay or sand?

## Eastern slope of the Limestone Alps:

- Geranio sanguinei-Quercetum pubescantis (91H0)



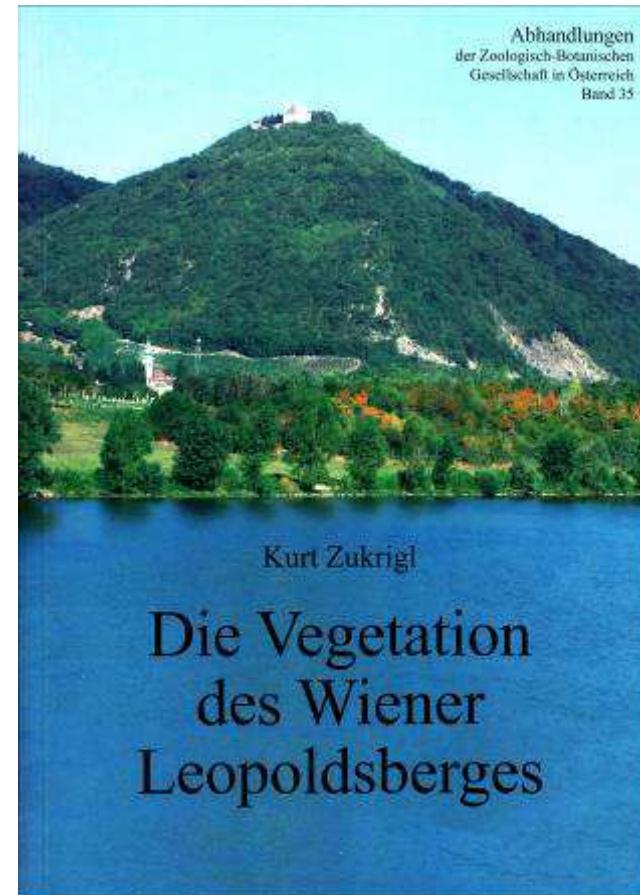
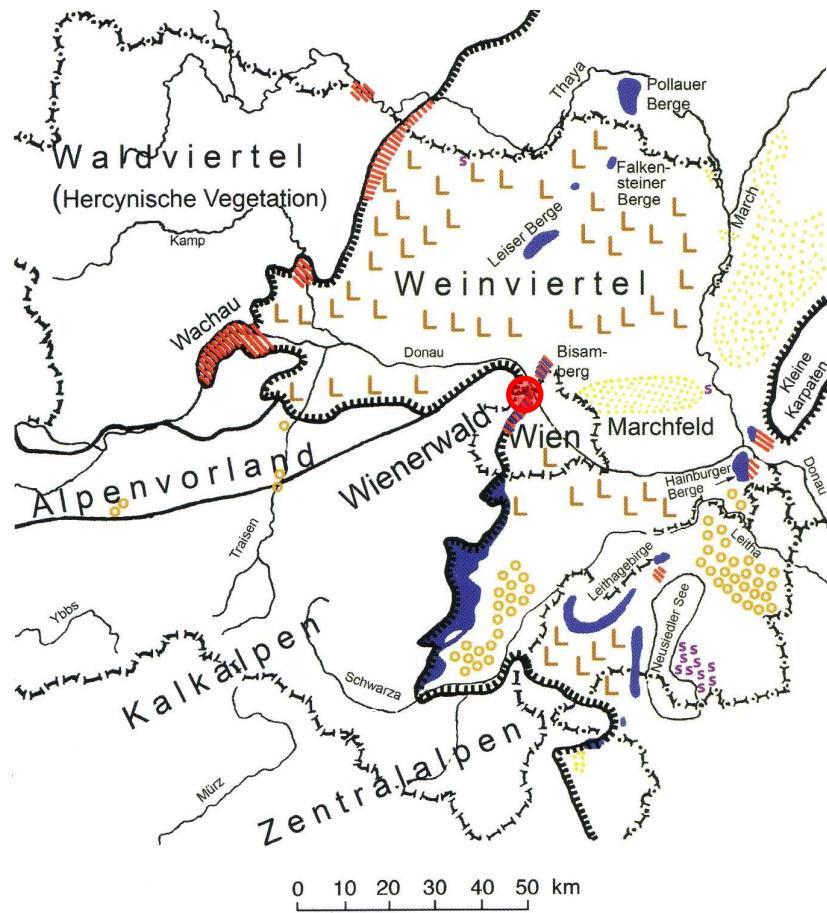






## Leopoldsberg (Vienna): Flysch sediments

- Inulo ensifoliae-Quercetum pubescens (91H0)
- Euphorbio-Quercetum laseretosum (**91I0?** **91H0!**)







