

## EXECUTIVE SUMMARY

The areas that will be subject to the natural recharge interventions by means of River Restoration techniques (Action B5) and to artificial recharge interventions (Action B4) have been ecologically monitored with application of methods CARAVAGGIO (Core Assessment of River hAbitatVAlue and hydromorpholoGICALcOndition – CNR-IRSA 2015) and IFF (Indice di Funzionalità Fluviale– Siligardi et al., 2007). CARAVAGGIO provides the assessment of indices on presence of artificial structures (HMS), diversification of habitats (HQA), Lentic lotic character of the rivers (LRD) and on the use of the surrounding land (LUIcara) while IFF allows calculation of the sub-indices of vegetation, morphological and suitability for fish. Both methods also provide for the possibility of Habitat Quality Index assessment, according to the Italian Ministerial Decree 260/2010. The CARAVAGGIO method, which foresees the application for river stretch of 500 m, was applied on three areas, which have been identified based on the results of the Action A3 of hydromorphological monitoring of the full stretch: “Campo alla Gera” area, Forni ford upstream area and the confluence with Torrente Milia close to the splintered weir. The IFF method, which foresees a continuous application through the full length of the stretch, was applied within 10 km comprised between the SP21 and SS398.

The application of the two methods revealed a system suffering for water resource problems (e.g. most of the stretch is dry during summer period), characterized by a strong presence of invasive alien species (such as *Arundo donax*), inserted in a distinctly agricultural land use anthropogenic environment, with almost continuous presence of river embankments, even if far from the active riverbed. However, the Cornia River still expresses its natural potential in areas with low morphological and human pressure. Important habitats have been observed both for fish, apparently in good condition and represented by different ages despite (data confirmed by the Carta Ittica della Provincia di Livorno, 2009), for herpetofauna (amphibians and reptiles) and for odonatofauna, which appears particularly rich and varied. Interesting environments have also been detected in perfluvial areas and surroundings such as wooded floodplain and dry to semi-dry grassland in presence of orchid flora.

Detailed data sheets of each stretch and method are presented on the relative Annex.

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