



Trail building and nature conservation



Patrick Jansen

Content presentation

- Introduction
- What is a sustainable trail?
- How to reduce negative impacts on flora and fauna?
- In practice

Introduction

Introduction



- Mountain biker since 25 years
 - World champion masters 2013, three times Dutch champion masters I en II, Benelux champion
- Director Probos Foundation (Knowledge and innovation centre on sustainable forest management)
 - Research:
 - Physical impacts and social conflicts of mountain bikers in the Netherlands
 - Sustainable trail building in the Netherlands
 - Intermediate between mountain bikers and forest managers
 - Demonstration projects: 3 mountain bike trails build

Introduction

- Director/owner Tracks & Trails (since 2009)
 - Design and construction of mountain bike trails and skill parks (22 trails constructed (450 km), 7 skill parks designed/constructed, 15 trails in preparation (500 km))



What is a sustainable trail?

Social conflicts

A trail that reduces social conflicts



Soil and geology

A trail that reduces damage to soils and geological values



Vegetation and plants

A trail that reduces damage to vegetation and plants



Wood bedstraw
Galium sylvaticum

Fauna

A trail that reduces disturbance of fauna



Badger
Meles meles

Cultural heritage and religious/spiritual sites

A trail that reduces damage to cultural heritage and religious/spiritual sites

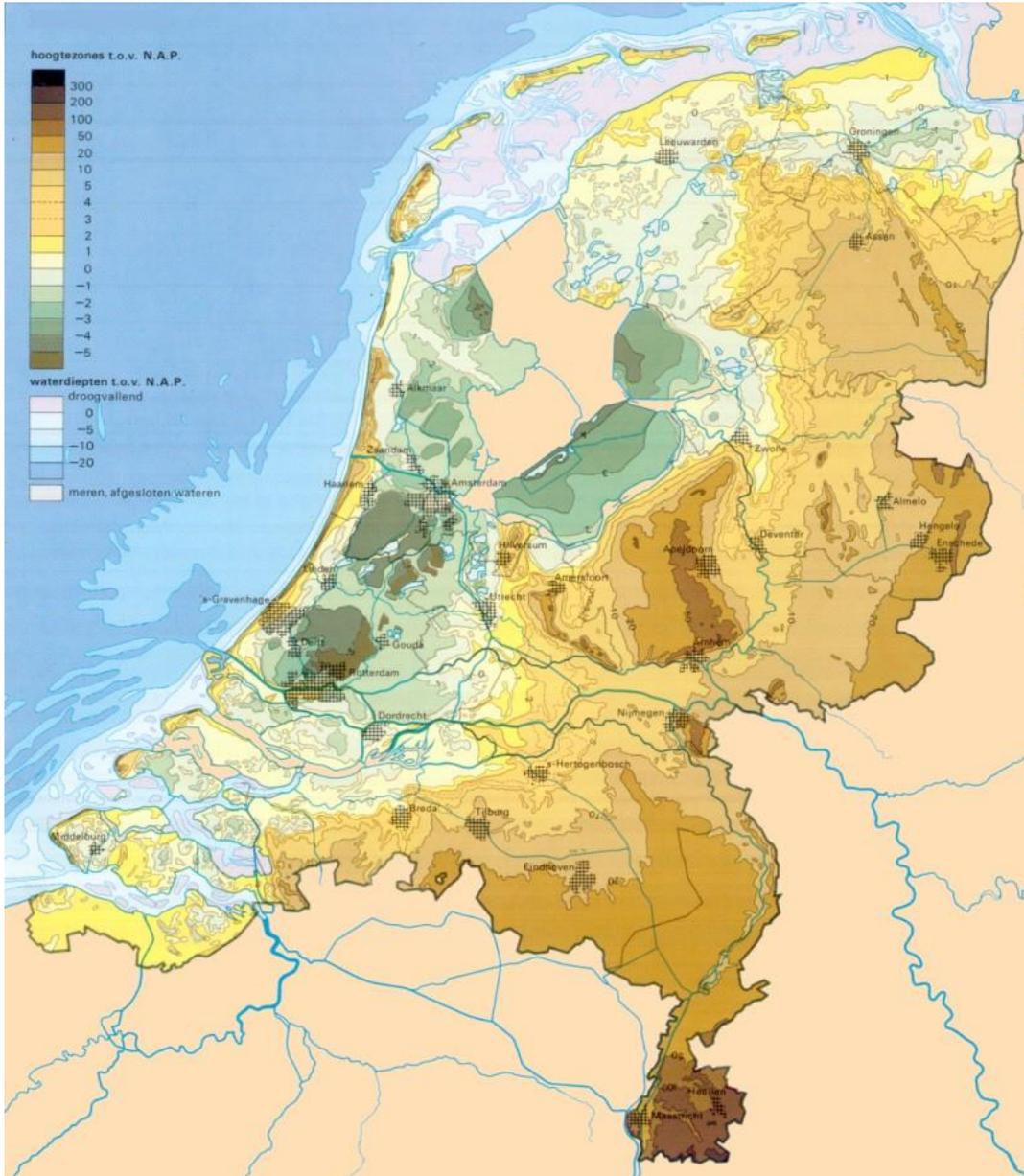


Archeoduct in the Strubben
