



Fig. 1: Skarpnäck. En stadsdel i Skarpnäcks stadsdelsområde. (Stockholms stad n. d.)

RUHR-UNIVERSITÄT BOCHUM

PROPOSED SOLUTIONS + IMPACTS

Nature for nature perspective

Nature for Nature

„In the Nature for Nature future (Fig. 2a), there is more space for natural areas and biodiversity, enabling ecological processes to operate with little to no human intervention.” (Mansur et al. 2022: 48)

Our Vision:

- More protected areas
- Less urban infrastructures
- Compact living with a lot of greenspaces
- Connectivity between natural habitats
- Nature Education

Proposed Solutions

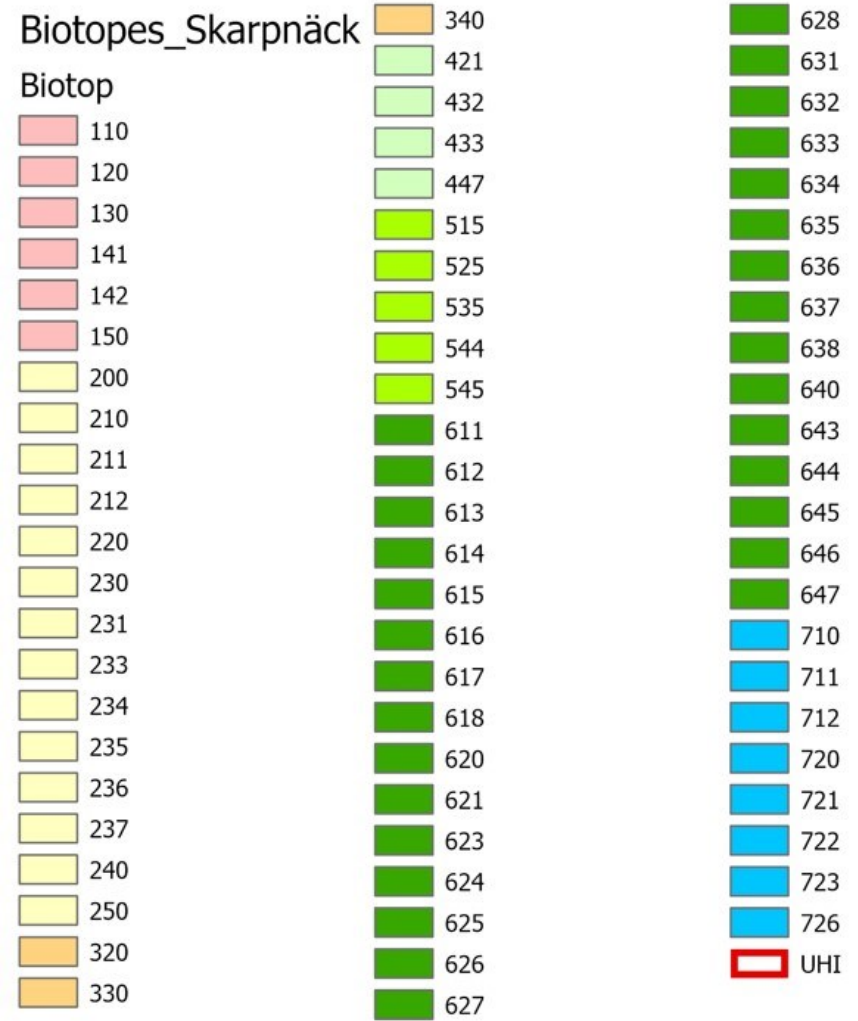
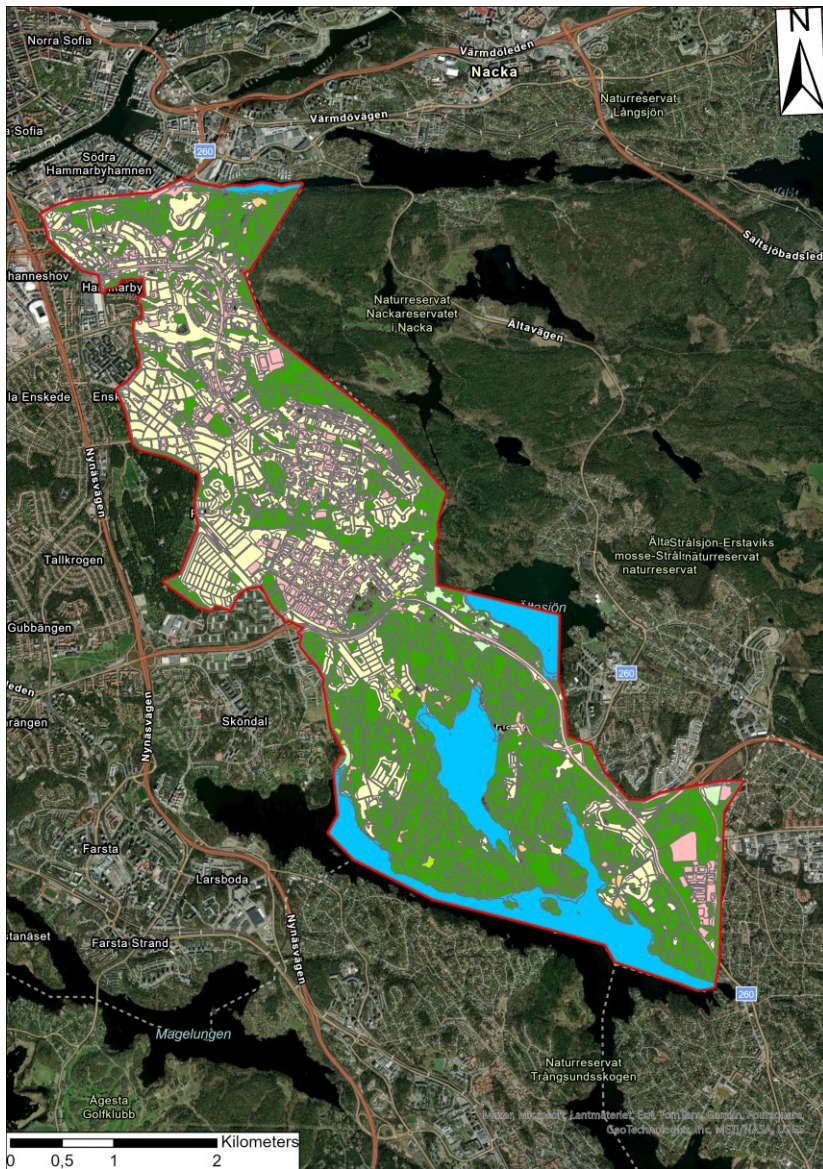
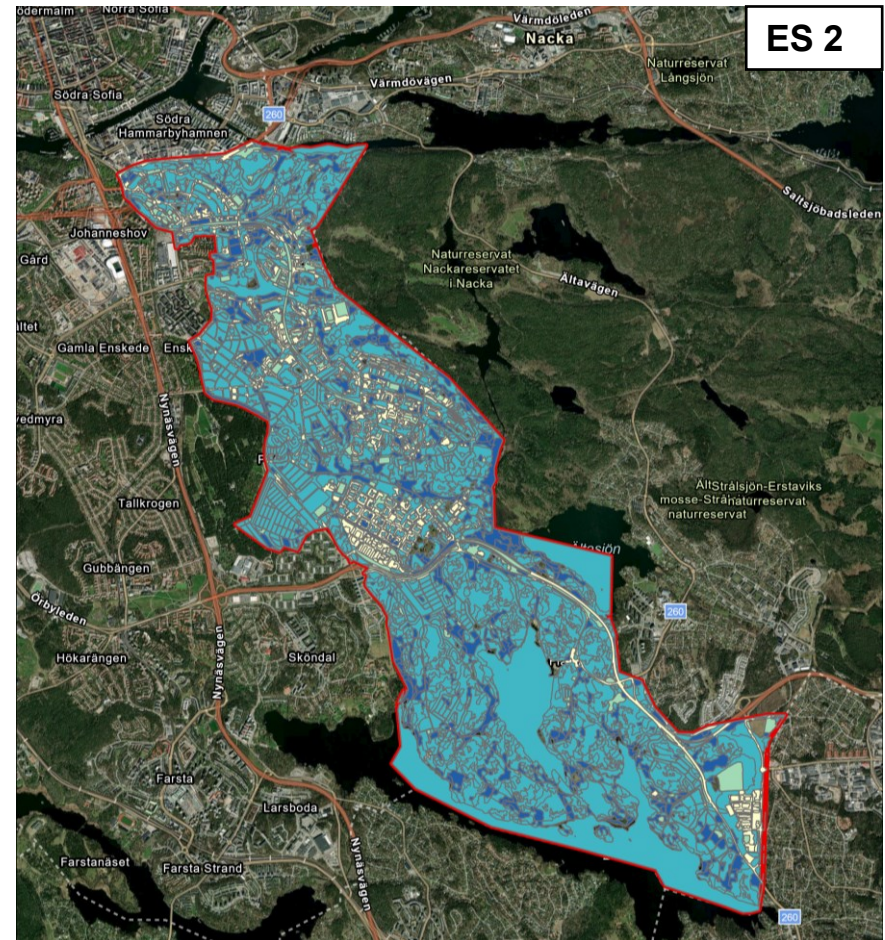
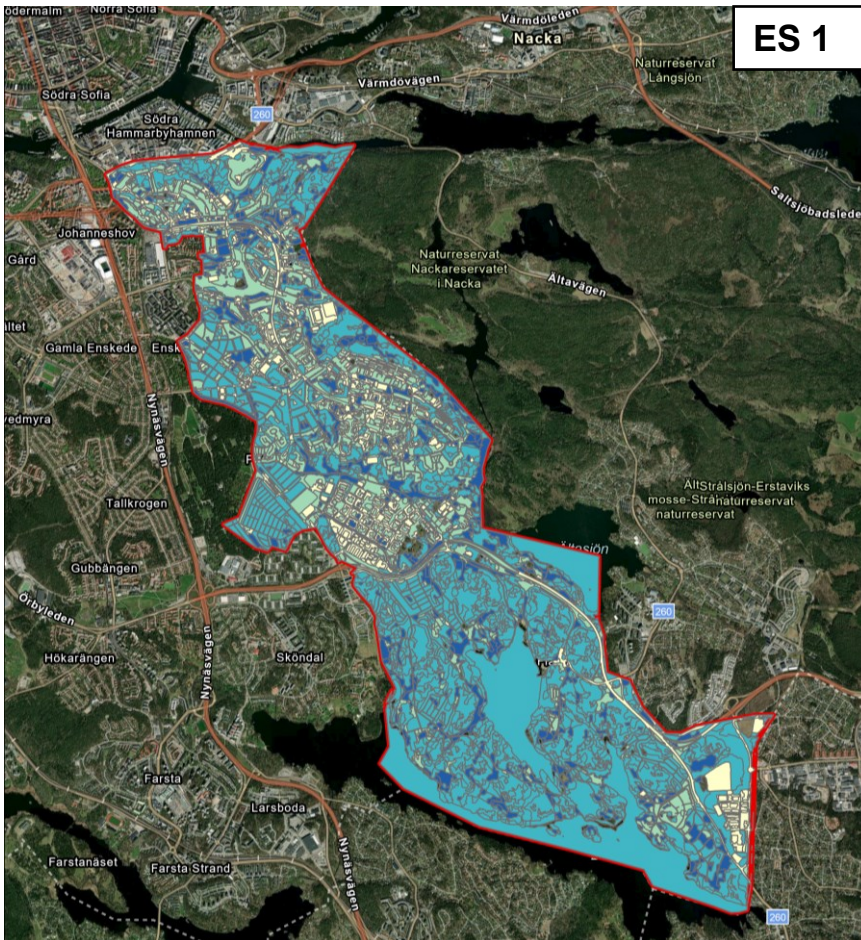


