

# Beaver inspections and repairs for levees

Wijnand Evers

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# PROVINCIALE OVERHEID

## 12 provincies

2019



Eventuele fouten en wijzigingen voorbehouden. Aan deze kaart kunnen geen rechten worden ontleend.



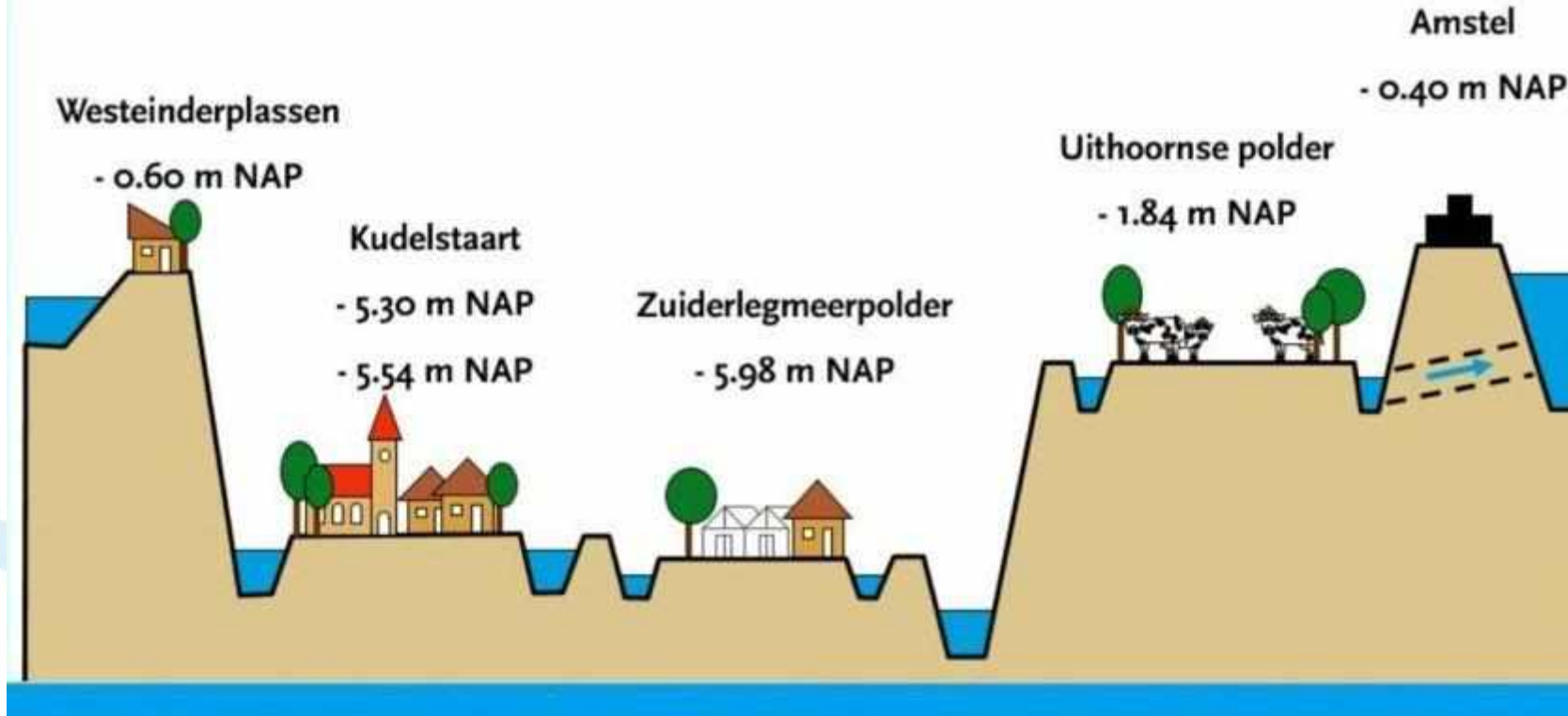




# Why we care about beavers

- 18.000km of levees

