23 rd Junior Eco - Expert – Ecoproject

Our Country, Our Future, Our Responsibility

GROUP 2: PEAT BOGS AND MODERN WAYS OF USING PEAT

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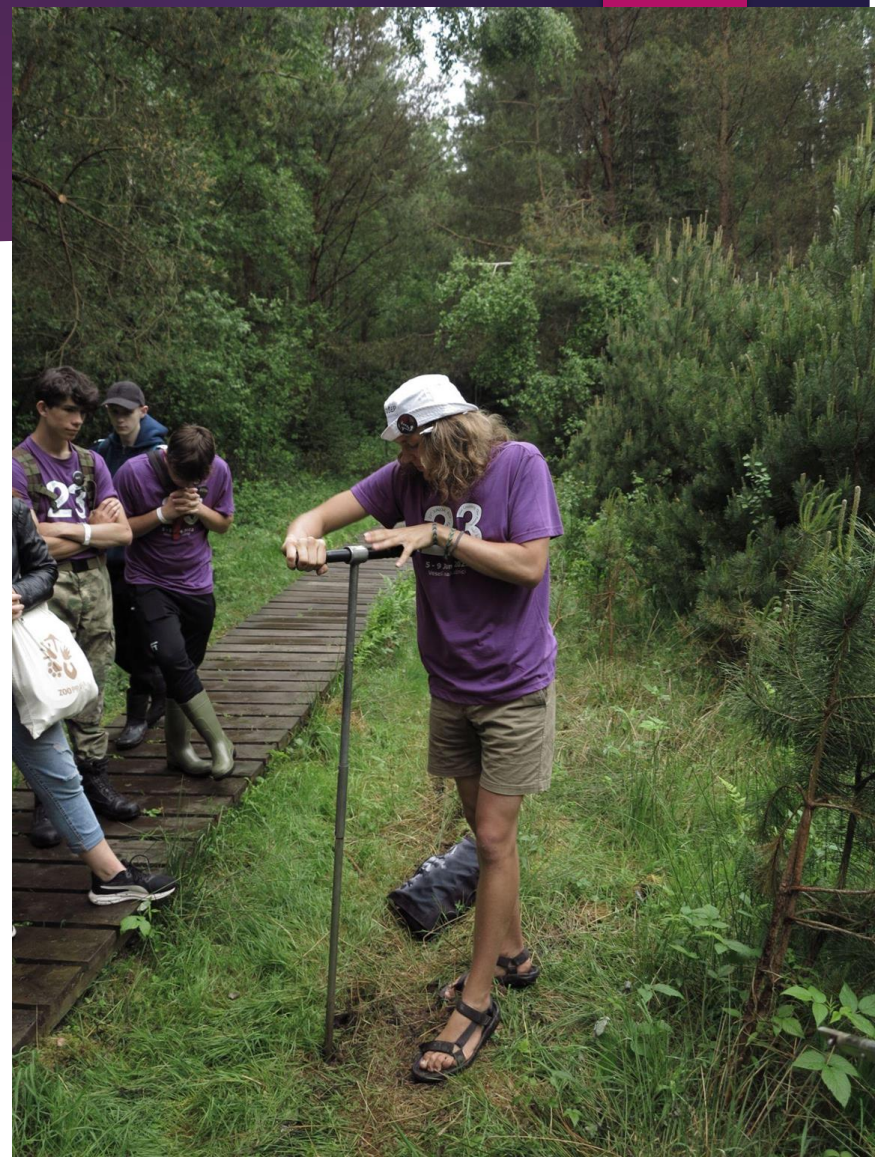
Borkovice peatland

- took peat samples
  - Location 1: peat extraction by hand
  - Location 2: peat extraction by machines
- Plants
  - Cottongrass
  - Peat moss
  - Swamp cranberry
  - Wild rosemary
- Damaged trees → pH of ground water = 4
  - Scots Pine
  - Birch
  - Bog Pine



Soběslav-Rašelina

= Composting and brewery company

- Brewery:
  - 1000 litres beer per day
- Composting
  1. Mixing of black and white peat and other organic masses
  2. drying of mixture
  3. into factory → packed up
  4. ready to be sold
- Environmental impact of products
  - Bad influence on nature → all products, which contain peat and artificial fertilizers
  - Neutral influence on nature → any other product

Products

Substrates and Soils

Mulch

Fertilizers

Use of peat

- **In the past**: heating houses

  medicinal purposes

  bedding in stables

- **Nowadays**: horticulture (acidophilous plants, for example:*Rhododendron sp., Caluna vulgaris, etc.)*

  agriculture (growing vegetables)

  balneology (peat bath)

  medicine (healing of rheumatism)

  producing whisky

- **Use of *Sphagnum*** *(peat moss)*

  It is used in horticulture as an additive in substrates, for example, for growing orchids, cacti, and many more.