Fig. 2: Biotores of skarpnäck with legend



UHI

Potential of Biotopes

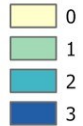


Fig. 3-4: Potential of Biotope ES1 (left), Potential of Biotopes ES2 (right)

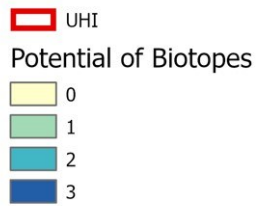
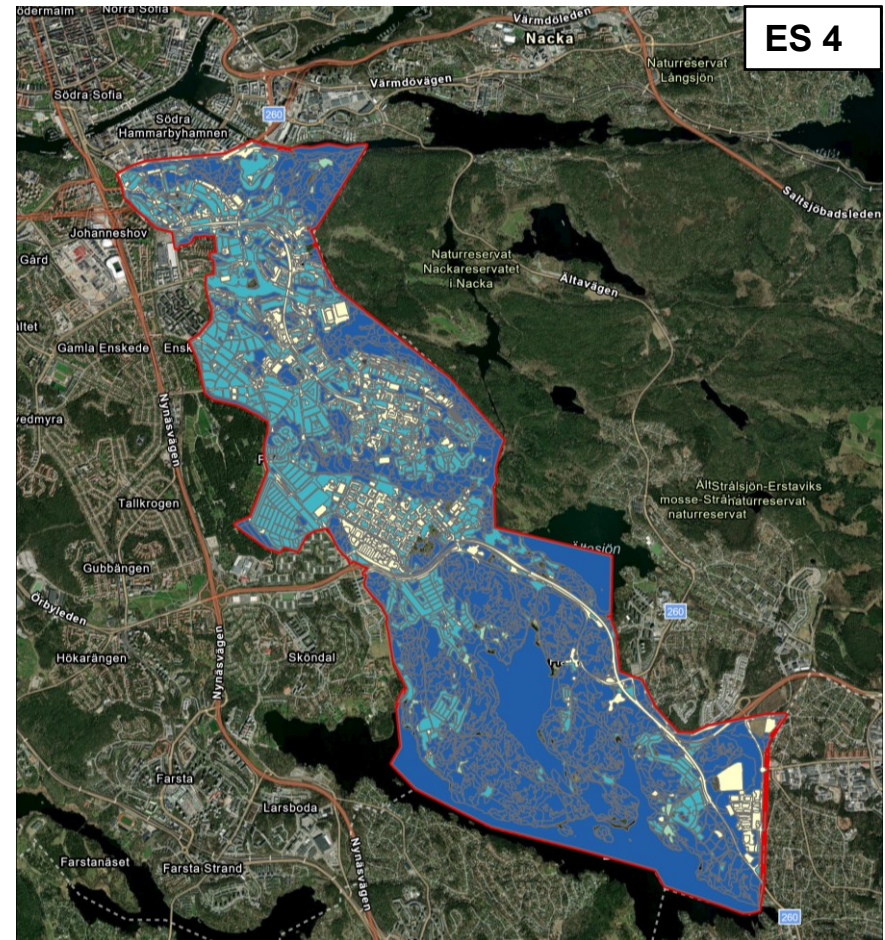
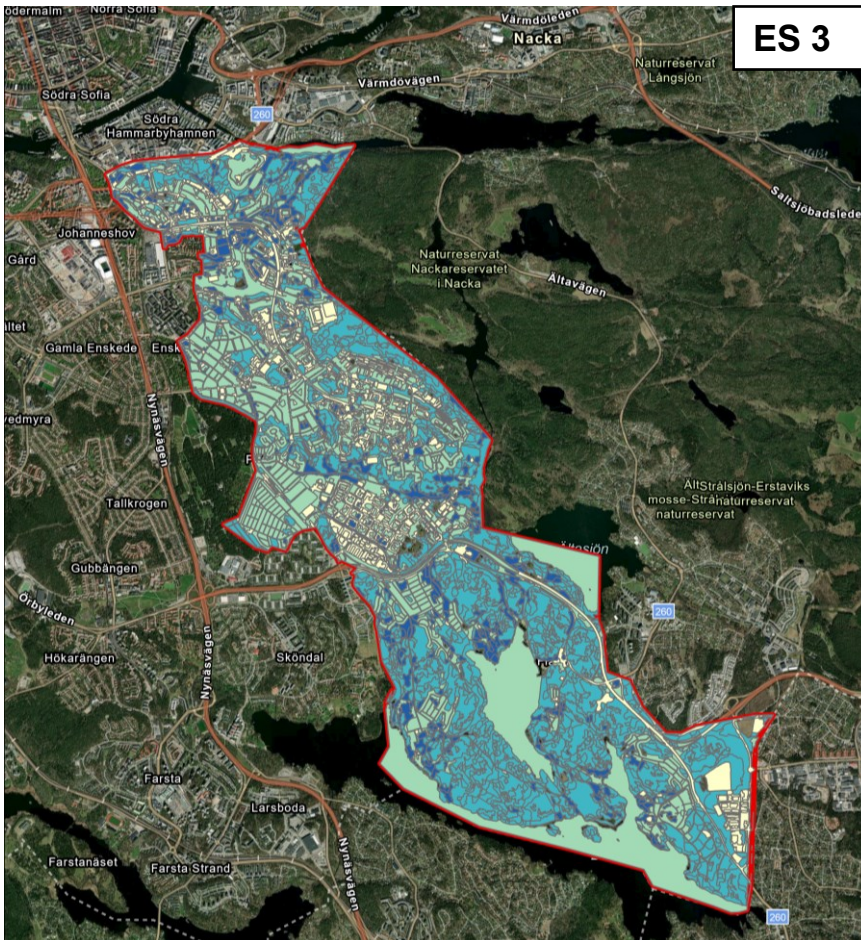