## Doorsnede polder – boezem

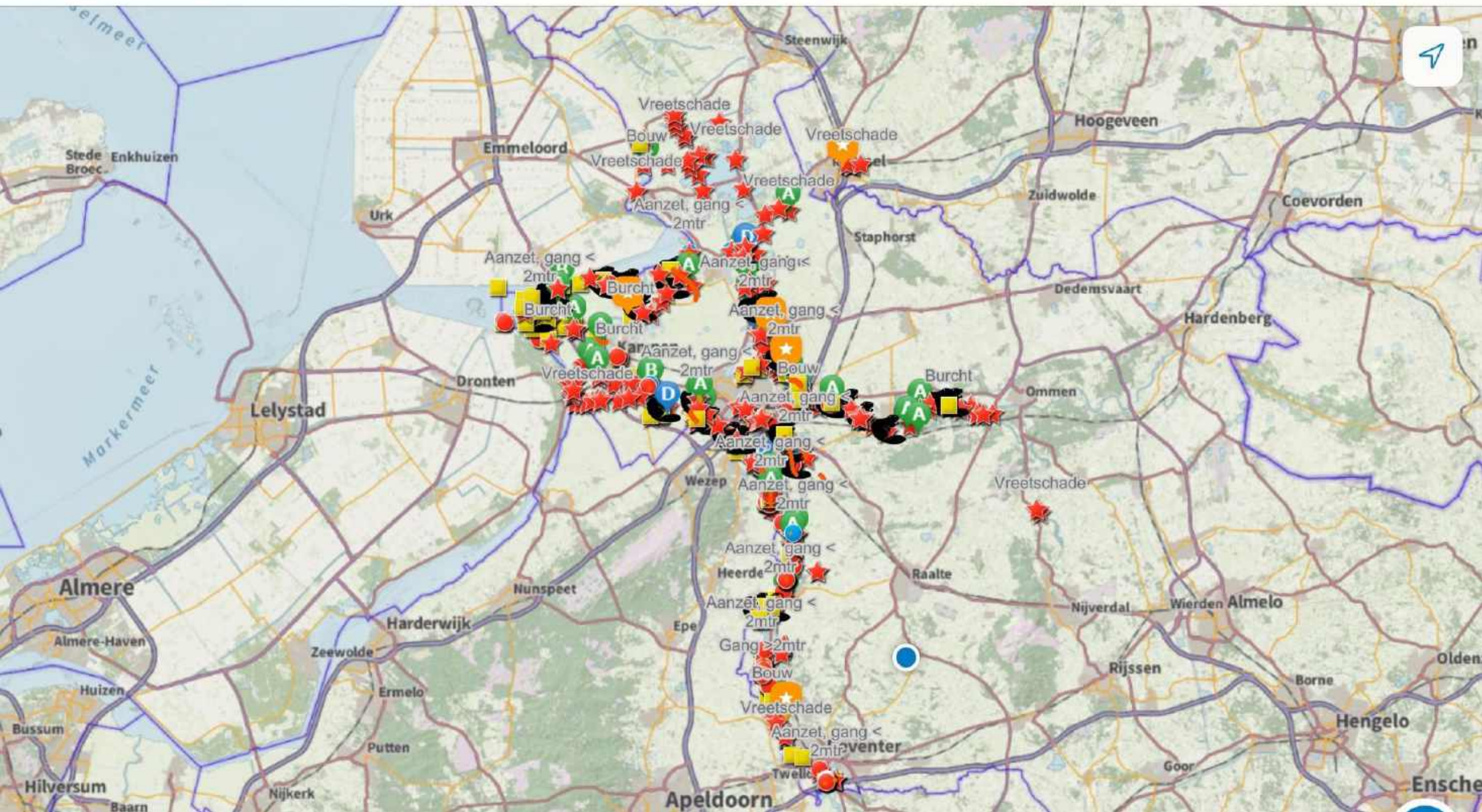




# Getting a grip

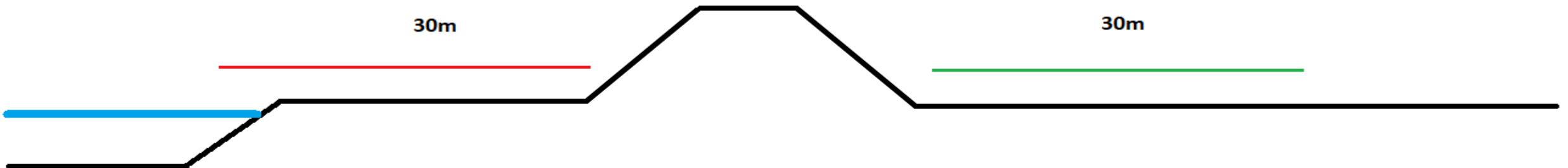






# First risk assessment

- Inner and Outer side of the levee
- Water <30m
- Any form of prevention for burrowing
  - Wire mesh
  - Sheet piles
  - Stone or rock cover

