Kniphorstbosch across prehistoric
road

Mountain bikers dreams

A trail that is fun, safe and challenging to ride (for the target group)!!





Fun and challenge in the Netherlands?

- Flowy trails
- Difference in altitude:
 - Dikes
 - Slopes of elevated roads
 - Small hills (1-100 meters in altitude)
- TTF's

How to reduce negative impacts
on flora and fauna?

Law

- **Acceding Countries will have to implement the Birds and Habitats Directives**
- **EU Habitats directive**
 - Protects over 1.000 animals and plant species and over 200 so called "habitat types" of European importance (Natura 2000)
- **EU Birds directive**
 - Protects all wild bird species naturally occurring in the EU.
- **Not-protected species**
 - Protect when possible, especially charismatic species and locally rare species

Law: bird breeding season

- EU Habitats and Birds directive → implemented in Dutch Flora and Fauna Act → Dutch Code of Conduct for Forest management:
 - Deciduous and mixed forest: no disturbing activities between March 15 and July 15
 - Conifer forest: between March 15 and July 15 only activities if no breeding birds → inventory necessary
 - In practice: no trail building with machines from March 15 till the end of the holidays

Law: Natura 2000

- EUwide network of nature protection areas established under the Habitats directive
- Each country designates Natura 2000 areas with protected habitats and species
- Not a system of strict nature reserves where all human activities are excluded!!!