*Inulo ensifoliae-Quercetum pubescentis*

*Euphorbio-Quercetum laseretosum*

## Leopoldsberg anno 1672

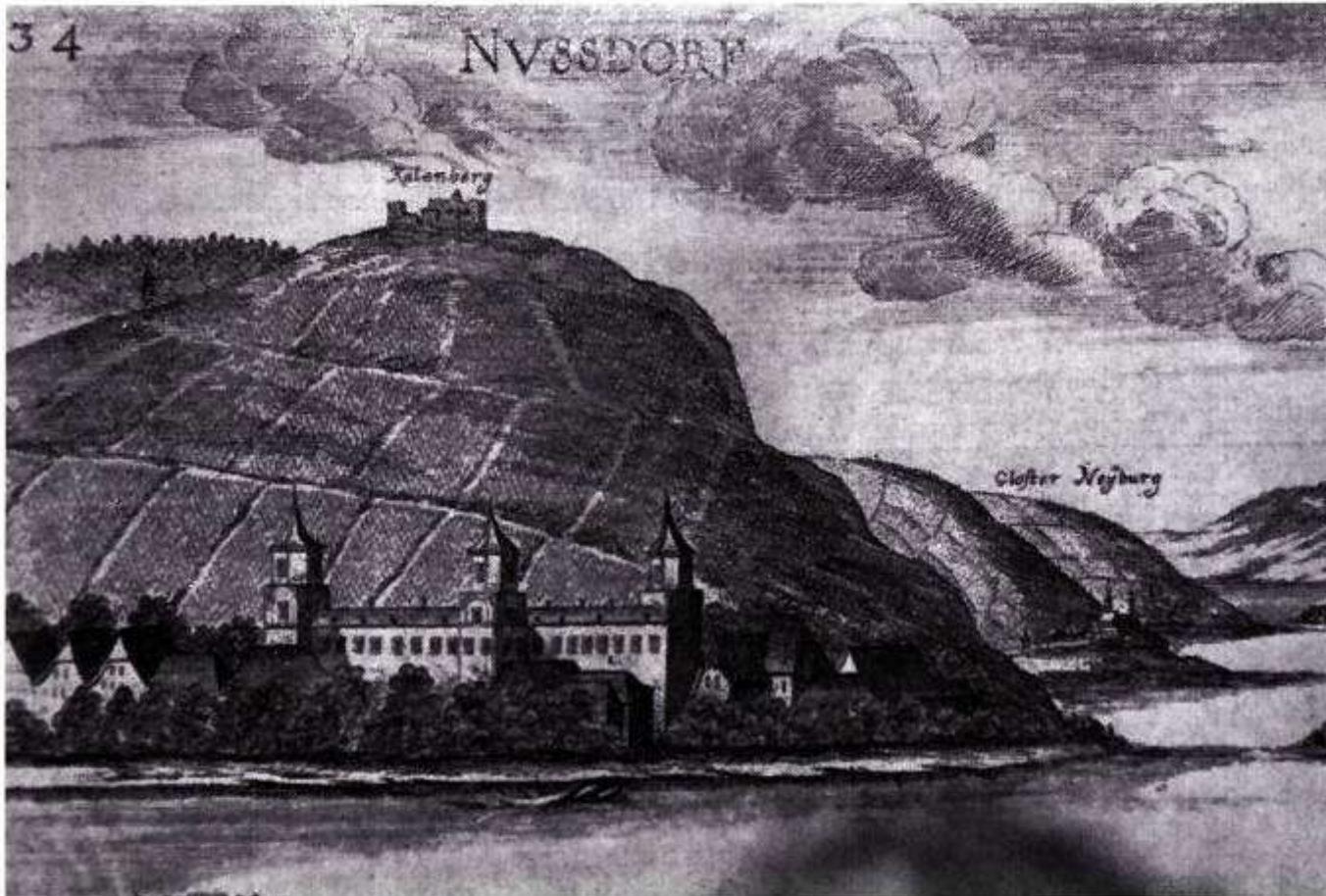
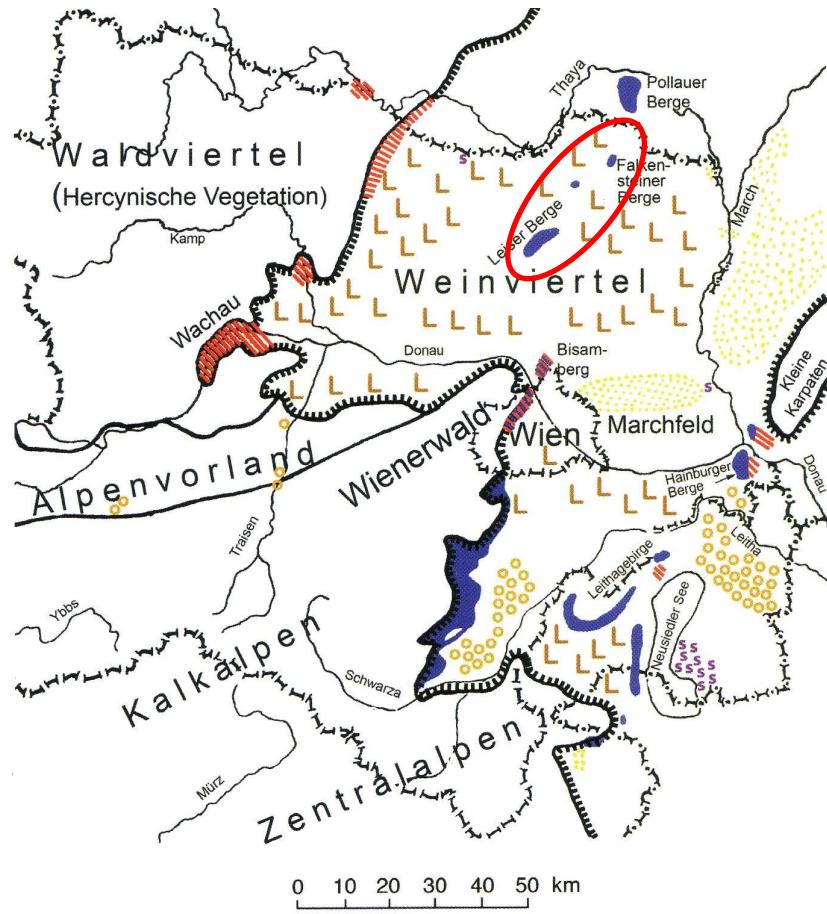