Fig. 5-6: Potential of Biotopes ES3 (left), Potential of Biotopes ES4 (right)

Changes

Orange arrows:

- Unseal
- Changing Landuse into Biotopes 400, 500, 600, 700
- Nature protection

Yello Arrow:

- Unseal → pervious sturctures for road
- Railway
- Green bridges

Purple Arrow:

- More Industry (Green roofs)

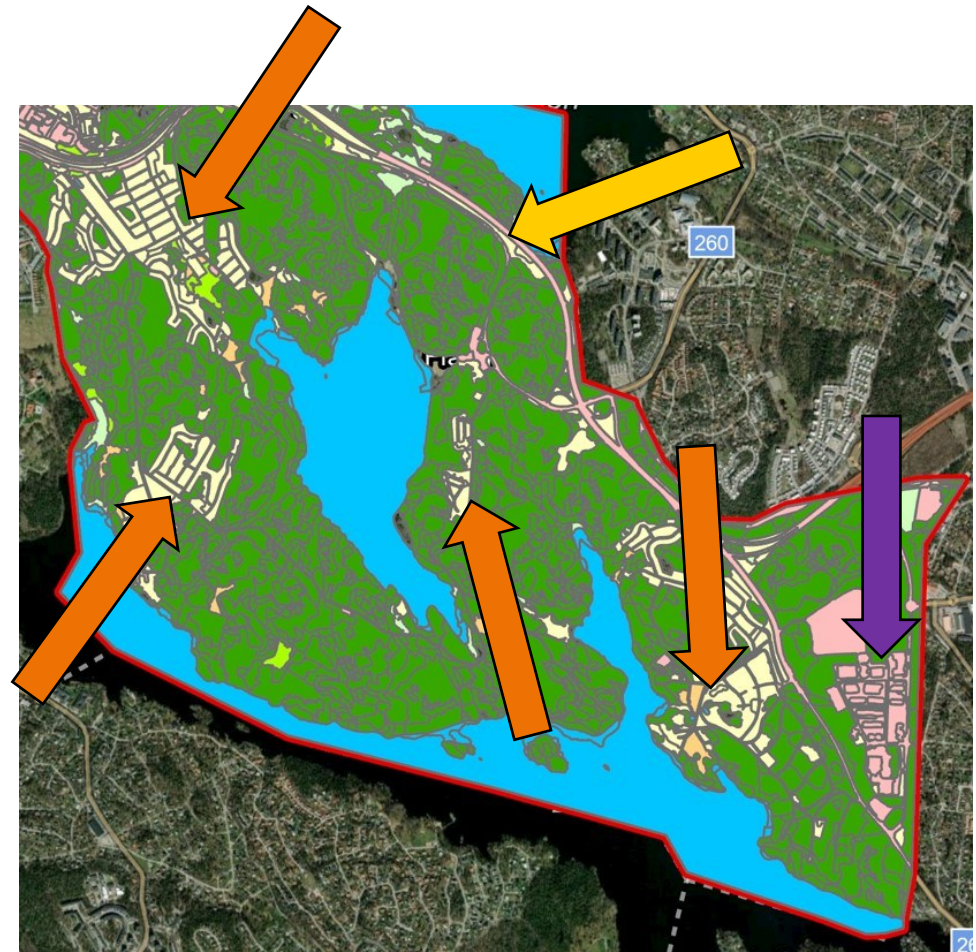


Fig. 7: Proposed Changes in the southern part of Skarpnäck

Impacts

ES1 (Urban climate regulation)

- More cooling effects
- More fresh Air

ES2 (Flooding Risk)

- More Surfaces for water retention
- Reduction of overall flooding risk

ES3 (Biodiversity)

- Different Habitats + Green Corridors → Overall Strengthening

ES4 (Social Cohesion)

