An aerial photograph of a rural landscape in Schleswig-Holstein, Germany. The terrain is rolling and covered in green agricultural fields, likely corn. Hedgerows, consisting of rows of trees and shrubs, separate the fields. The lighting is bright, suggesting a sunny day. The overall scene depicts a traditional agricultural landscape.

Traditional management of ‚Knicks‘

Stakeholder perspectives on the drivers and barriers of agricultural hedgerows in Schleswig-Holstein, Germany

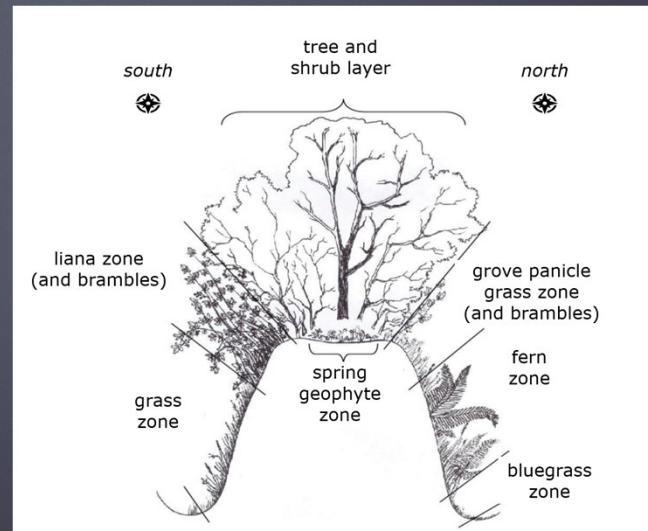
STEPHANIE STIEGEL
EURAF 2024 | 28.05.2024

What is a ‚Knick‘

- Earth walls originally built up from excavation material of two trenches on both sides
- Various woody and herbaceous plants overgrow the earth wall

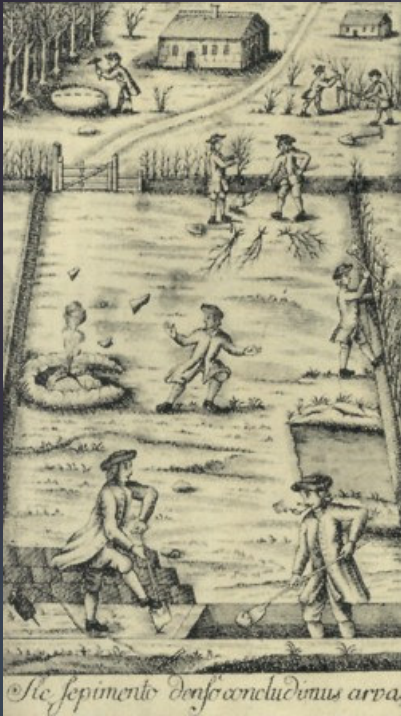


A 'Knick' hedgerow in the agricultural landscape of Schleswig-Holstein, Germany.



The structure of a 'Knick' with different zones (changed after Kimmel 2015:27).

„Knick“ history



18th century

- ▶ Demarcation of landownership

(GSHG 2024)



19th century

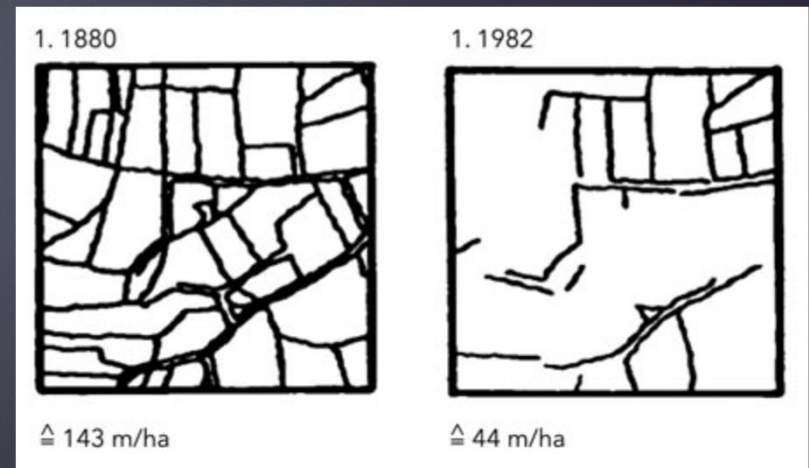
- ▶ Colorfull „Knicks“, up to 85 different types

(LANU 1988)

20th century

- ▶ 30 % Loss through agricultural intensification

(Lütt et al. 2022:23-24)



Functions of ‚Knicks‘

4

Agriculture

Wind and soil
erosion
control

Provision of
firewood

Forestry

Biotope
network
element

Species
migration

Nature conservation

Load
reduction
from fertilizers/
pesticides

Habitat for
plants and
animals

Community

Recreation
and leisure

Landscape
character
(cultural
heritage)

Functions of ‚Knicks‘

5

Agriculture

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Research questions

6

I.