Abb. 4: Eine Darstellung aus 1672 zeigt den Sonnhang zur Gänze in Weingärten aufgeteilt. –  
Fig. 4: A painting from the year 1672 shows the whole sunny slope divided into vineyards.

## Calcareous hills in NE Austria (Weinviertler Klippenzone)

- Lithospermo-Quercetum pubescentis (91H0)
- Corno-Quercetum (**91I0?** **91H0!**)



## Steinberg NW Ernstbrunn: Lithospermo-Quercetum pubescentis

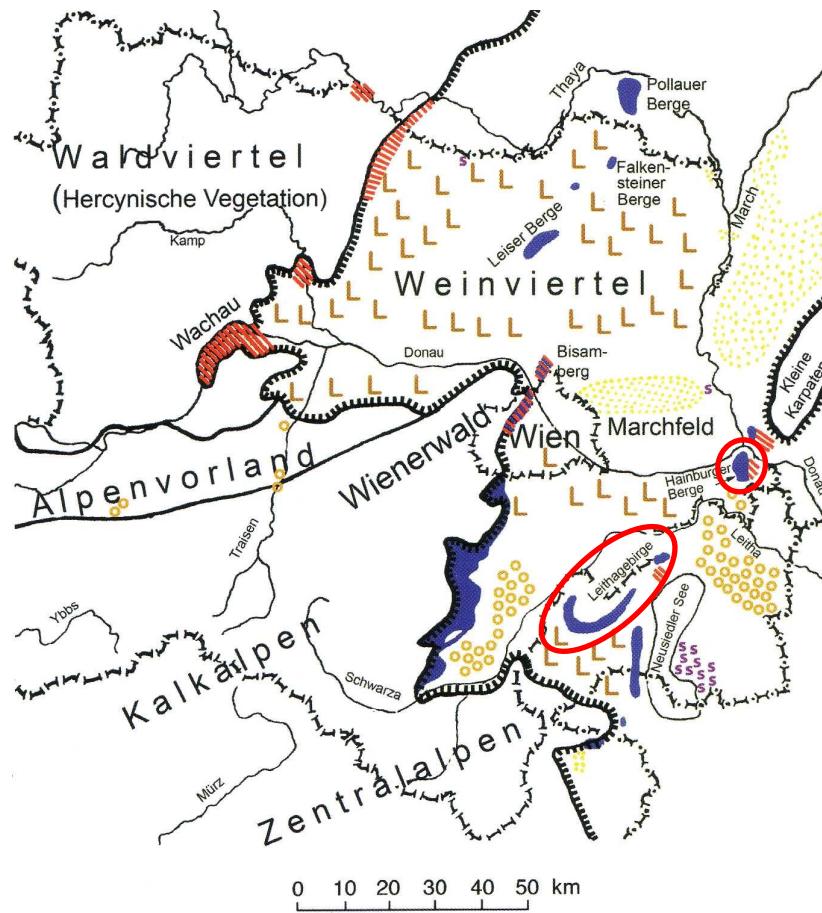


## Zahlberg N Niederleis: Corno-Quercetum



## Hainburger Berge, Leithagebirge

- Euphorbio-Quercetum typicum s.str. (91I0? 91H0!)
- Euphorbio-Quercetum galanthetosum (91I0? 91H0!)