# Inspections help to...

- Detect threats early
- Spread the workload
- Minimize the size of the burrow
- Keep levees in better shape
- Reduce risk





# Highwater levels





# Beaver patrol

- Inspections during highwater
- Finding burrows at an early stage
- Less risk when it matters most

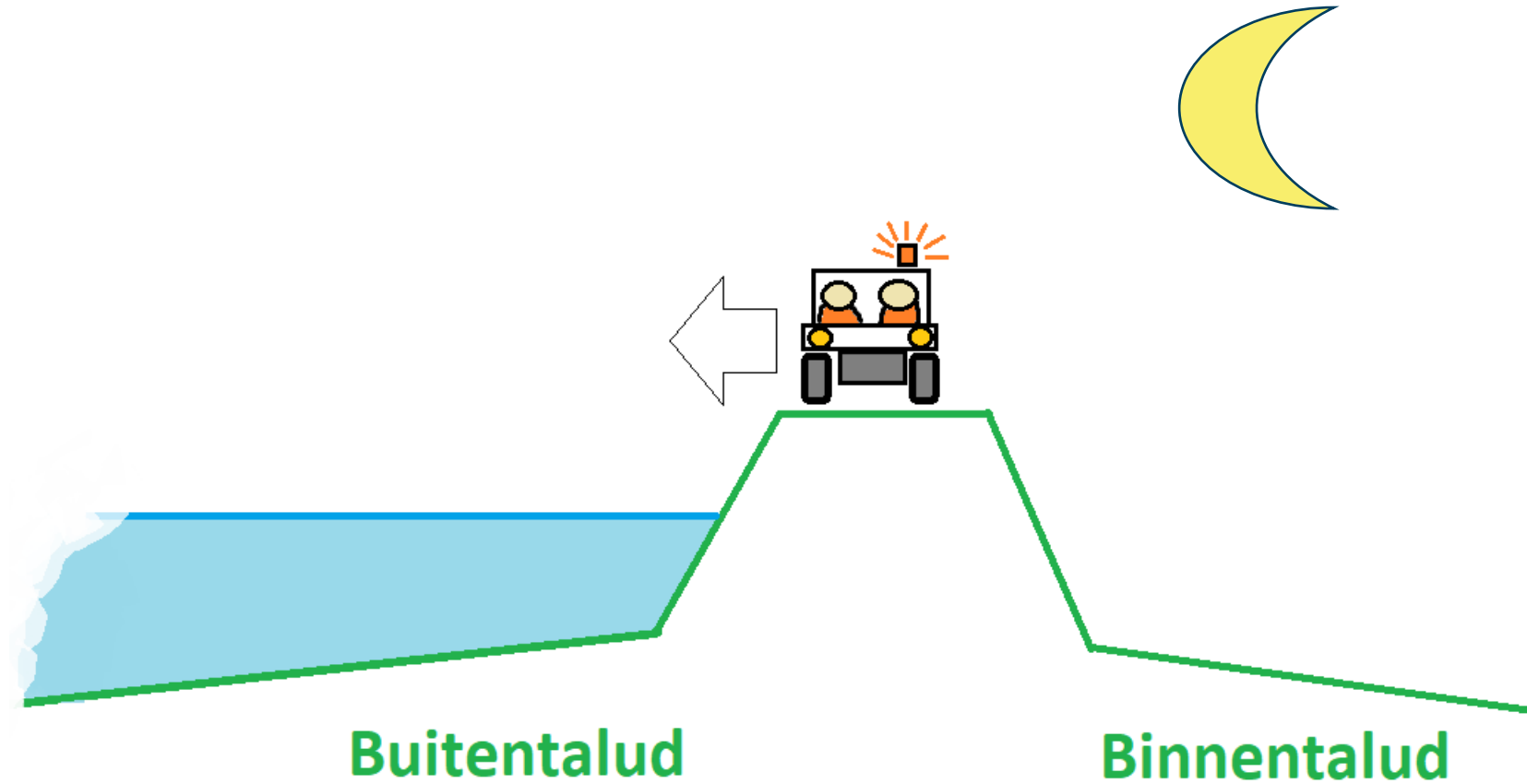








# Night-patrol





# Where do beavers approach our levee?

- Beavers live on all floodplanes
- Not all beavers burrow at highwater
- Much is still unknown about behavior
- Where and when does the digging start?