- Learning about & working in nature together
- Recreation

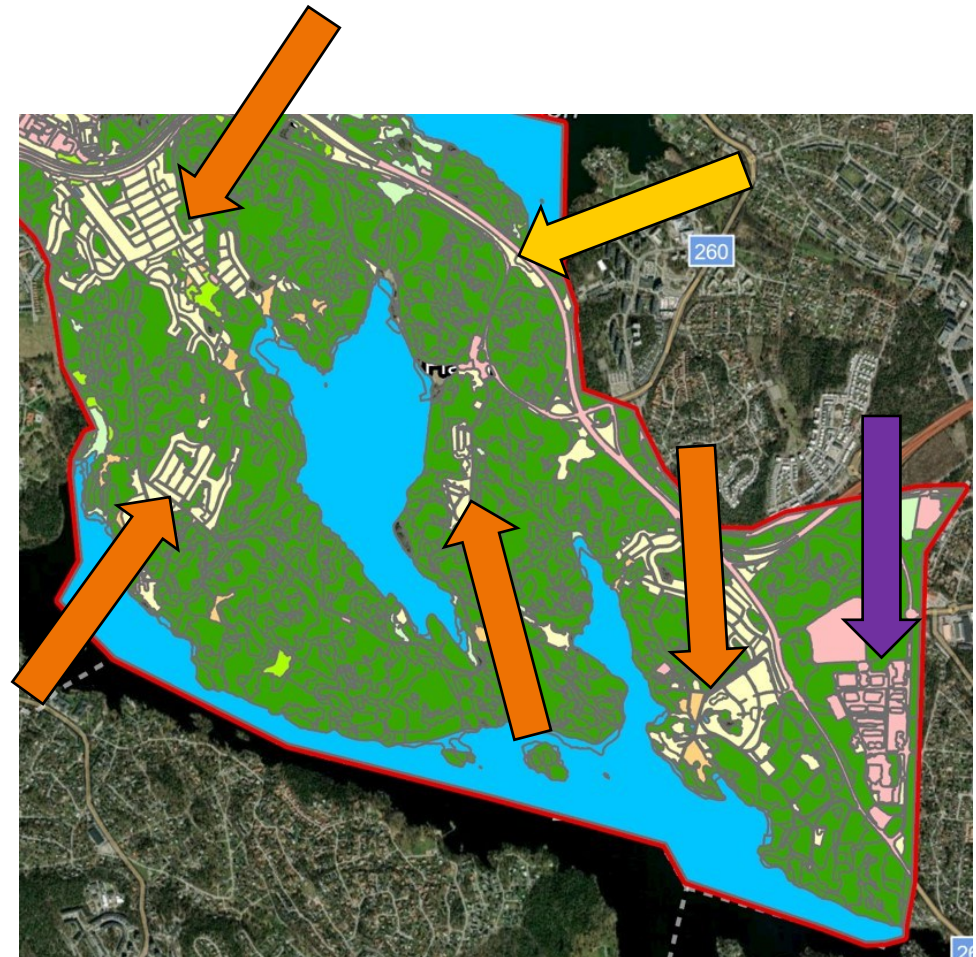


Fig. 7: Proposed Changes in the southern part of Skarpnäck

(Mansur et al. 2022; Hilty et al. 2020; Gencer et al. 2018; Maes et al. 2020)

wildlife bridges



Fig. 8 : wildlife bridge on a german railway (Vaičiulaitytė: 2017)

- to connect protected areas
- ➔ Habitat connectivity
- ➔ Biodiversity conservation
- considering GI connectivity links

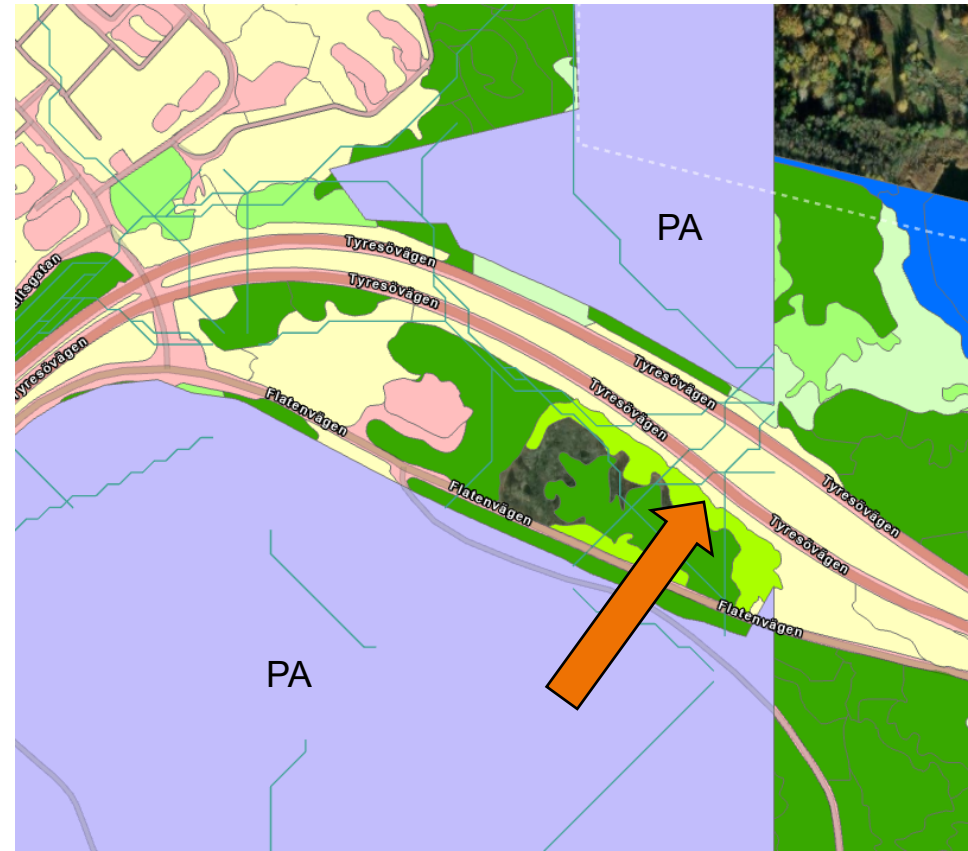


Fig 9. : concept for the implementation of wildlife bridges in Skarpnäck

Changes

Orange arrows:

- Unseal
- Changing Landuse into Biotopes 400, 500, 600, 700
- Nature protection

Yellow Arrow:

- Unseal □ pervious structures for road
- Green bridges to mediate the separation by Tyresövägen

Purple Arrow:

