PlasticFreeDanube

Composition of macro plastic waste in the Donau-Auen Nationalpark

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PROJEKT: PlasticFreeDanube

Facts:

o Duration: Oktober 2017 – September 2020

o 5 project partners, 18 strategische partner

o Funding programme:
   Interreg V-A Slovakia-Austria 2014-2020

o Budget: EUR 1.23 Mio.
   EU-Funding (ERDF): EUR 1.05 Mio.

OBJECTIVE: Reduction of the amount and negative impacts of plastic waste in fluvial systems with focus on the Danube river

PROJECT AREA

Morava

Border AT/SK

BRATISLAVA

DANUBE

VIENNA

Identification of pollution hotpots

Donau-Auen National Park

Hydropower plant
FREUDENAU
Grate sampling

DANUBE

Collection of waste

Hydropower plant
GABCIKOVO
Grate sampling

Larger catchment area (industry, plastic producers, landfills etc.)

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>> macro-plastic waste (> 5 mm) in and along the Danube
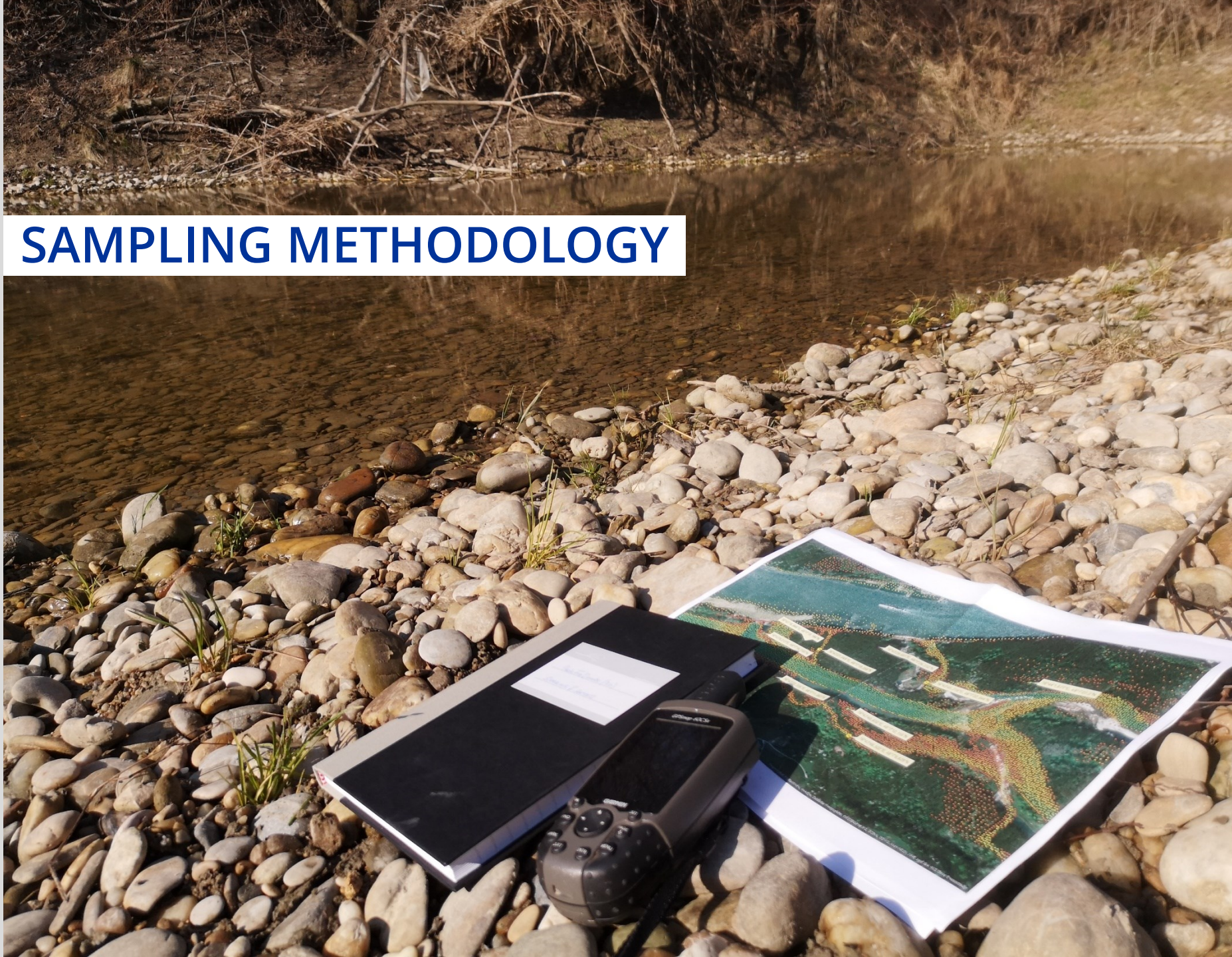
GOAL & ACTIVITIES