# At what time is the beaver most active ?

Bestand Startpagina Invoegen Delen Pagina-indeling Formules Gegevens Controleren Beeld Automatiseren Help Teken

G52

	A	B	C	D	E	F	G	H	I	J	K	L
1	Doc nummer	In	uit	los	datum	tijd	temp camera		zon op	zon onder	Tijd voor zon op	Tijd na zon onder
2	3010032			ja	1-3-2024	03:18	9	blokzijl	07:25	18:20	04:07	08:58
3	3030049		?		3-3-2024	04:04	10	blokzijl	07:20	18:24	03:16	09:40
4	3030050		ja		3-3-2024	04:04	10	blokzijl	07:20	18:24	03:16	09:40
5	3050100			ja	5-3-2024	00:34	8	blokzijl	07:16	18:28	06:42	06:06
6	3050101		ja		5-3-2024	00:35	8	blokzijl	07:16	18:28	06:41	06:07
7	3050109	ja			5-3-2024	02:54	9	blokzijl	07:16	18:28	04:22	08:26
8	3050107		ja		5-3-2024	02:39	8	blokzijl	07:16	18:28	04:37	08:11
9	3050110		ja		5-3-2024	02:54	9	blokzijl	07:16	18:28	04:22	08:26
10	3080146			ja	8-3-2024	00:49	3	blokzijl	07:09	18:33	06:20	06:16
11	3080150		ja		8-3-2024	04:02	2	blokzijl	07:09	18:33	03:07	09:29
12	3080155		ja		8-3-2024	04:28	2	blokzijl	07:09	18:33	02:41	09:55
13	3090167	ja			9-3-2024	02:40	4	blokzijl	07:07	18:35	04:27	08:05
14	3100185		ja		10-3-2024	00:50	7	blokzijl	07:05	18:36	06:15	06:14





## Hoogwater Bevers

204172,360 496518,46N



17,9 km

1

### Opmerking

Beaver on the levee eating. Swam away when we got closer.

