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THE APPLICATION OF LOW-ALTITUDE NEAR-INFRARED AERIAL PHOTOGRAPHY FOR DETECTING CLANDESTINE BURIALS USING A UAV AND LOW-COST UNMODIFIED DIGITAL CAMERA

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Highlights

- Low-cost UAVs establish new concept for clandestine burial identification.
- NIR photos display better contrast between disturbed and non-disturbed soil.
- Non-intrusive techniques for clandestine burial identification.
- Limitations with low-cost cameras in image acquisition.
- Camera quality and modification produce better results.

Abstract: Aerial photography and remote sensing has been carried out in the past by numerous different platforms, utilizing imaging from across the electromagnetic (EM) spectrum to gain information about the earth. These techniques have additionally been found effective when locating mass graves and single clandestine graves created by perpetrators when concealing homicide victims. Applications for performing aerial photography and remote sensing are costly and therefore usually overlooked by police investigators, resulting in employing more contemporary geophysical methods for locating burials. Recent advances in technology however have seen the development of small Unmanned Aerial Vehicles (UAVs) for aerial photography which can be executed at lowaltitude and controlled remotely from the surface. This development has introduced low-cost approaches in detecting surface features, commonly utilised in the archaeological field for its accuracy in detecting anomalies, particularly when using near-infrared (NIR) photography. NIR aerial images have been shown to expose cropmarks of historical value which are unnoticeable in conventional colour photography, deriving from the visual area of the EM spectrum. However, little attempt has been made to investigate the practice of

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