Pros and cons of peat in horticulture

Pros: Improves retaining of nutrients

Enriches soil - organic substances

Protects soil against drying

Reduces root disease

Supports growth of blossoms and roots

Traps sunshine

Supports warming of soil

Cons: Dries easily

Is light - can be blown off by wind

Exploitation damages environment

Is not renewable (only1mm of peat is formed in 10 years)

Low pH, it is necessary to adjust it

Large amount of carbon is released to the air when peat is extracted

Substitutes of peat in horticulture

Instead of peat, we can use alternative sources, for example:

- Needle litter
- Leaf mold
- Compost
- Vermicompost
- Mulch
- Wood chips mixed with compost
- Spruce bark
- ´´Toresa´´ (wood fiber from spruce wood mixed with sand and lava granulate)
- Coconut fiber

We can use this material as a substitute because of similar pH and it does not have bad effects on the environment.

Laboratory equipment

incinerator

Magnetic stirrer

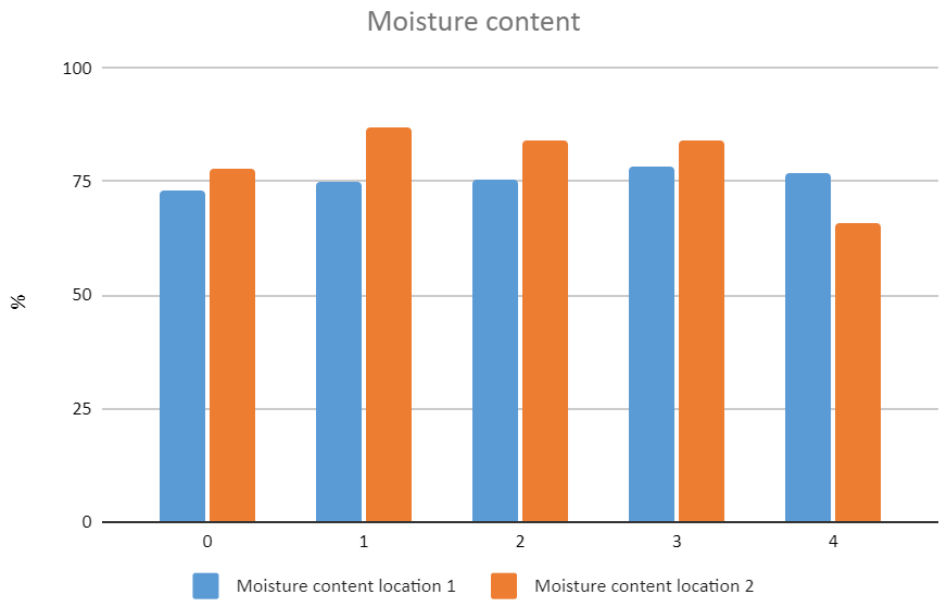
scales

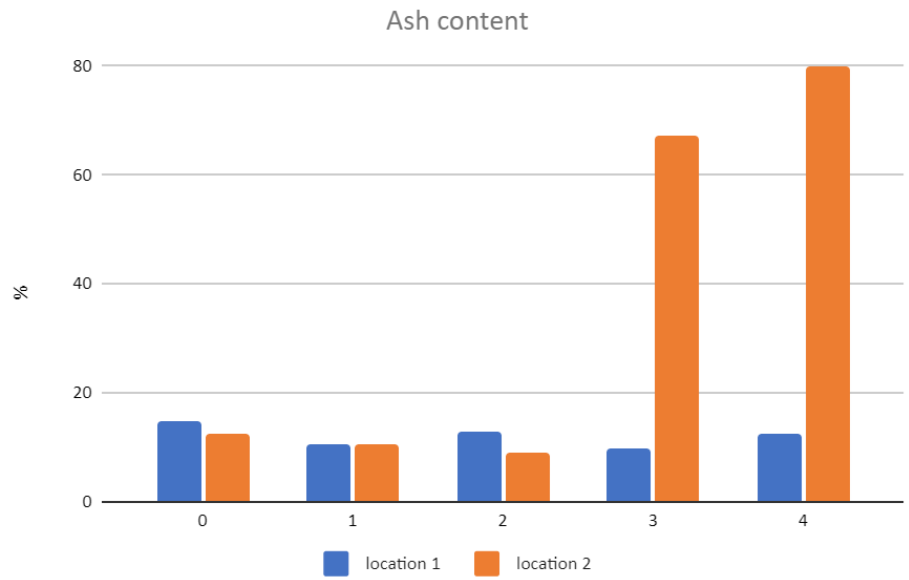
Shaking machine

pH meter

Moisture and ash of peat

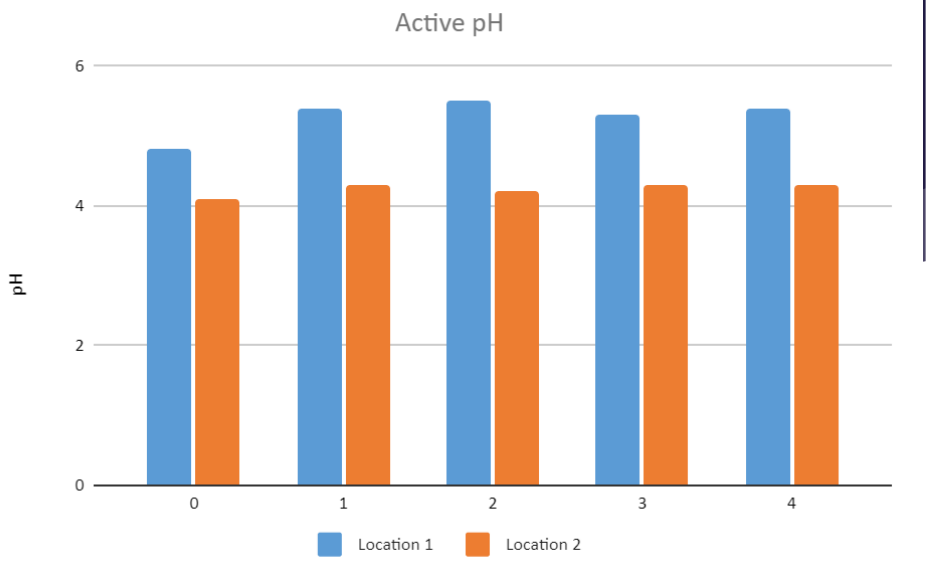