How are the **maintenance**, **replanting** and **improvement** of 'Knicks' viewed from an **agricultural perspective**?

II.

To what extent can **forestry**, **nature conservation** and the **community** play a **cooperative role** in the maintenance, replanting and improvement of 'Knicks'?

III.

In what ways can **science** and **education** make a **supportive contribution** to the maintenance, replanting and improvement of 'Knicks'?

Expert interviews

7



- Piloting with two experts (Agri-1, Sci-1)

- Recordings with six experts (Agri-2, For-1, Nat-1, Com-1, Sci-2, Edu-1)



- Transcription and analysis of the transcripts regarding the maintenance, replanting and improvement of 'Knicks':

- ▶ Drivers

- ▶ Barriers

- ▶ Overcoming barriers



Agricultural perspectives

8

| Drivers for ‚Knicks‘ | Barriers for ‚Knicks‘ |
|---|--|
| ‘The absolutely most important point for the ‘Knicks’ is, of course, wind reduction , without which it is very difficult to grow agricultural crops and especially trees up here.’ (Agri-2, line 195-106, 110-112) | ‘So it's not insignificant what kind of yield depression occurs right next to the ‘Knick’ when it's a few years older.’ (Agri-2, line 336-338) |
| ‘The moisture is better retained around the ‘Knicks’ and a microclimate is created where water can be managed more efficiently in drought situations .’ (Agri-2, line 116-120) | ‘They also have the disadvantage when we look at this spring, when everything is super wet. [] Good in summer, but not such an advantage for us in winter and spring , we have too much water here for that.’ (Agri-1, line 118-121) |
| ‘And if you don't have any insecticides, then you need beneficial insects for your crops and these are naturally more likely to be found in the ‘Knicks’ than if we have a huge field there.’ (Agri-2, line 116-120) | ‘, [] I am happy that I have a large paddock, that I can work it more cost-effectively with my machine than a lot of small areas, because you have more turning space, more shade.’ (Com-1, line 67-70) |
| ‘When I think about us now, we used to leave a ‘Knick’ like this for 15-20 years and cut it back regularly. And then, of course, wood grows properly, which is easy to saw .’ (Agri-1, line 186-189) | ‘The farmers have a lot of work with the ‘Knick’. They actually earn almost nothing from it.’ (Edu-1, line 148-149) |

‘Knick’ maintenance



- Legally protected biotopes (§ 21.1 LNatSchG)
- Details on the maintenance are regulated since 2016 (§ 21.4 & 5 LNatSchG):
 - ▶ **cutting back** to the stump at intervals of around 10 to 15 years
 - ▶ detailed regulations on the **lateral shortening** and the **buffer strip** of 50 cm on fields
 - ▶ at least one **adult tree** per 40 to 60 meters of ‘Knick’ length (stem circumference < 2 m)
- Indirect protection through the cross-compliance provisions of the European Union (Regulation (EC) No. 1782/2003)

‚Knick‘ replanting



Drivers



‘So there are now enough state **funding opportunities** for the replanting of new 'Knick' [] via equalisation funds or similar.’

(Nat-1, line 482-483)



‘If I look at the core action areas from the **biodiversity strategy**, [] then I want to get from here to there and in that area it might make sense at some point to create a 'Knick', for example.’

(For-1, line 740-751)



Barriers



‘Originally, many 'Knick' had a stone core made of **read stones** and the **soils** back then, around 1800, were much **poorer in nutrients** than they are now anyway.’

(Nat-1, line 391-392)



‘We have incredible **competition for space** in the country and are finding it very difficult to get land.’

(For-1, line 225-226)

,'Knick' improvement



'Many types of 'Knick', [] will never be restored, because **nitrogen eutrophication** has levelled everything out so much that we unfortunately have a large-scale **uniform 'Knick' vegetation** with tussock grass, brambles and nettles and [] the more sensitive species or a differentiation between the north and south side, we no longer have that.'