Sampling & sorting methodology

Development of a standardized sampling & sorting methodology and a guideline

- for the collection and sorting of plastics

- to get data on the quantities and composition of plastic waste

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SAMPLING METHODOLOGY

A) Collection activities

- o Waste composition

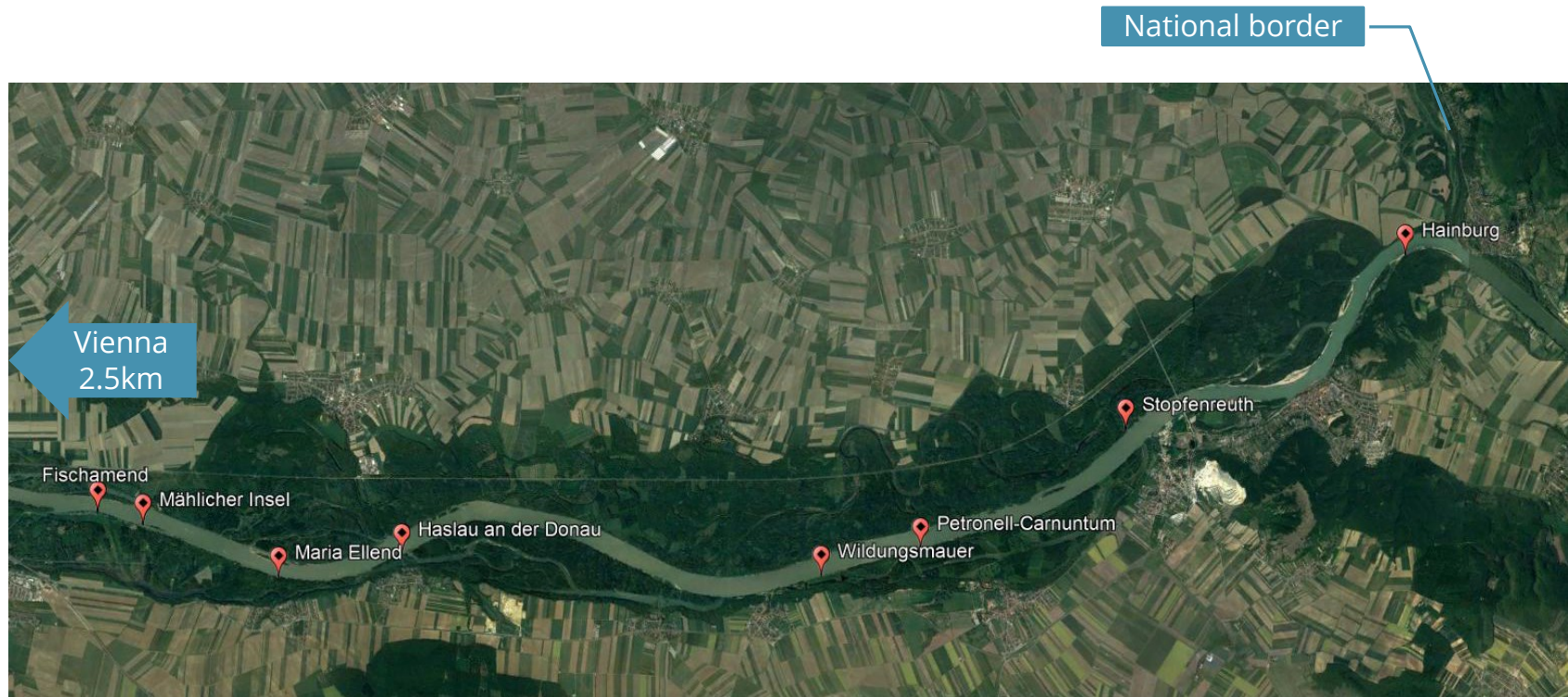- o Pollution sources / origin

B) Sampling at riverbank

- o 15 randomly chosen bankside testing zones