Location 1			Location 2		
Depth	**Ash content**	**Moisture content**	**Depth**	**Ash content**	**Moisture content**
0	14,6	72,84	0	12,4	77,83
1	10,6	75,11	1	10,4	86,84
2	13	75,4	2	8,8	84
3	9,9	78,18	3	67	84,12
4	12,6	77	4	80	65,9

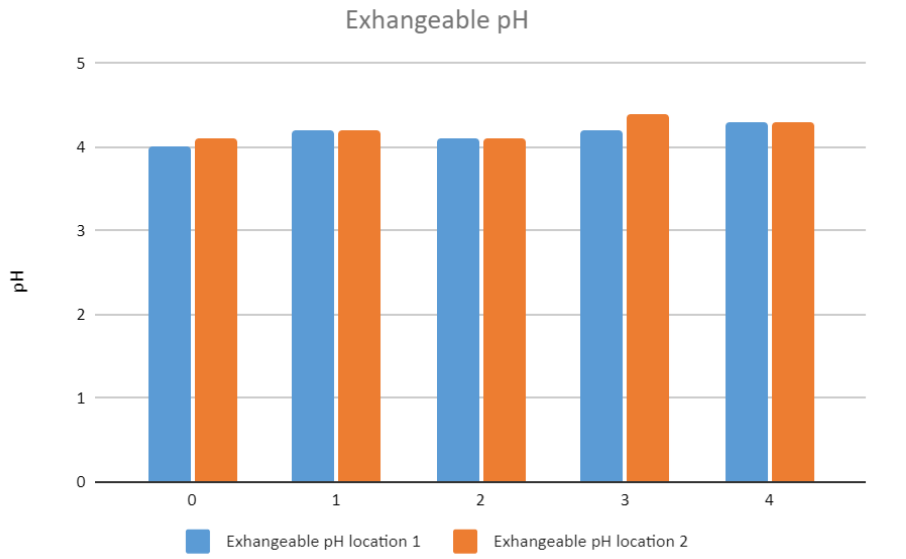




pH of peat

Location 1			Location 2		
Depth	**Active pH**	**Exhangeable pH**	**Depth**	**Active pH**	**Exhangeable pH**
0	4,1	4	0	4,8	4,1
1	4,3	4,2	1	5,4	4,2
2	4,2	4,1	2	5,5	4,1
3	4,3	4,2	3	5,3	4,4
4	4,3	4,3	4	5,4	4,3





The conclusion

1. **We managed to take out all samples**
2. **In the location with manual extraction of peat, we did not find any differences with moisture. But in location 2 we found sand and soil in the depth of 4m, that explains why moisture was lower**
3. **This also proved with contents of ash where we found contents of soil in the depth of 3m**
4. **Results of active and changeable pH were predictable.**
5. **Out of these results, we can clearly see that even after years, difference between manual and machine extraction of peat is quite big.**

THANK YOU FOR YOUR ATTENTION

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