(Nat-1, line 96-102)

'A kind of **keeping the 'Knick' artificially young** can be observed: every time the 'Knick' is maintained, the somewhat thicker adult trees are taken out again and a thin stem remains as a future adult tree.'

(For-1, line 372-374)

,'Knick' improvement

'In addition to **old oak structures**, I also want to **promote young trees** so that it is always guaranteed that when a tree becomes horizontal, the species can migrate to the new growth in the meantime. I would also have this opportunity in the 'Knick', for example.'

(For-1, line 388-394)

'The *Heckenretter* are trying to harvest the **fruits of 'Knicks'** and make various products out of them in order to develop the 'Knick' into a **business case.**'

(Agri-2, line 209-212)

,'Knick'
care

'Schleswig-Holstein could easily **supply** itself with **native shrub species** and the farmer could generate income by utilising the 'Knick' shrubs.'

(For-1, line 504-506)

'You can only get the farmers by telling them, listen, you get just as much **money** as if there was wheat, that you **compensate** them in such a way that they are practically not worse off. '

(Com-3, line 233-235)

Cooperation

13

Top-down:

‘This **biodiversity strategy dialogue forum** is a great door, as it establishes a continuous exchange with agriculture, so with those who own these ‘Knicks’.’

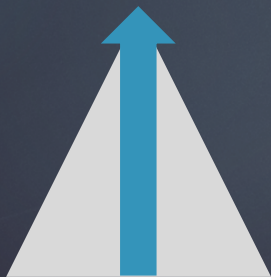
(For-1, line 845-847)



Bottom-up:

‘Our **Lower Nature Conservation Authority** has been working continuously on the matter for a long time, [] in a very sensible and profitable way, i.e. with caresses, but also tugging on the ears.’

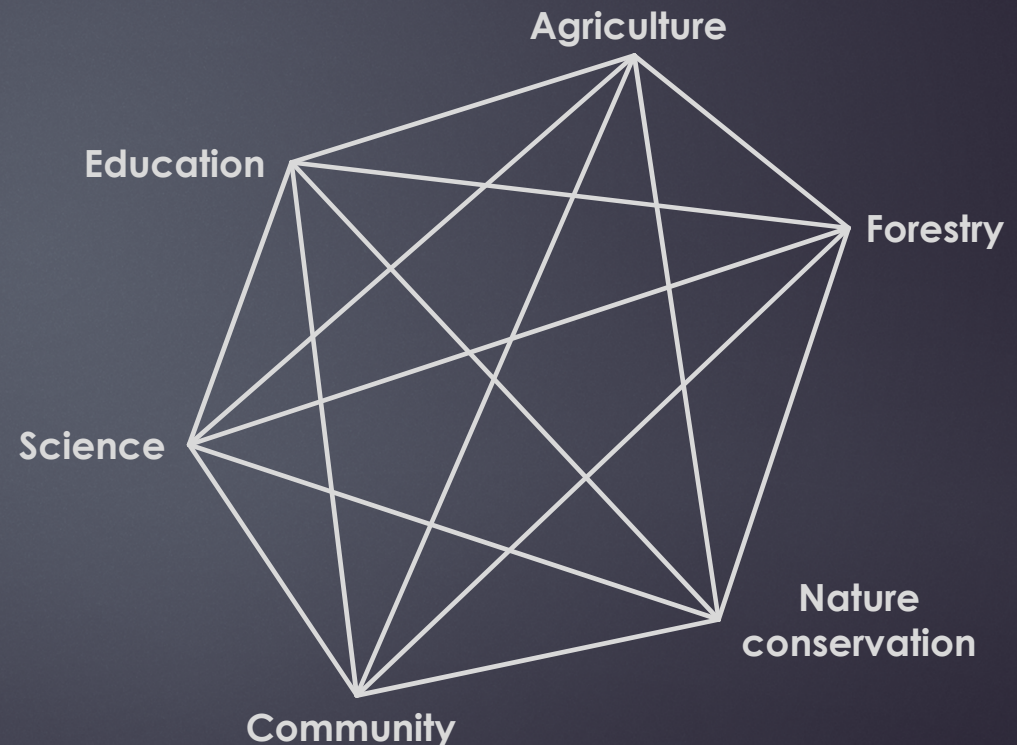
(Nat-1, line 732-735)