### CreationDate

27-12-2023, 10:42 PM

### Creator

WilfredMeijer@wdodelta.nl\_WDODelta

### EditDate

27-12-2023, 10:59 PM

### Editor

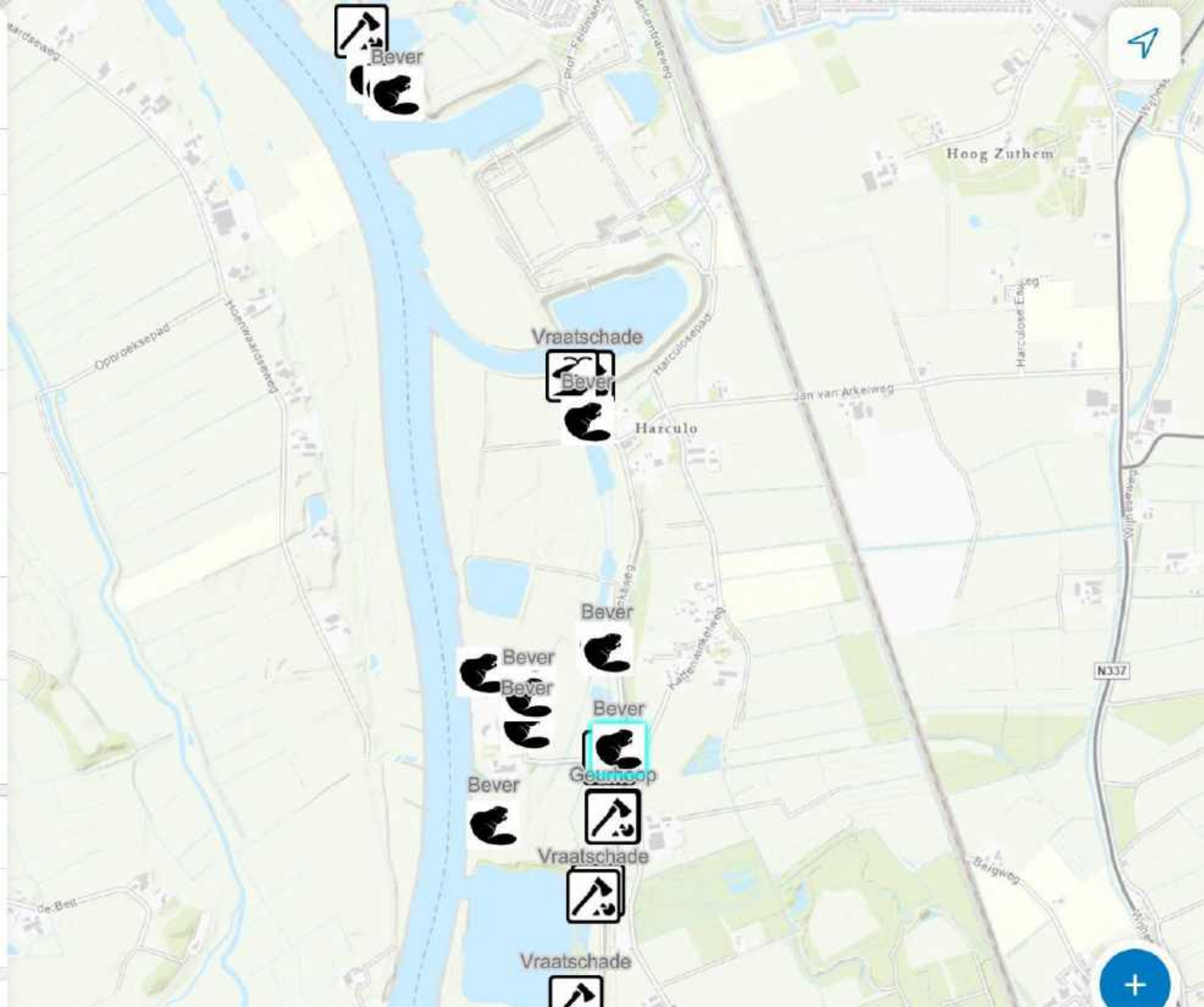
WilfredMeijer@wdodelta.nl\_WDODelta

### Bijlagen



Video 1.mp4

2,4 MB









# Day-patrol

- Keeping an eye on the floodplanes
- Learning more about behavior
- Are we missing beavers?









