

First assessment of Eurasian beaver distribution in Central Apennines through traditional sampling and environmental DNA

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The Eurasian beaver (*Castor fiber*) has been recorded in the Central Apennines following unauthorized reintroductions. Since its first observation between 2021 and 2023, information on its conservation status in the Abruzzi region has remained limited, and no additional records have been reported. We present here the findings of 1) a systematic survey carried out across a large portion of the upper Pescara River basin, aimed at verifying species' presence survival and possibly define its distribution in this river, 2) a camera trapping session to estimate a minimum number of individuals, 3) the proposal of a large scale environmental DNA survey to assess beaver presence and distribution across three different river catchments in Central Apennines (i.e. Pescara, Sangro, Liri). A total of 67 transects were walked along Pescara riverbanks in search of both fresh and old signs of beaver activity. Monitoring was complemented with canoe surveys to cover highly suitable river stretches more effectively. Additionally, ten camera traps were strategically placed throughout the river network and later moved closer to recent signs to help estimate the minimum number of individuals present. The spatial distribution of fresh signs and camera-trapping events indicate a small population distributed in two areas of main activity along Aterno river and in the Peligna Plain with at least four individuals. We also collected 3 litres of water from 19 different sites located along Pescara, Sangro and Liri rivers. Environmental DNA was correctly extracted and will be amplified in the next future to better depict the distribution of this semiaquatic mammal across the Central Apennines through quantitative PCR.