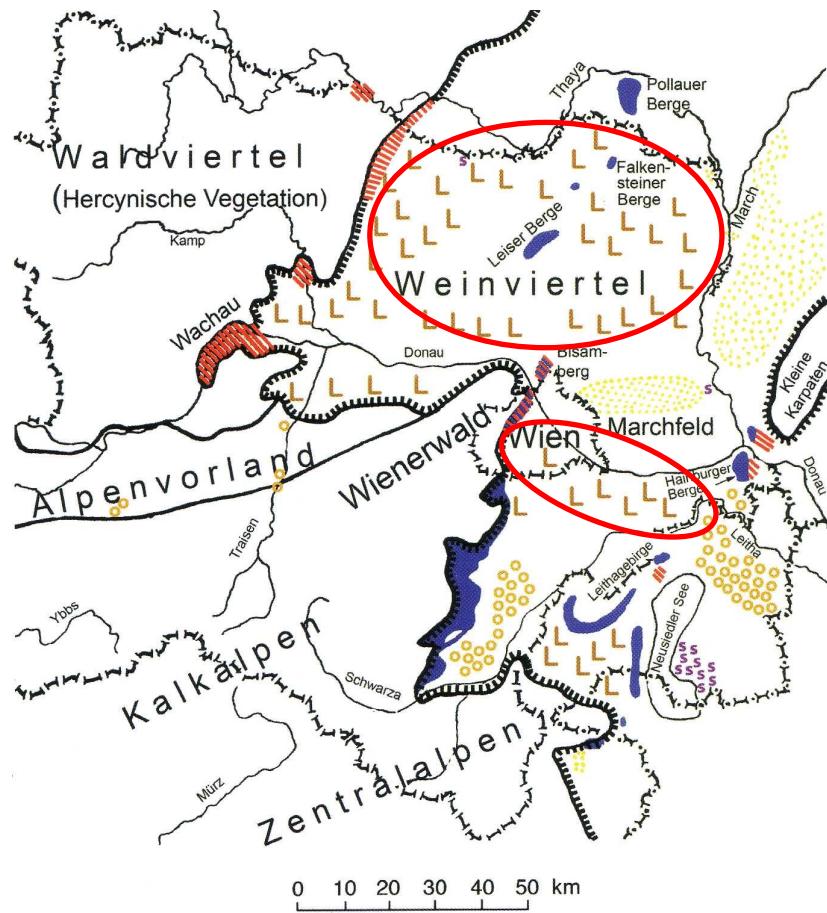






## Loess hills

- „Euphorbio-Quercetum typicum“ p.p.  
= Quercetum pubescenti-roboris (91I0)



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## Herrenholz (Vienna): Quercetum pubescenti-roboris

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## Rösslmais near Groß Schweinbarth: Quercetum pubescenti-roboris

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## Zeiserlberg: *Salvio nemorosae*-*Festucetum*

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## Steinbergwald: closed oak wood with small grassland patches

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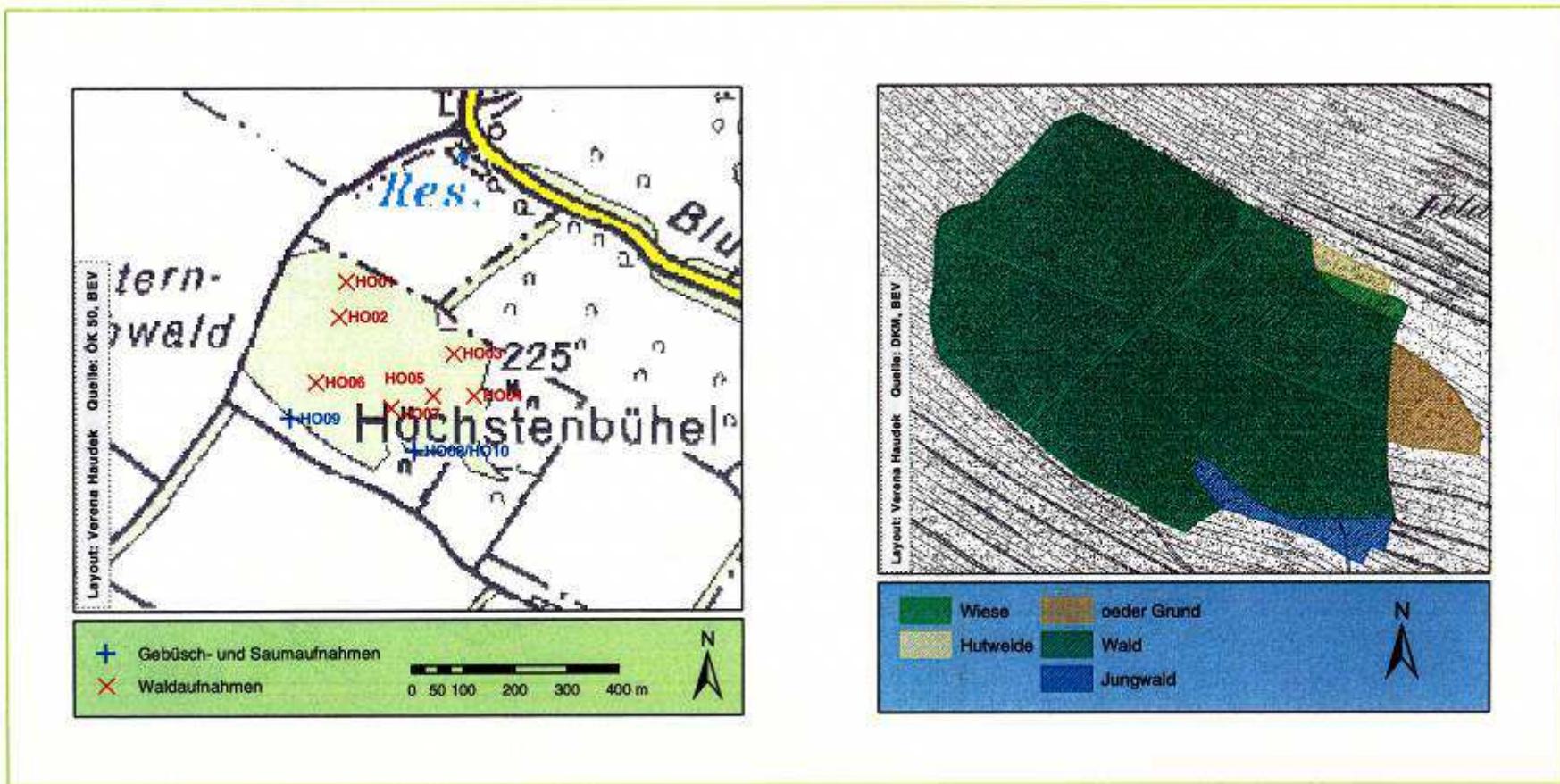