- More Housing (Green roofs)
- Compact highrise

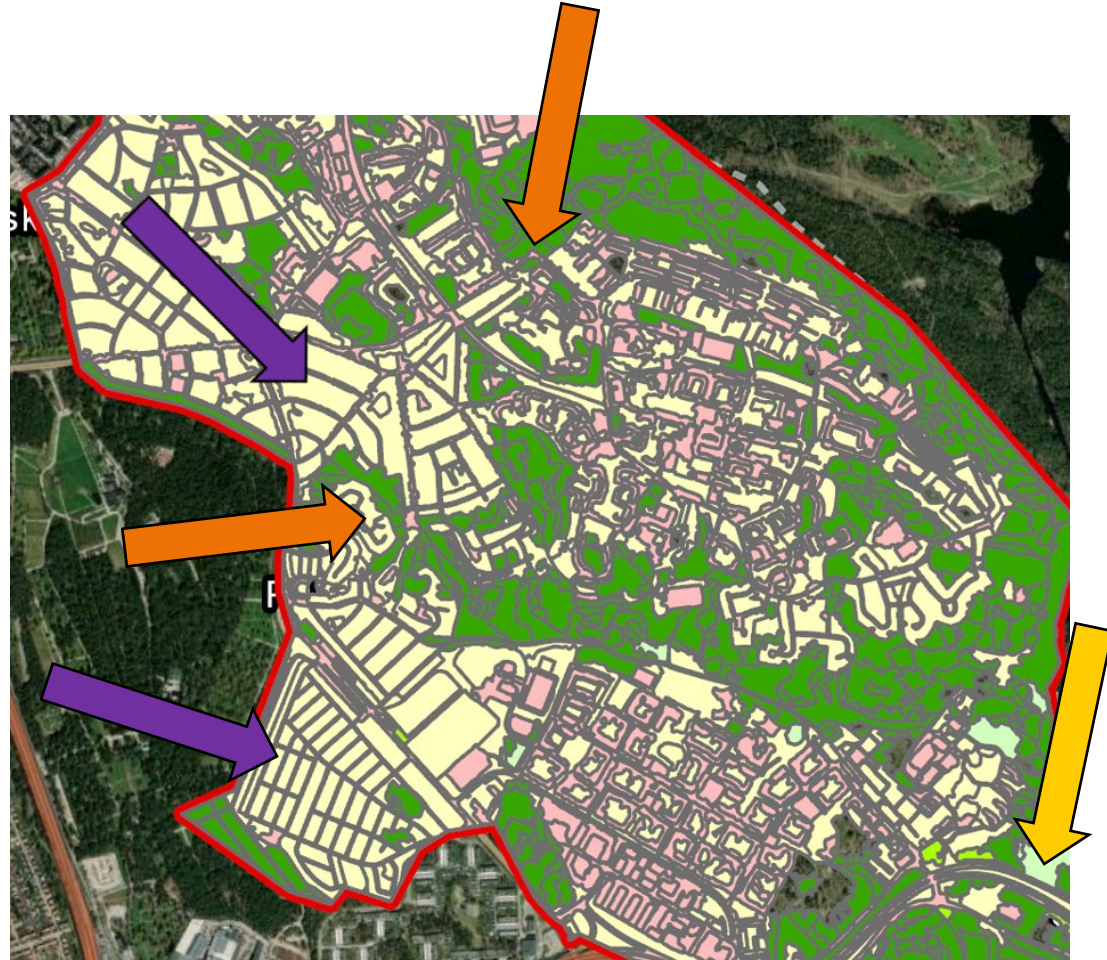


Fig. 10: Proposed Changes in the central part of Skarpnäck

Impacts

ES1 (Urban climate regulation)

- Stronger UHI-Effect because of compact highrise Buildings

ES2 (Flooding Risk)

- Less permeable Surface in the new Housing Blocks
- Higher Flood-Risk

ES3 (Biodiversity)

- Different Habitats + Green Corridors □ Overall Strengthening

ES4 (Social Cohesion)

- close proximity to parks
- open community gardens



Fig. 10: Proposed Changes in the central part of Skarpnäck

Housing Example

Compact Highrise Buildings

- Transformation of community gardens into new **Housing Blocks**
- Mix of apartments and stores for everyday needs

Community Gardens

- Strip of **public community gardens** on the outskirts of the new blocks
- Promotes social cohesion
- Diverse plants & shrubs promote biodiversity