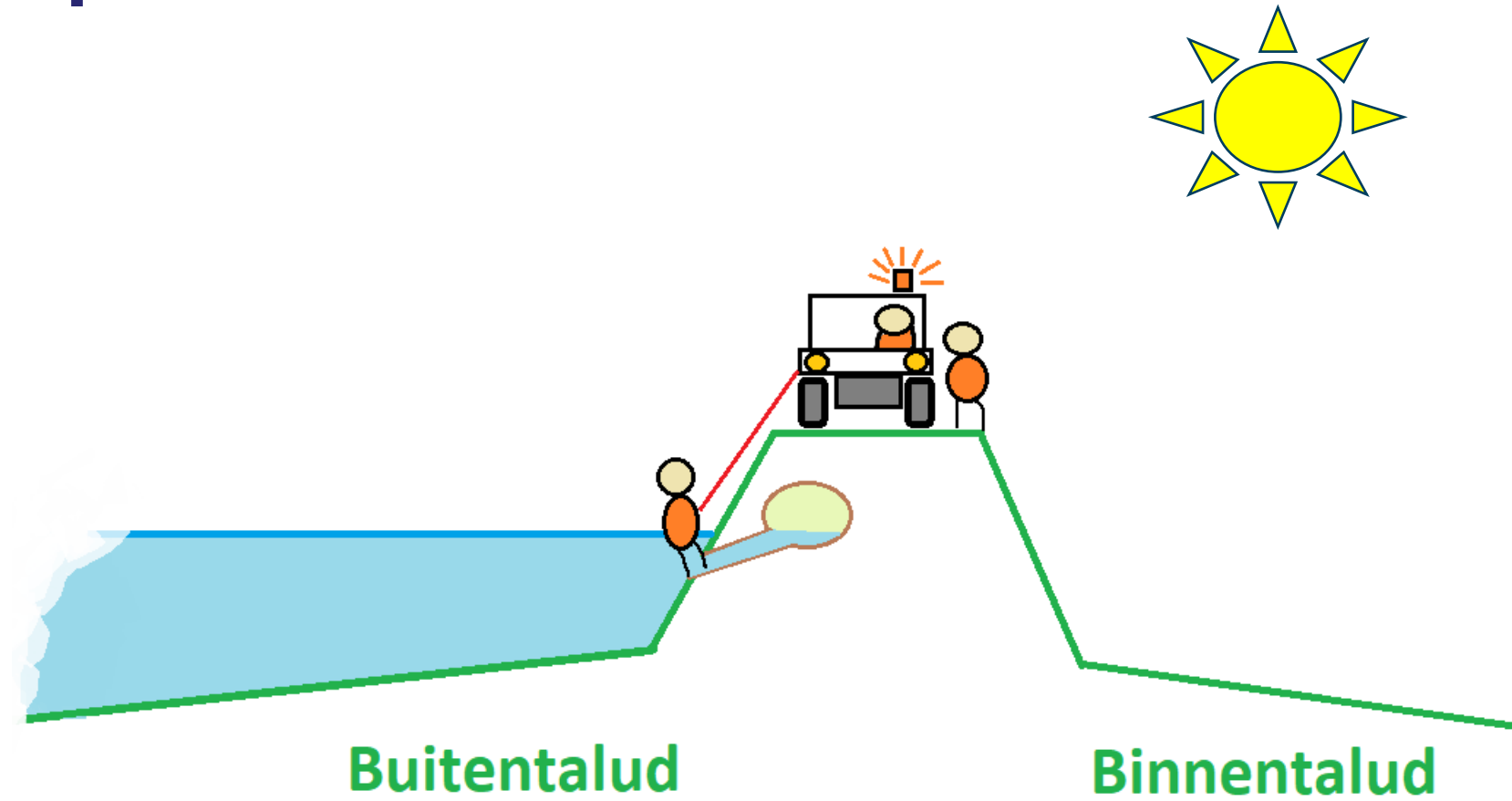








# Damage-patrol





# Searching for holes

- Physical inspection
- Human senses
- Technological advances
- Safety concerns









# Safety first



# Options for repair?



Plugging up holes



Excavate and refill



Temporary  
reinforcement



Protect the  
grasscover





# Marnewaard exercise in detecting and sealing beaver tunnels





# Lidar and sonar









# On a leash





# Testing various sealing products





# inflatable sewer seal





# Sandbag and Fender



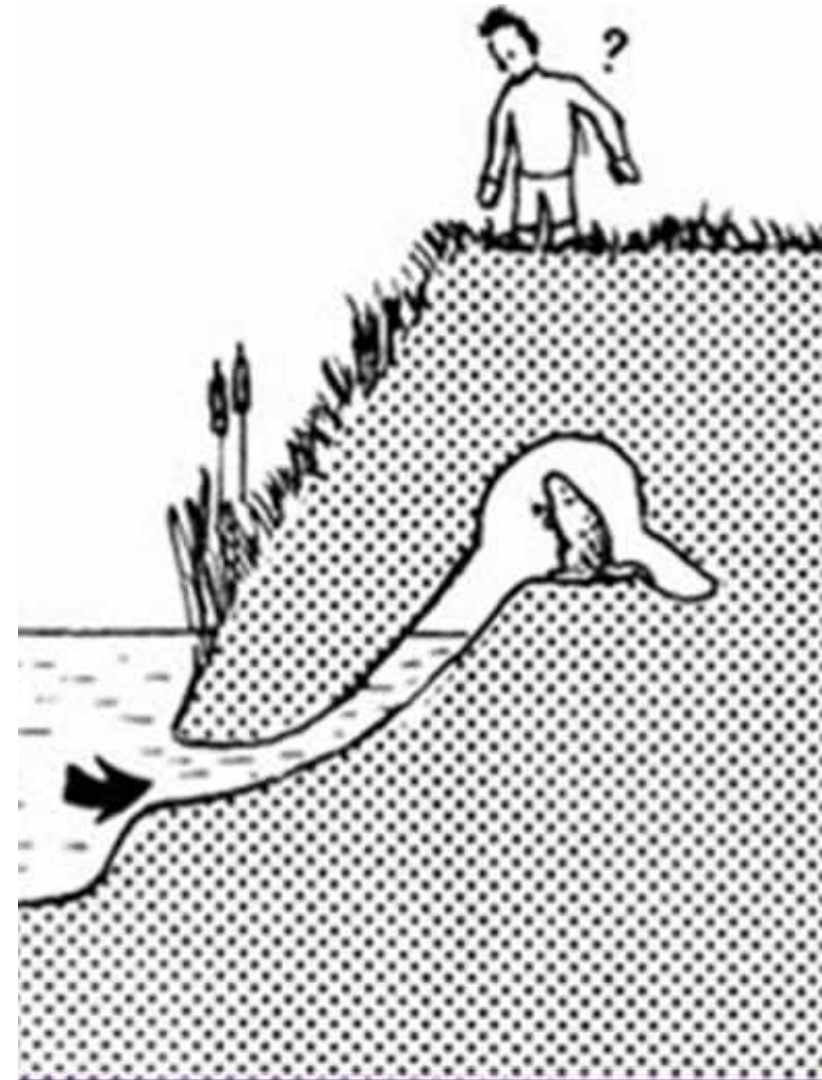






# Question:

- How to get the beaver out before we start repairs?
- At what point is killing beavers acceptable?





**stowa**