Abbildung 5: Höchstenbühel - Vergleich heute/1820

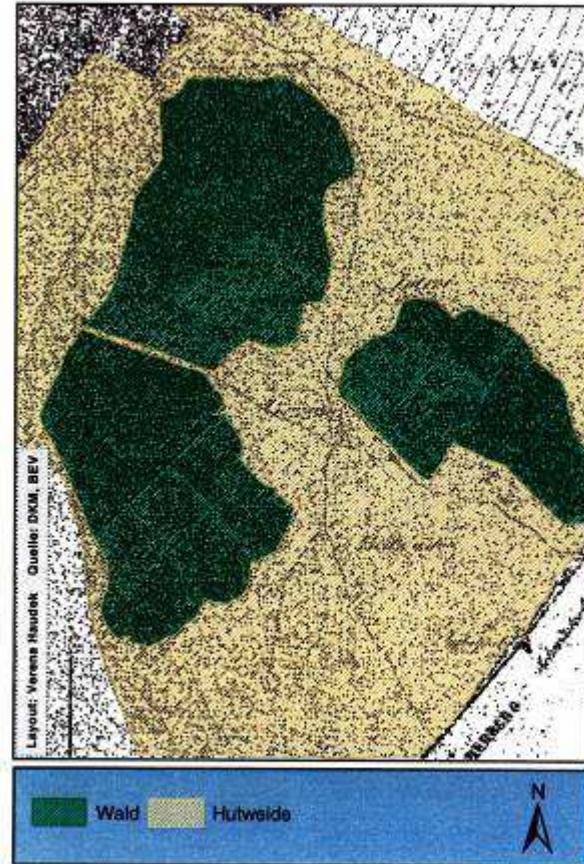
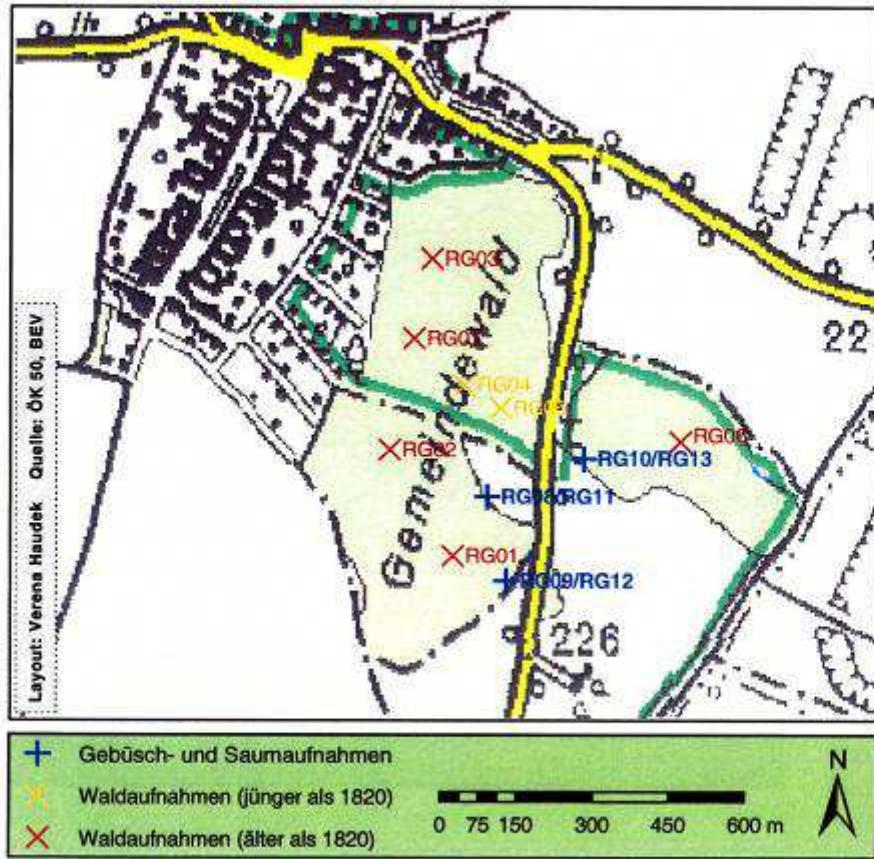