- o (Monthly) on-site evalution

- o Defined zone size *(↔5m; towpath to water line)*
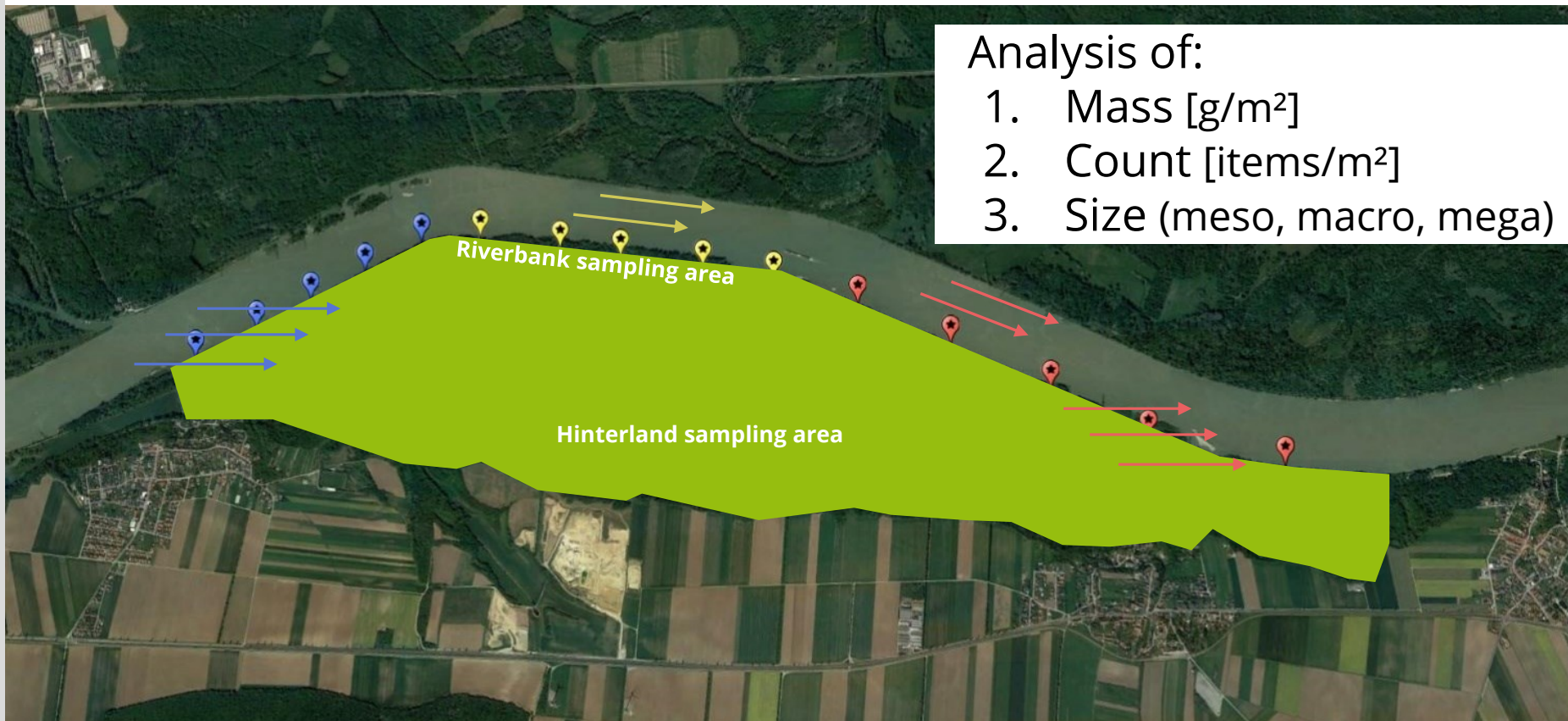

C) Sampling at hinterland

- o Based on hydrodynamic model (IWA-Institute)

- o 3 categories according to accumulation potential

Collection Zones - NPDA

- 15 collection activities
- Over 870 kg pure plastic waste collected & sorted

Sampling - Riverbank

Analysis of:
1. Mass [g/m²]
2. Count [items/m²]
3. Size (meso, macro, mega)