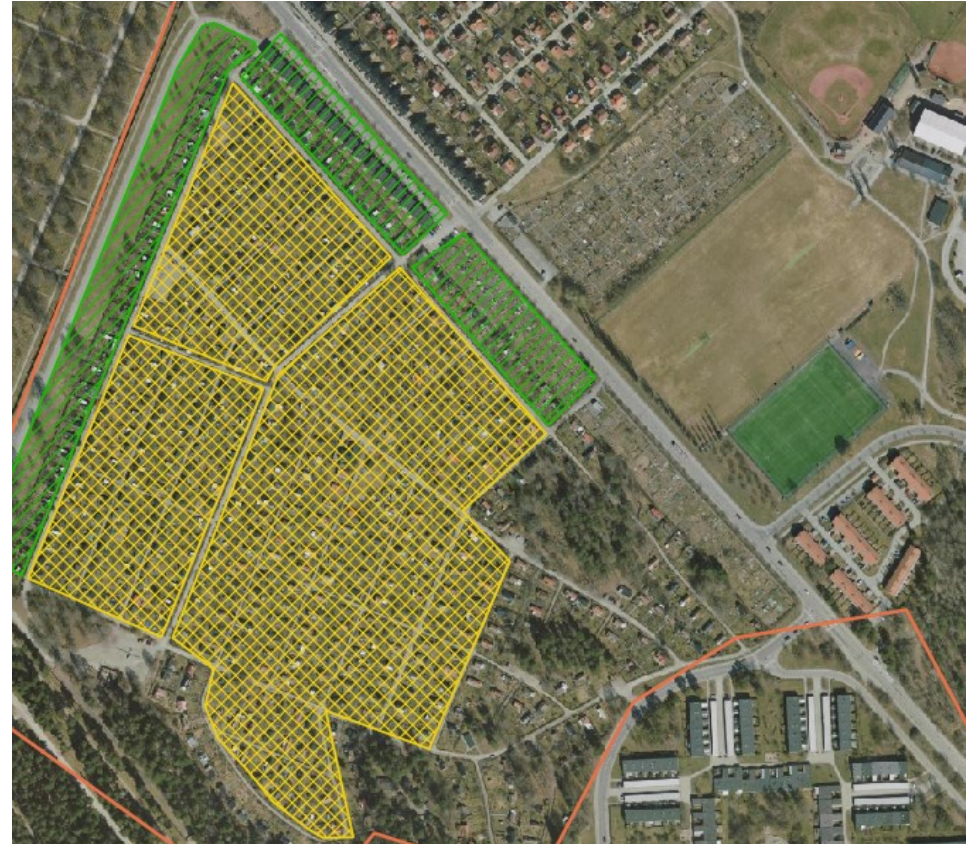


Fig. 11: Housing example in the central part of Skarpnäck

What it might look like



Images created with Microsoft Designer

Fig. 12: Proposed Changes in the central part of Skarpnäck – AI-generated

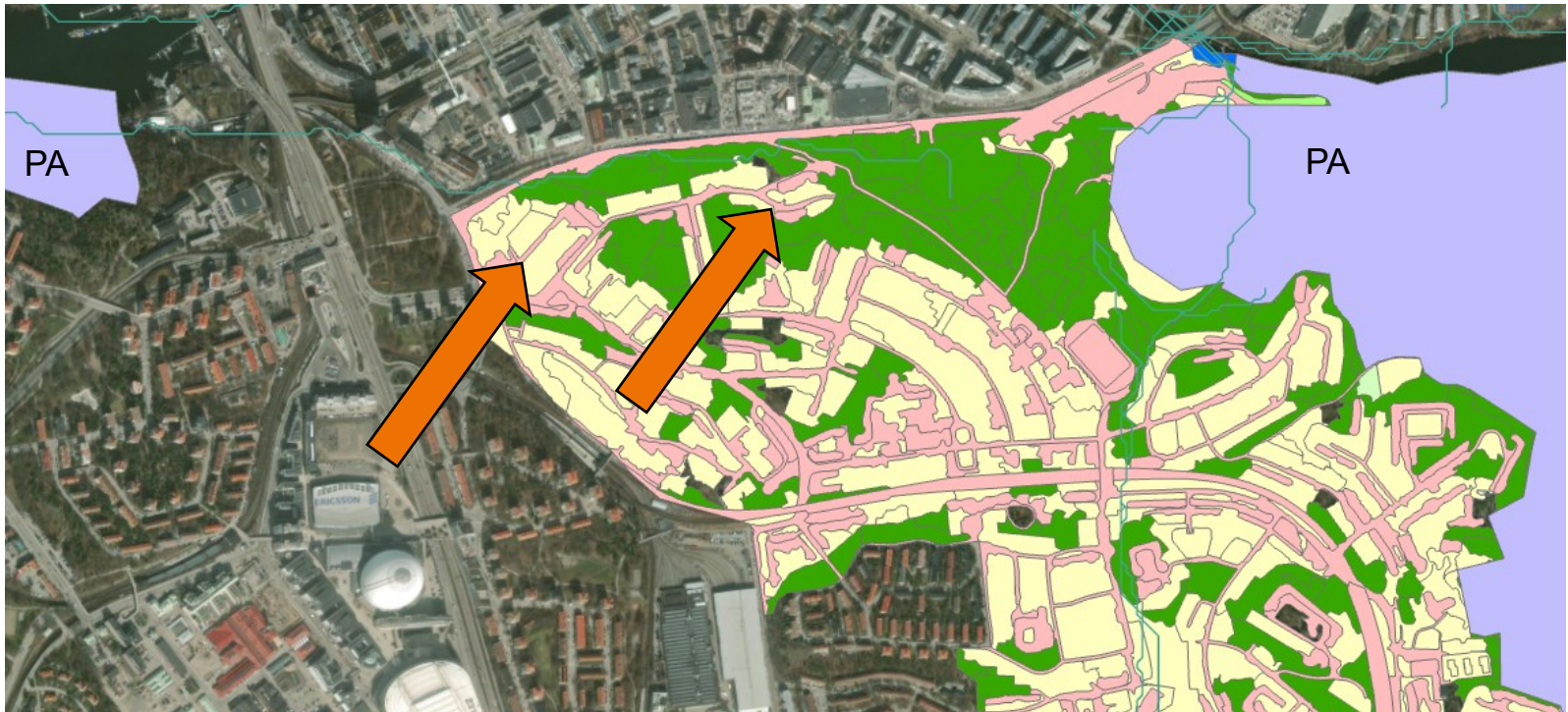


Fig 13. : proposed solutions for the northern part of Skarpnäck

- Change into different types of forests (e. g. 611 / 614)
- to connect protected areas

Orange arrows:

- Change into different types of forests
- (e. g. 611 / 614)

Yellow Arrows:

- Housing more higher and compact
- ➔ to have more living space
- Including urban gardening
- ➔ to improve social cohesion and biodiversity
- green houses
- ➔ to regulate the higher UHI-effect