Abbildung 7: Rauchenwarther Gemeindewald - Vergleich heute/1820



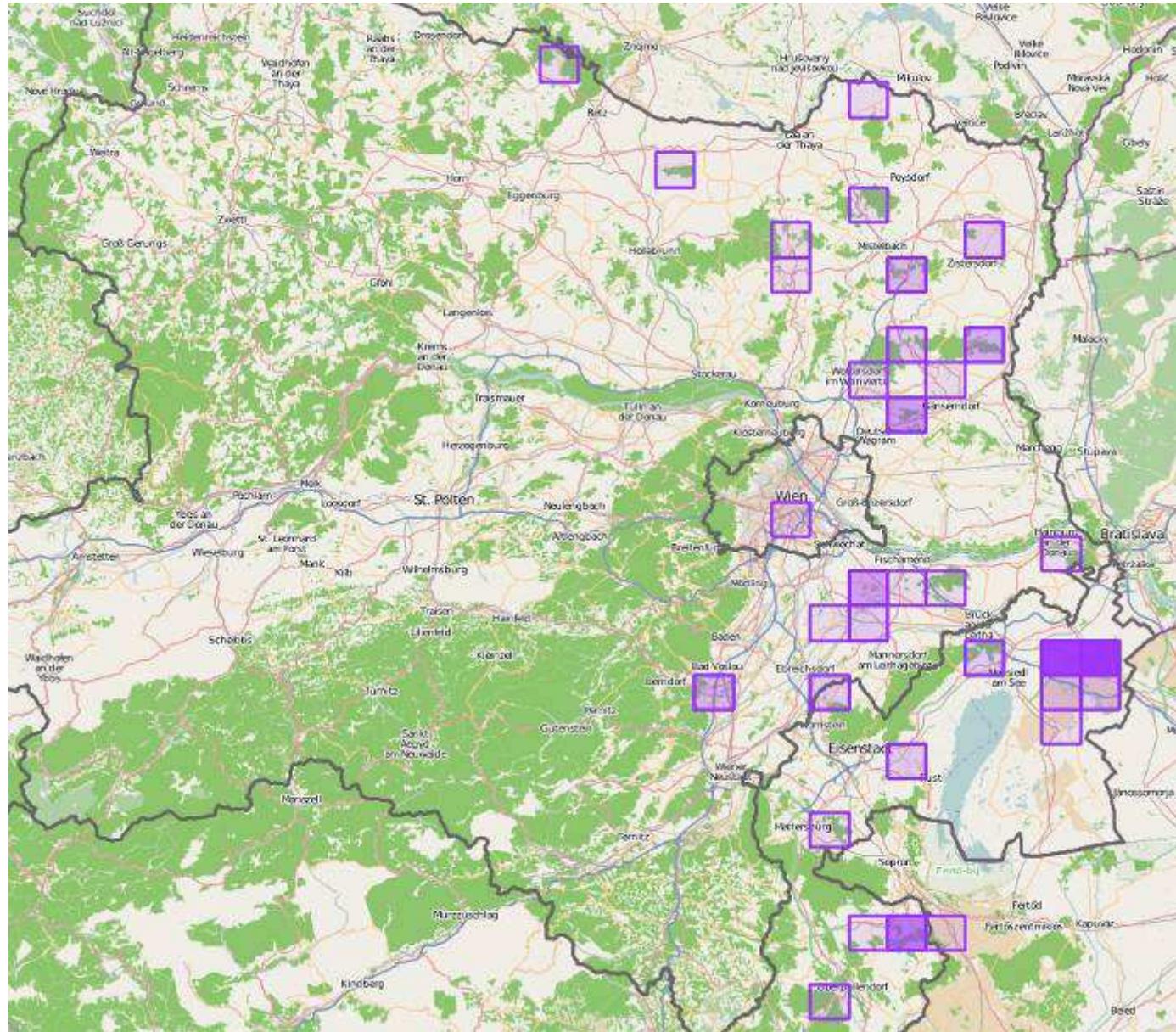
Steppic woods were used for

- hunting
- coppicing
- grazing

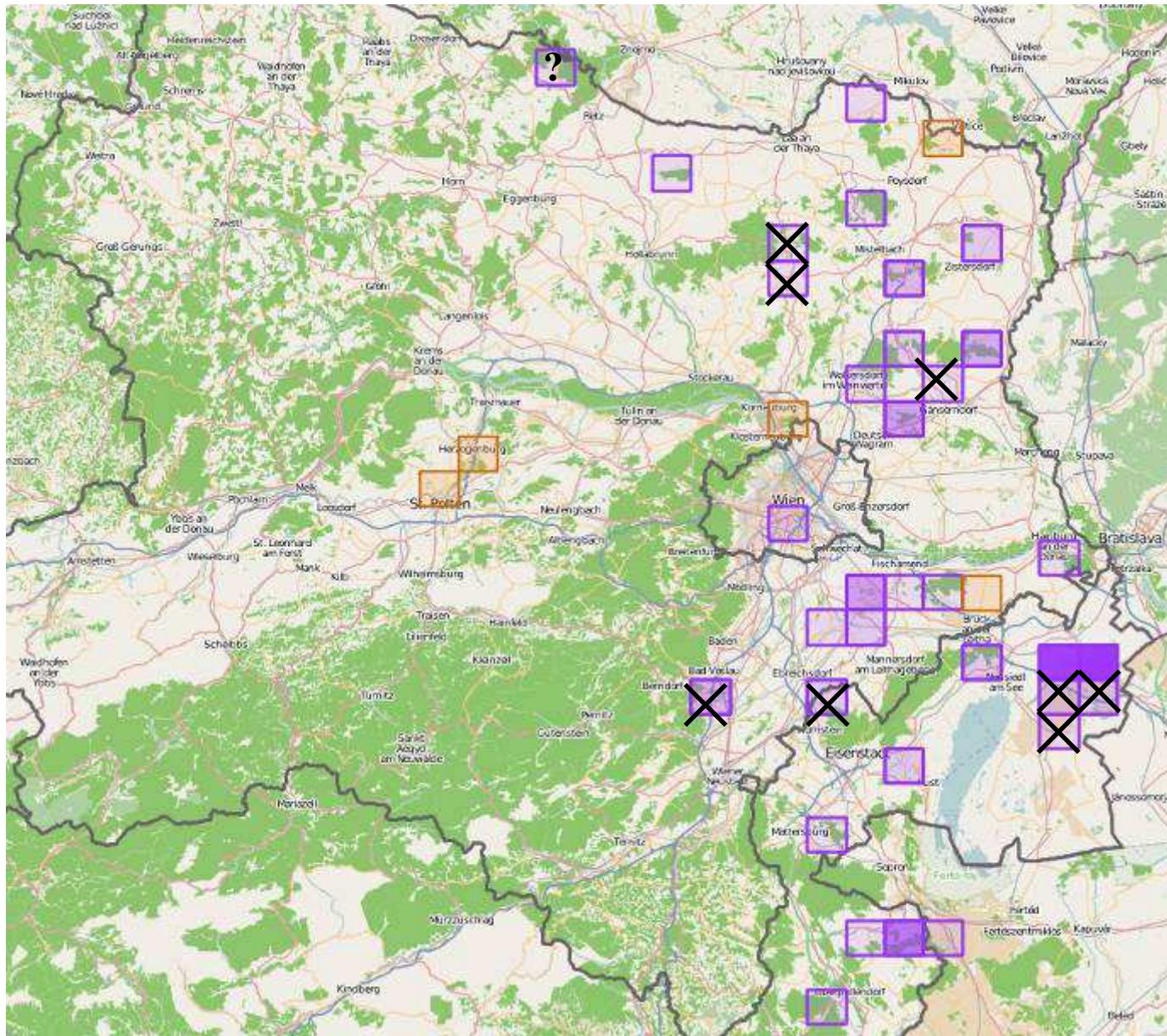