Riverbank sampling area

Hinterland sampling area

- Testing area: Haslau an der Donau
- ca. 6.3 km shoreline

Sampling - Riverbank

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Sampling zones in the floodplains

o Categories: *low, middle & high* plastic accumulation potential

o 2 sectors: IN (inlet) & OUT (flow into river) the surroundings

o 3 testing areas for each category and sector (n=18)

o Assumption:
"comb out" effect
due vegetation at
IN sector
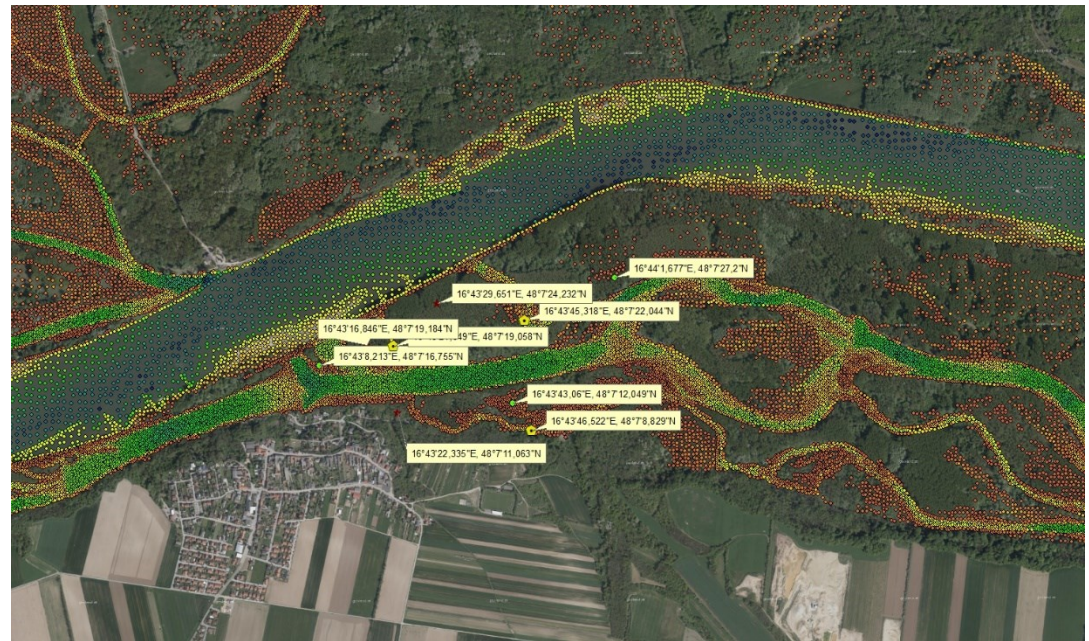
*2D hydrodynamic model – water levels in the floodplain at Q=6000*

Sorting protocol

- Evaluation and comparison of (marine) sorting protocols

- Identification of similar categories

- Combine to functional groups

- Continuous evaluation & adaptation

Main-group	Sub-group	No.	Category	No.	Sub-Category
Packaging	Drink bottles	1	PET drink bottles + caps		
	Food packaging	2	Food packaging	2a	Flexible packaging
				2b	Hard plastic containers
				2c	Liquid packaging boards
				2d	Composite packaging
				2e	Foamed food containers
	Other non-food packaging	3	Single-use tableware		
		4	Shopping bags		
		5	Cosmetic bottles & containers		
		6	Cleaner bottles & containers		
		7	Building & construction packaging		
		8	Packaging films and sheets		
		9	Other plastic packaging		
Foamed	Foamed plastic	10	Foamed packaging / insulation / undefinable foamed plastic items		
Non-Packaging	Household / toys / sport / leisure	11	Toys, sport & leisure article		
		12	Streetwear		
		13	Fishing gear		
		14	Cigarettes incl. packages		
		15	Lighters		
		16	Housewares / household like items		
	Sanitary & medical article	17	Sanitary waste	15a	Feminine hygiene articles
				15b	Wet wipe/cleaning tissue
				15c	Cotton buds
				15d	Other sanitary waste
		18	Medical & pharmaceutical waste		
	Other non-packaging items	19	Ropes and strings		
		20	Tapes		
		21	Shipping items		
		22	Other plastic items		
		23	Other rubber items		
		24	Car parts		
	Construction waste	25	Building & construction waste		
Others	Hazardous waste	26	Hazardous plastic waste (e.g. WEEE)		