Law: Protected habitats

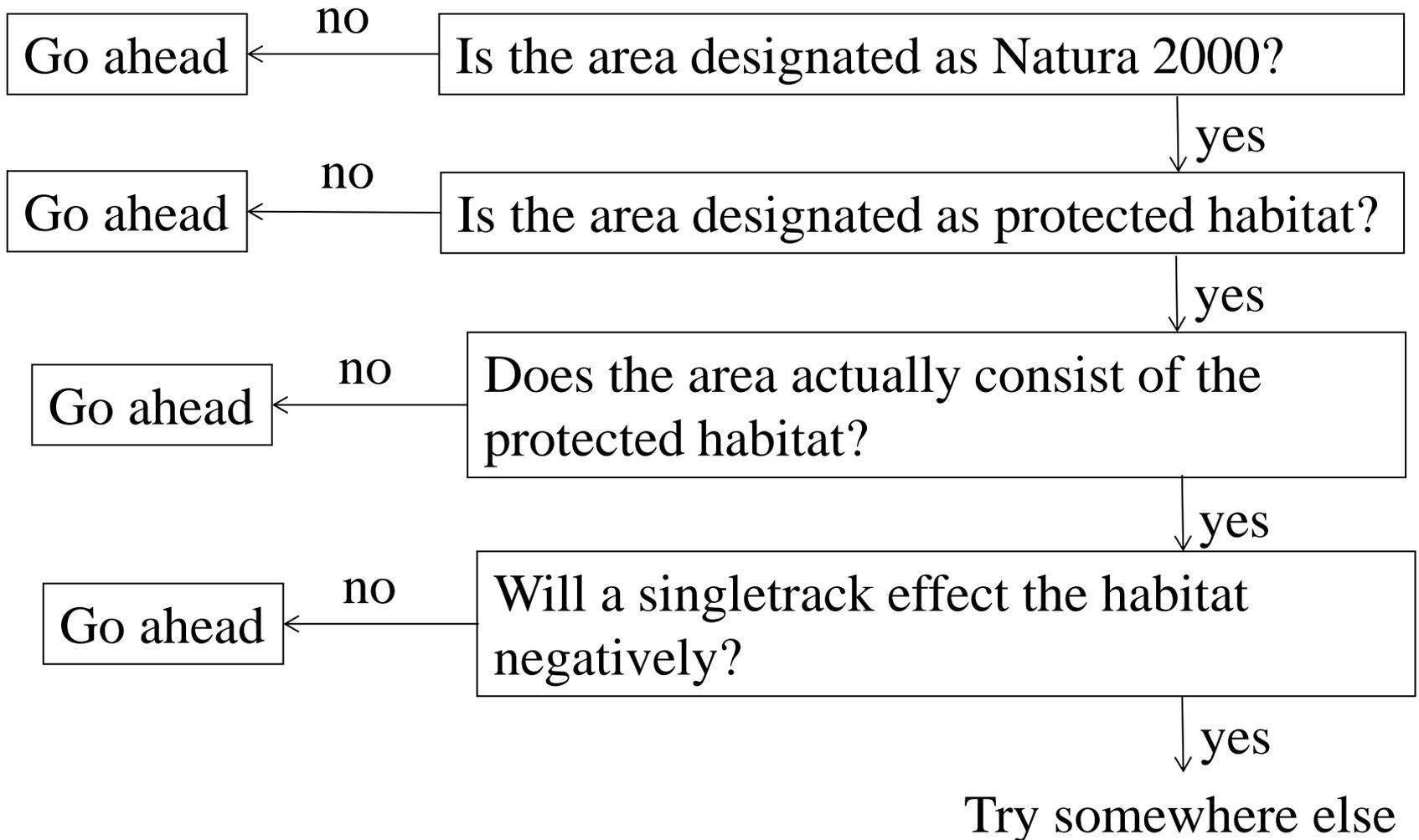


H2160, Dunes with
Hippophae rhamnoides

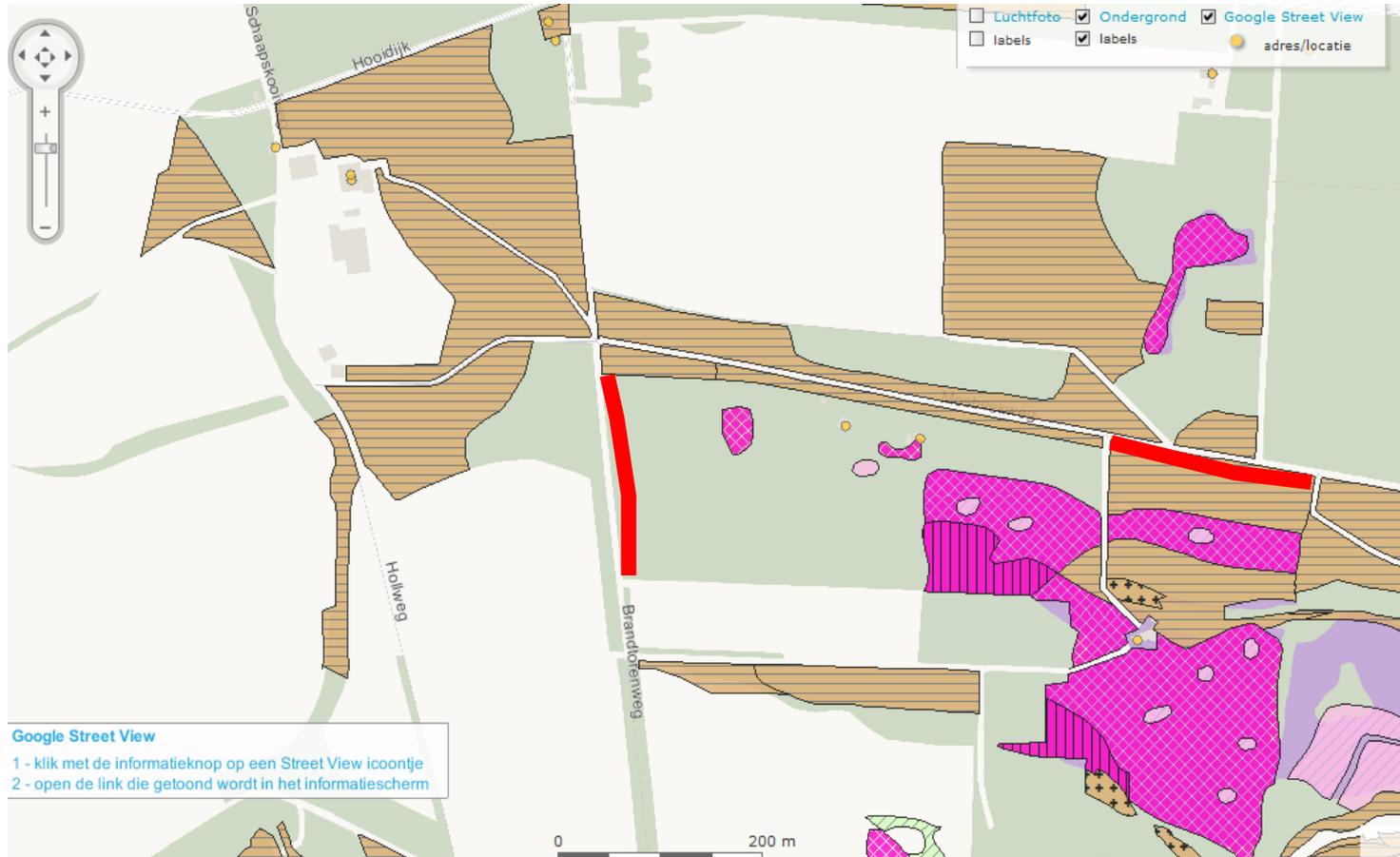
H9120: Atlantic
acidophilous
beech forests with *Ilex*

H4030, European dry
heaths

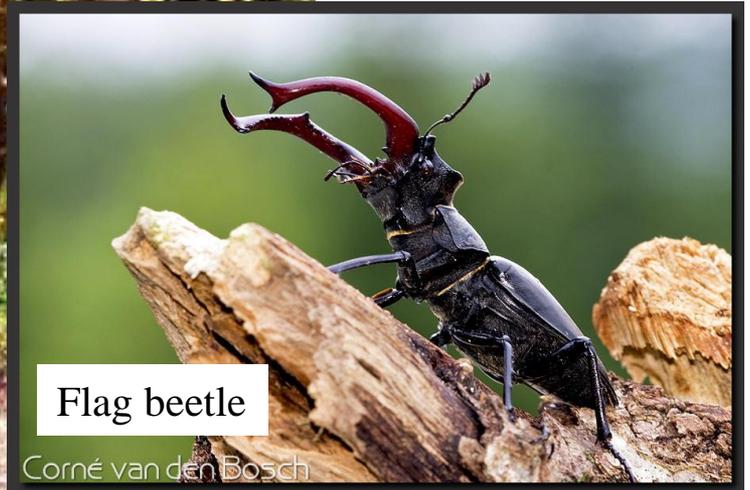
Law: Protected habitats



Law: Protected habitats



Law: Protected species



Flag beetle

Corné van den Bosch

Law: Protected species



Black woodpecker

Visability

Not all species visible at field visits

- Three strategies
 1. Databases, forest manager, local experts
 2. Field visit in right season
 - Example flora: due to restrictions by law in breeding season → flagging in winter season → difficult to see flora
 3. Focus on protection of habitats
 - Reproduction, foraging and resting sites

