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Review - Short communication

Peat Lands – Between Exploitation and Conservation of Biodiversity

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Abstract

Peat lands are important natural ecosystems with high value for biodiversity conservation, climate regulation and human welfare. Inappropriate management is leading to large-scale degradation of peat lands with major environmental and social impacts.

Rehabilitation and integrated management of peat lands can generate multiple benefits including decreasing poverty, combating land-degradation, maintaining biodiversity, and mitigating climate change.

Keywords: peat, biodiversity, climate change

1. Introduction

Peatlands are those wetland ecosystems characterized by the accumulation of organic matter named “peat” derived from dead and decaying plant material under conditions of permanent water saturation [8]. Peat is an accumulation of plants (biomass) formed in the peatlands where the decomposing bodies’ activity is subject to the presence of water [10]. Peat accumulation rate depends on several factors such as water, temperature, and falls in 20 - 60 cm/1000 years [15].

Joosten & Clarke [8] define peat as "accumulated sedimentary material consisting of at least 30% dry weight of organic plant”, being included in the classification system as *peat*, *peat soil*, *bog*, and *organic soils*. At national level it used the term *histosol* [16] derivated from the Greek word *histos* which is translated tissue.

In The Romanian System of Soil Classification [17] was called *peat soil* and Munteanu I. and Florea N. [4], call them histosol and places them within Histosoluri class. Chemical composition and vegetation structure are factors which influences the peat production [9], the main reason of its accumulation being slow decomposition in abundant moisture conditions [2].

2. Peat classification

After formation places know the three types of peatlands:

- eutrofe or low-peat bogs, because its color, the peat is also called black peat.
- oligotrofe or high-peat bogs, peat is also called red, blonde, acid or fibrous peat.
- mezotrofe or intermediary bogs, which have intermediary characteristics.

3. Distribution of peatlands

Peat lands cover approximately 4 million km^2 [8, 10] (figure 1) and are largely situated in the

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permafrost regions [14]. Countries with the most extensive peat land area include Russia, Canada, the USA and Indonesia. Together, these countries hold over 60 % of the global peat land area [8].

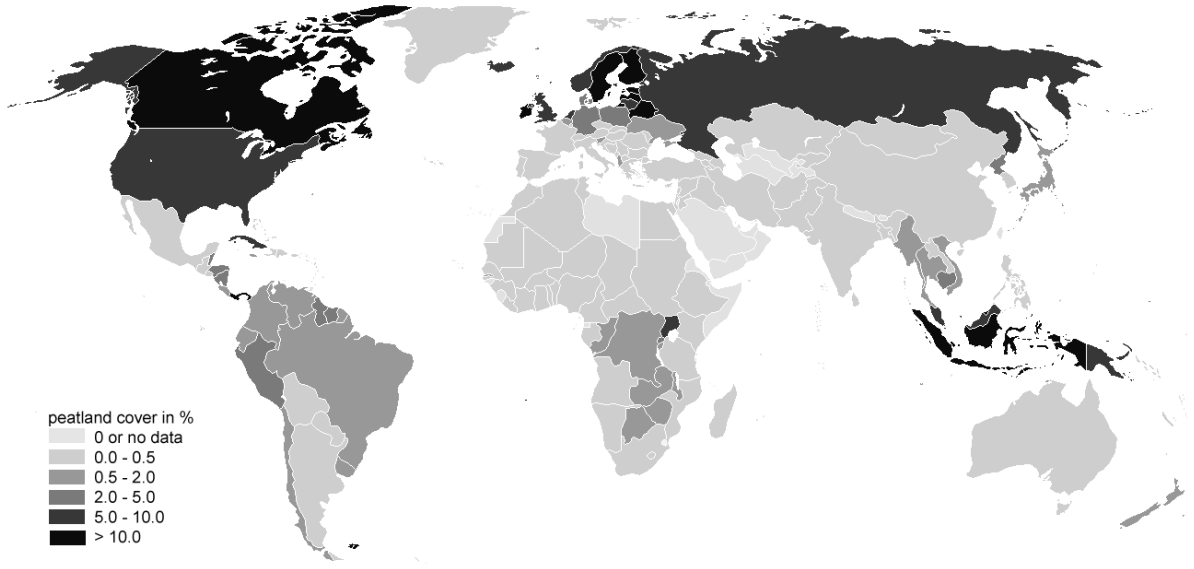

Figure 1. Peatland distribution (IMCG Global Peat land Database:www.imcg.net/gpd/gpd.htm)

4. Peat land importance

Peat is important to people because of their role in regulating the environment, and their aesthetic and commercial value [11]. In many parts peat lands constitute landscapes of extraordinary beauty and unique biodiversity.

Peat lands are habitats for unique flora and fauna which contribute significantly to maintaining global genetic structure [1]. They contain many specialized organisms that are adapted to special conditions that they find here.

Peat lands contain about 90% water and behave as a massive reservoir of water – contributing to the environment protection of human populations and to ecosystems from downstream river courses [7].

They play an important role in drinking water supplies both in areas where peat lands charge increased surface and in dry regions where peat lands are a limited but constant water tank.

Covering almost 3% from global area, peatlands store 550 Gt of carbon, twice more than the entire forest biomass of the world [12]. Peatland ecosystems are the richest terrestrial carbon throughout the whole biosphere [13].

Peatland and wetlands play an important role in regulating atmospheric CO2 [18], natural peatlands having climate cooling effect [5].

With the involvement of these ecosystems in the socio-economic process have arisen conflicts and contradictions regarding their exploitation. People have used peat directly over the millennia with a variable impact on them.

Globally, natural peatlands are destroyed at a rate of 4,000 km^2 per year; the global peat volume decreases by 20 km^3 per year.

These losses [6, 8] largely occurred (and occur) in the temperate and tropical zones. Fifty per cent of natural peatland loss has been attributable to agriculture, 30% to forestry and 10% to peat extraction [8].

Draining of peatlands has resulted in global emissions of 2-3 Gt CO_2 per year [12], a figure that could be avoid through the revitalization and restoration of peatlands [12].

A bog drained in the temperate zone lose about 25 tons CO_2/ha/year through peat oxidation, even in the absence of fire [3] and in the tropics area 2 - 3 times more [12].

5. Conclusions

Globally, peat lands are attracting increasingly more attention of specialists in environmental issues, becoming a topic discussed at international conventions, about emissions of carbon dioxide released from peat bogs, their importance in biodiversity protection and biological resources preservering, sustainable use and conservation of water resources.

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