RESULTS – Plastic Waste Composition
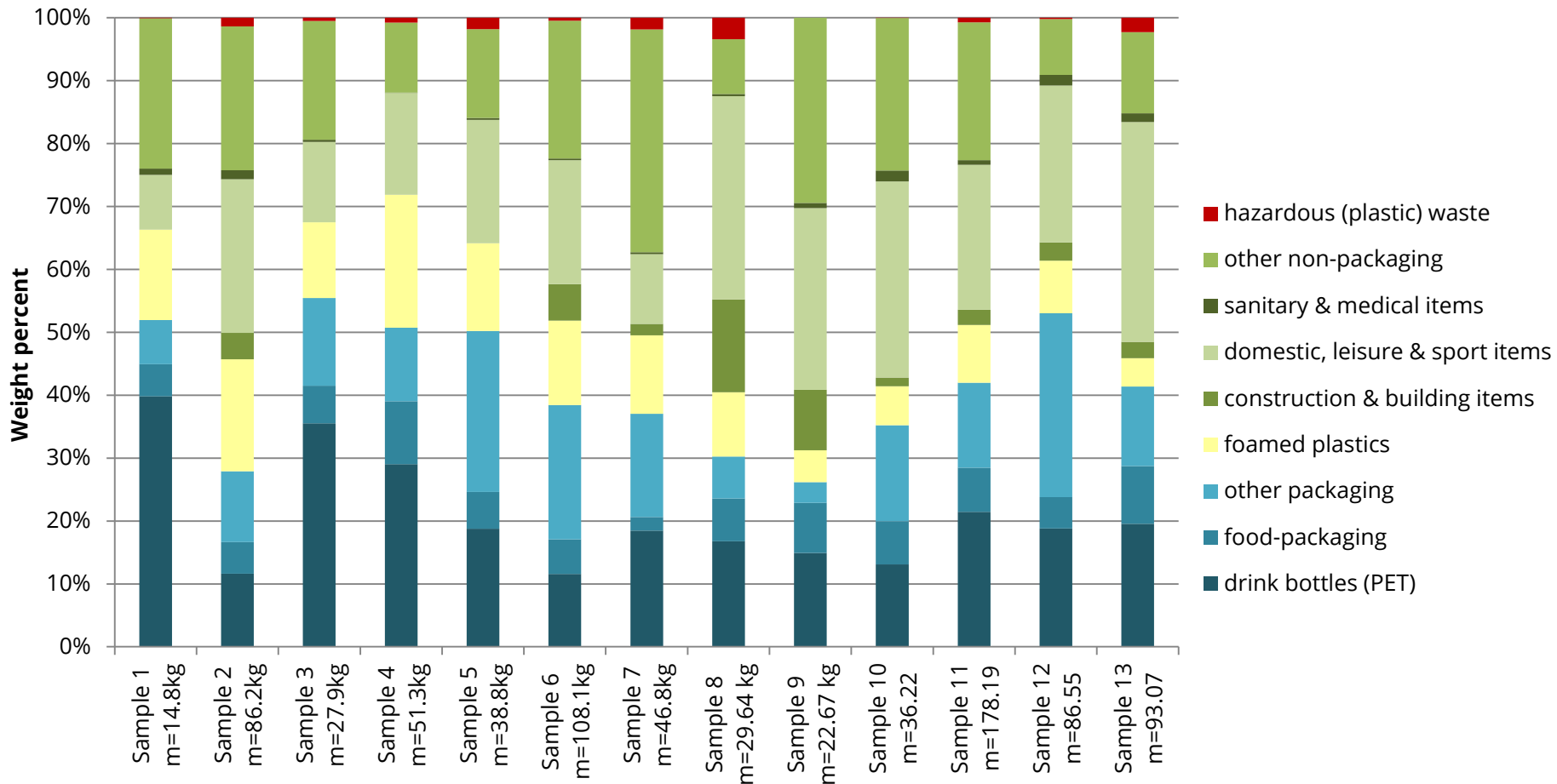
PRELIMARY CONCLUSION & OUTLOOK

o High percentage of litter (packaging)

o Waste is **not** generated in Nationalpark

o PET bottles and (E)PS largest fractions (weight/volume),

   also household, leisure & sports

o Entry paths and origin often difficult to determine

>> Projection of plastic waste pollution along the Danube

>> Derivation of reduction measures

Protect Nature – avoid pollution!

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