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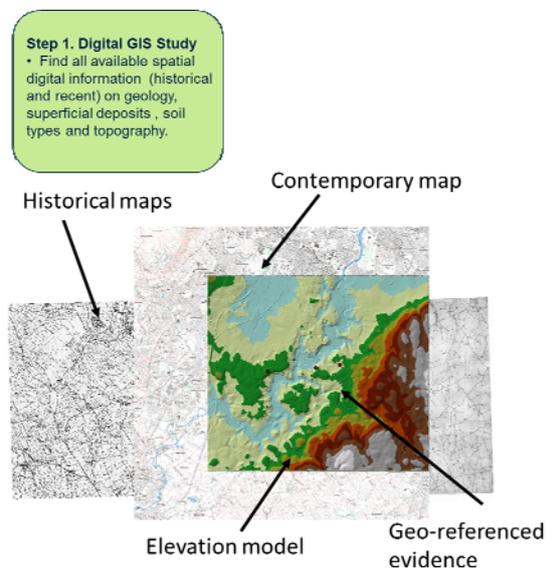
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A GIS-based landscape approach to Forensic Search Strategies and RAG mapping

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Geographical Information Science (GIS) has the potential to be used effectively in managing and recording search strategies for missing persons, homicide graves or other objects buried in the ground. This paper outlines a GIS-based landscape approach to collecting, integrating and analysing different types of georeferenced data useful to forensic investigations. The impact is to inform and focus the time spent in the field on a search, reduce redundancy in effort and increase the potential for a higher degree of quality assurance and success in search operations. The aim of the paper is to demonstrate the integration of information as geo-referenced spatial layers and to illustrate the potential to query and extract information to inform police, search and forensic investigators at different stages in a search operation (Figure 1).



A staged GIS-based landscape approach is presented starting with a digital desk-based study integrating information from traditional reconnaissance walk-over surveys and leading to the creation of the GIS-based digital RAG maps to prioritise potential search areas [1]. A number of case studies are used to example the approach. A case study is described involving a missing person in an open rural environment in the West of Ireland [2]. GIS is used to integrate historical and contemporary aerial imagery with geological and soil information.

Figure 1: A GIS digital desk-based study © Crown copyright and database rights MOU203

A GIS-based approach is used to initially define domains of interest based on reconnaissance walk-over surveys and a hydrological study. GIS is then employed for digital RAG mapping. The second example integrates information from an ongoing missing person investigation on a lowland, lagoonal environment. This study investigates the case where other behavioural factors outweigh traditional search strategies. A GIS-based approach is demonstrated to incorporate these complexities for forensic search strategies.

References:

- [1] Donnelly LJ and Harrison M (2013) In: *Environmental and Criminal Geoforensics*: Geological Society London, Special Publications 384: 173-194
- [2] McKinley et al. (2009) In: *Criminal and Environmental Soil Forensics*: Springer: 285-302.