Protect reproduction, foraging and resting sites



Protect reproduction, foraging and resting sites



Protect reproduction, foraging and resting sites



Protect reproduction, foraging and resting sites



Protect reproduction, foraging and resting sites



Dealing with trees

- Don't remove trees, use them as anchors

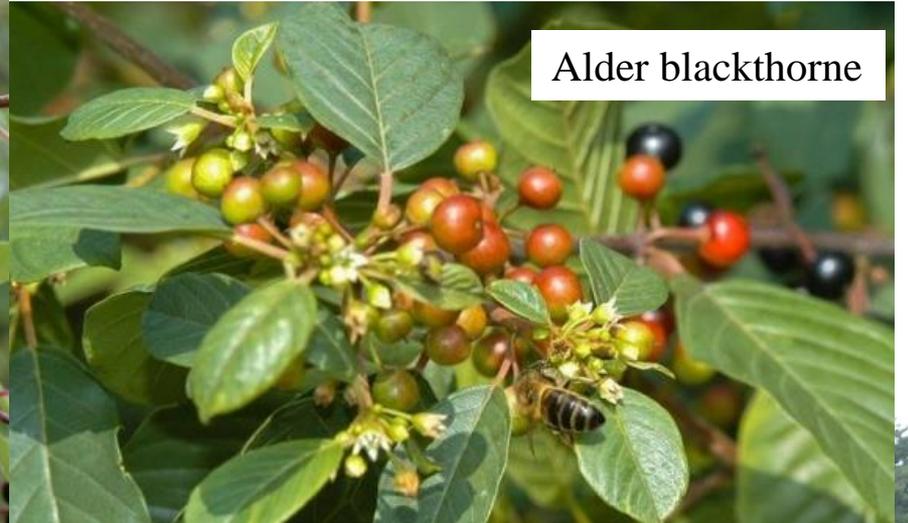


Dealing with shrubs

- Protected species always, locally rare and charismatic species always, other species if possible
- In general protect indigenous species and remove exotic species



Black cherry



Alder blackthorn



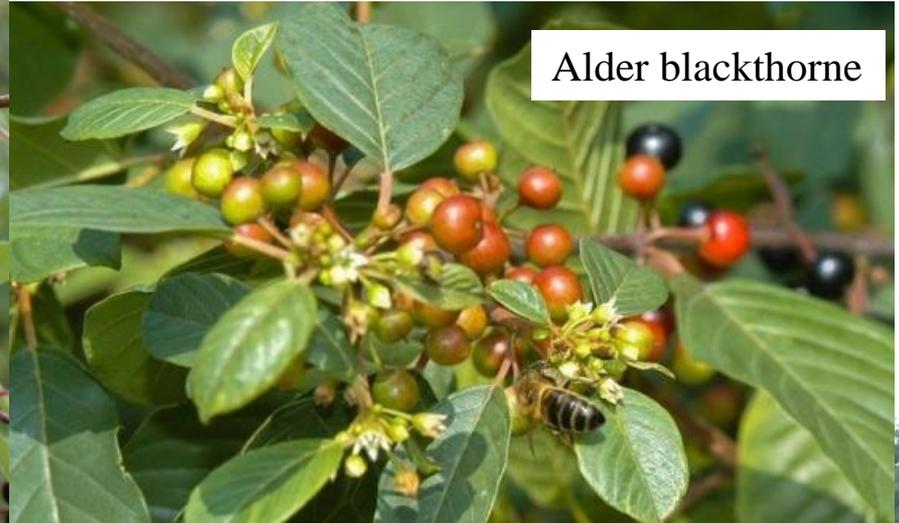
Northern red oak



Common juniper



Black cherry



Alder blackthorne



Northern red oak



Common juniper

Dealing with herbs

- Protected species always, locally rare and charismatic species always, other species if possible