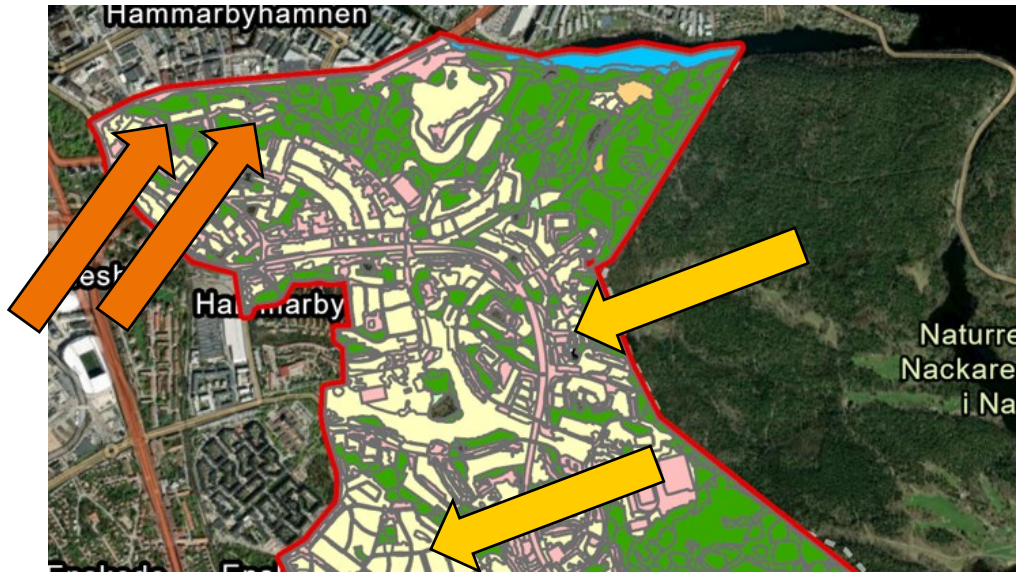


Fig. 14 : proposed solutions for the northern part of Skarpnäck 2

Figures

Fig. 1: Skarpnäck. En stadsdel i Skarpnäcks stadsdelsområde. (Stockholms stad n. d.)

Fig. 2: Biotopes of skarpnäck with legend

Fig. 3-4: Potential of Biotope ES1 (left), Potential of Biotopes ES2 (right)

Fig. 5-6: Potential of Biotope ES3 (left), Potential of Biotopes ES4 (right)

Fig. 7: Proposed Changes in the southern part of Skarpnäck

Fig. 8 : wildlife bridge on a german railway (Vaičiulaitytė: 2017)

Fig 9. : concept for the implementation of wildlife bridges in Skarpnäck

Fig. 10: Proposed Changes in the central part of Skarpnäck

Fig. 11: Housing example in the central part of Skarpnäck

Fig. 12: Proposed Changes in the central part of Skarpnäck – AI-generated

Fig 13. : proposed solutions for the northern part of Skarpnäck

Fig. 14 : proposed solutions for the northern part of Skarpnäck 2

References

Gencer, E.; Folorunsho, R.; Linkin, M.; Wang, X.; Natenzon, C.; Wajih, S.; Mani, N.; Esquivel, M.; Ibrahim, S.; Tsuneki, H.; Castro, R.; Leone, M.; Dilnoor, P.; Patricia, R.-L.; William, S.; Lin, B.; Panda, A. (2018): Disasters and Risk in Cities. In: Rosenzweig, C.; Solecki, W.; Romero-Lankao, P.; Mehrotra, S.; Dhakal, S.; Ali Ibrahim, S. (Hg.): Climate Change and Cities: 61–98.

Hilty, J.; Worboys, G.L.; Keeley, A.; Woodley, S.; Lausche, B.; Locke, H.; Carr, M.; Pulsford, I.; Pittock, J.; White, J.W.; Theobald, D.M.; Levine, J.; Reuling, M.; Watson, J.E.M.; Ament, R.; Tabor, M. (2020): Guidelines for conserving connectivity through ecological networks and corridors. In: IUCN (Ed) Best Practice Protected Area Guidelines Series 30.

Maes, J.; Teller, A.; Erhard, M.; Condé, S.; Vallecillo, S.; Barredo, J.; Paracchini, M.; Abdul Malak, D.; Trombetti, M.; Vigiak, O.; Zulian, G.; Addamo, A.; Grizzetti, B.; Somma, F.; Hagyo, A.; Vogt, P.; Polce, C.; Jones, A.; Marin, A.; Ivits, E.; Mauri, A.; Rega, C.; Czúcz, B.; Ceccherini, G.; Pisoni, E.; Ceglar, A.; Palma, P. de; Cerrani, I.; Meroni, M.; Caudullo, G.; Lugato, E.; Vogt, J.; Spinoni, J.; Cammalleri, C.; Bastrup-Birk, A.; San Miguel, J.; San Román, S.; Kristensen, P.; Christiansen, T.; Zal, N.; Roo, A. de; Cardoso, A.; Pistocchi, A.; Del Barrio Alvarellós, I.; Tsiamis, K.; Gervasini, E.; Deriu, I.; La Notte, A.; Abad Viñas, R.; Vizzarri, M.; Camia, A.; Robert, N.; Kakoulaki, G.; Garcia Bendito, E.; Panagos, P.; Ballabio, C.; Scarpa, S.; Montanarella, L.; Orgiazzi, A.; Fernandez Ugalde, O.; Santos-Martín, F. (2020): Mapping and assessment of ecosystems and their services. An EU wide ecosystem assessment in support of the EU biodiversity strategy. Luxembourg (= EUR 30161).

Mansur, A.; McDonald, R.; Güneralp, B.; Kim, H.; Oliveira, J. de; Callaghan, C.; Hamel, P.; Kuiper, J.; Wolff, M.; Liebelt, V.; Martins, I.; Elmqvist, T.; Pereira, H. (2022): Nature futures for the urban century: Integrating multiple values into urban management. In: Environmental Science & Policy 131: 46–56.

Stockholms stad (Hg.) (n. d.): Stockholm City Plan. Urban Development Map. Stockholm.