# Conservation status of steppic woods





distribution of habitat type 9110 according to an official database from 2007



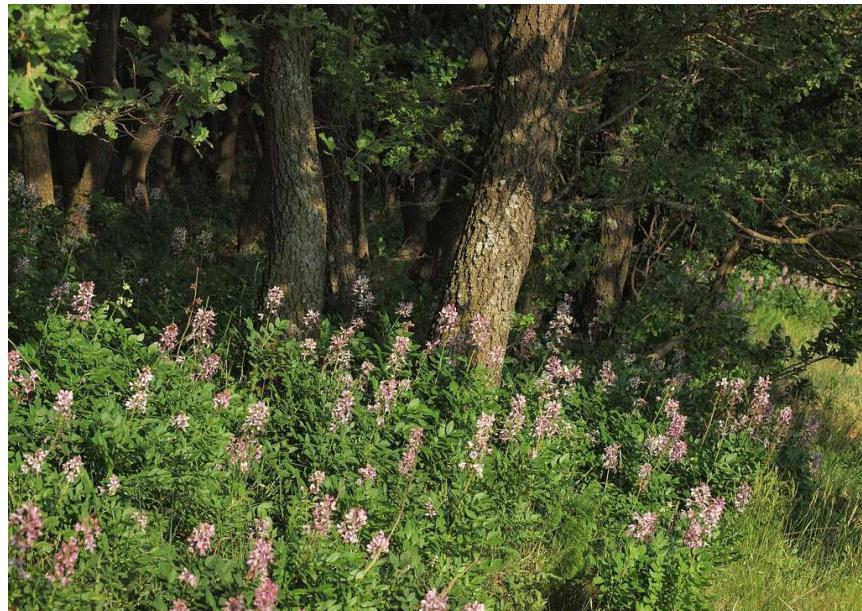
necessary corrections after the field survey 2011