Solomon's seal



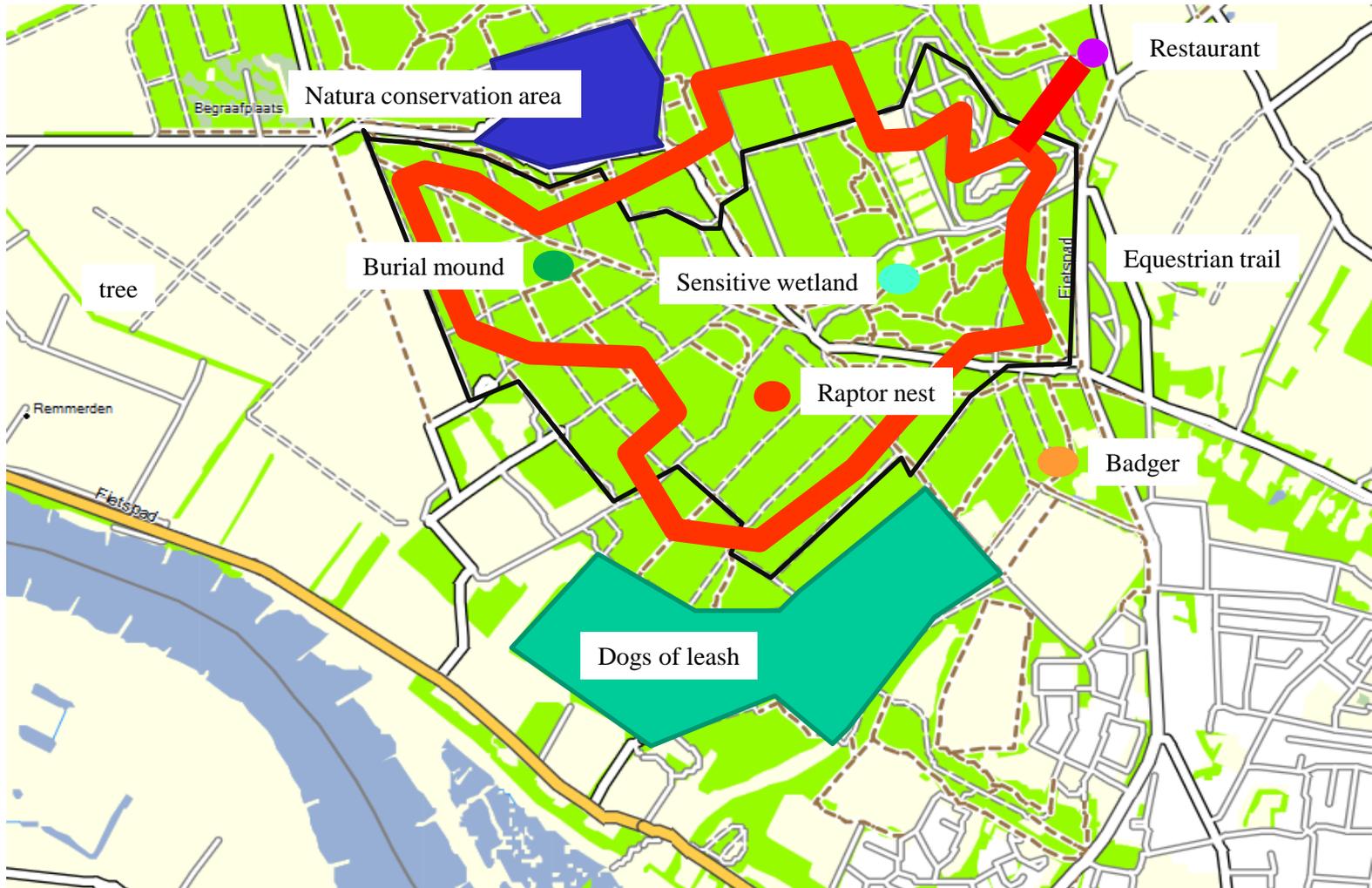
Blueberry



Wood anemone

In practice

Design



Design



Construction







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