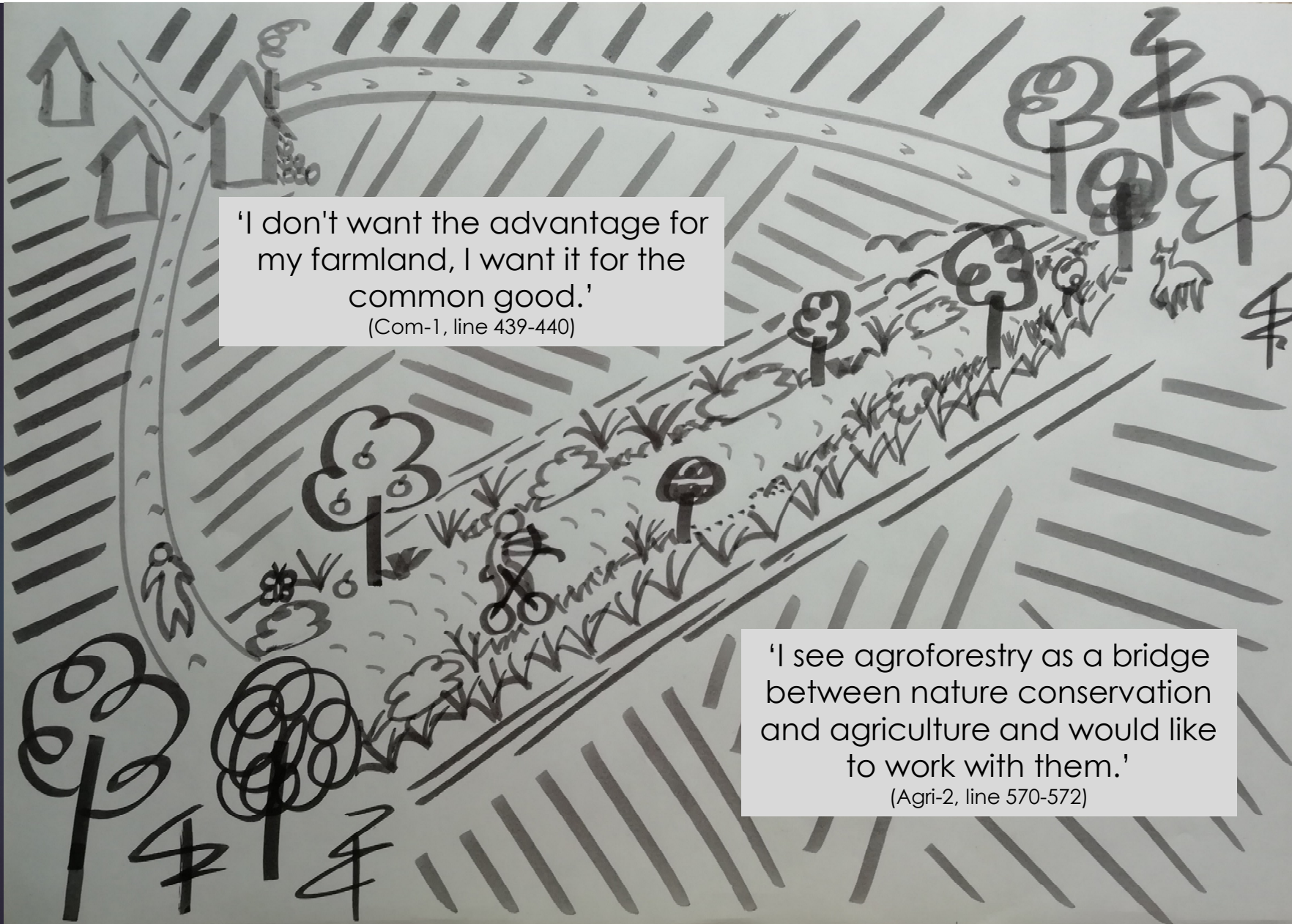


Cooperation

‘What I would like to see is for people to perhaps be **less self-centered** here and there and to be able to show a certain **empathy for other stakeholders**, so that you actually sit around a **round table** and agree on a lot of **consensus and little dissent**. And that you are then in a position to actually **implement meaningful measures** that can be of interest to many stakeholders.’

(Sci-1, line 830-836)





'I don't want the advantage for my farmland, I want it for the common good.'
(Com-1, line 439-440)

'I see agroforestry as a bridge between nature conservation and agriculture and would like to work with them.'
(Agri-2, line 570-572)

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,OPEN KI'
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OPEN ,KNICK' INFORMATION SYSTEM
(EDU-1)

Thank you for your attention!