## Red list species in steppic oak woods



## Red list species (vulnerable) in steppic oak woods

*Adonis vernalis*  
*Campanula bononiensis*  
*Dictamnus albus*  
*Gagea pratensis*  
*Iris graminea*  
*Iris variegata*  
*Lactuca quercina*  
*Muscari comosum*  
*Vicia pisiformis*



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## Red list species (endangered) in steppic oak woods

*Phlomis tuberosa*



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## Threats:

### (1) Invasion of Robinia pseudacacia



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## Threats:

(2) Dominance of *Rubus* and ruderal species after clearing

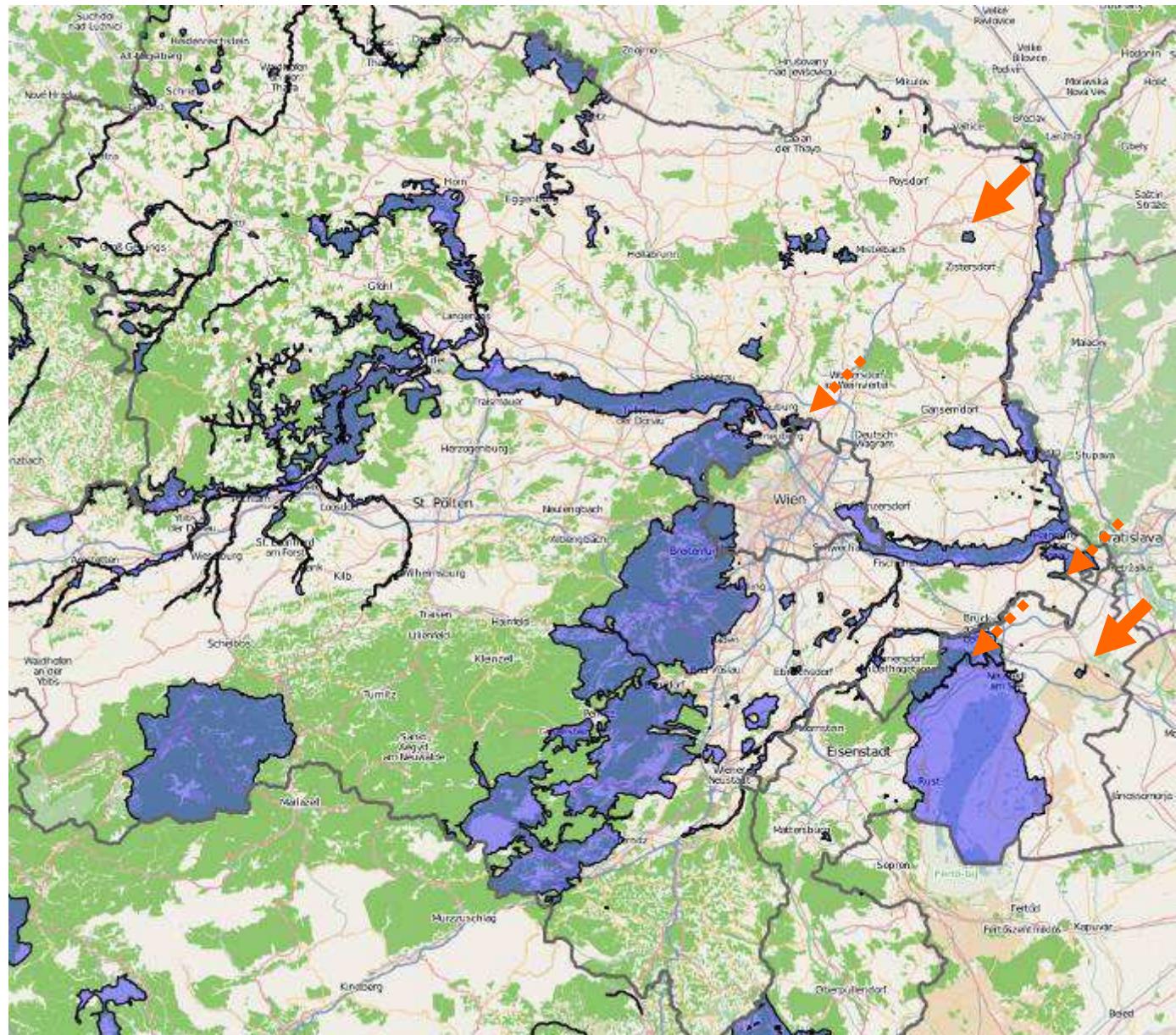


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## Threats:

- (3) High stock of game (esp. wild boar)





Natura 2000 sites in Eastern Austria

- Steinbergwald (Lower Austria, ca. 200 ha)
- Zurndorfer Eichenwald (Burgenland, ca. 70 ha)
- Herrenholz (Vienna, ca. 5 ha)





Thank you for your attention!