



7º Congresso Florestal Nacional

Sociedade Portuguesa de Ciências Florestais

Conhecimento e Inovação

Resumos

Vila Real / Bragança

5 - 8 Junho 2013

Ficha técnica

7 Congresso Florestal Nacional – Resumos

Editores: João Bento, José Lousada, Amílcar Teixeira

Sociedade Portuguesa de Ciências Florestais

Vila Real e Bragança, Portugal.

Junho 2013

Tiragem

300 exemplares

ISBN: 978-972-99656-3-0

Dep. Leg. 359255/13

Impressão

Minerva Transmontana, Tipografia, Lda.

Esta publicação foi patrocinada pelo

Programa – Fundo de Apoio à Comunidade Científica/FCT

FCT

Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

Large spill of mining wastes in Portelo stream: Impacts on ecosystem integrity and on angling potential

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Abstract. Streams located at Montesinho Natural Park (NE Portugal) have high potential for brown trout (*Salmo trutta*) angling. However, in this territory there are several abandoned mine sites. Therefore, the continuous drainage of fine grained tailings can be particularly problematic due to arsenic, copper, aluminium and zinc. However, until now no significant disturbance was detected in water quality and in biota. Nevertheless, there has never been such a large spill of mining wastes as that occurred in January 2010. As a consequence of intense precipitation, several millions of cubic meters of wastes were spilled into Portelo stream. The large amount of wastes covered the riverbed with a layer of mud reaching more than half a meter in areas close to the mine. Both riparian and

agricultural areas were also affected by the sediments from mine. Wastes were spilled downstream by several strong rain events. Thus, the objective of the present research was to evaluate the impact of this event on ecosystem integrity and ultimately on angling potential. To achieve the proposed objective the water from four sampling points along the affected stream was sampled for the following metals - Al, Mn, Co, Cu, Ni, Cd and As. Concomitantly, macroinvertebrate and fish assemblages were also assessed. Temporal differences between stations were not detected. On contrary spatial differences were found. As expected, the stations located near the mine showed the highest levels of contamination and disturbance. Consequently, in these stations no macroinvertebrates and fish were found during the period of study.