Factors influencing land use land cover changes in Gouraya National Park, Algeria
(アルジェリアのグラヤ国立公園における土地利用土地被覆の変化に影響を与える要因)

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Changes in vegetation and land cover in Gouraya National Park (Algeria) between 1986 and 2020 were investigated to understand factors influencing those changes. The main approaches taken in this study were remote sensing, GIS and social survey. Methods of identification of changes were classification and online questionnaire. A complete matrix of the change data was created in the classification by overlaying 5 single-date classification maps (1986, 1995, 2003, 2012, and 2020). The accuracy of the classification for 1986, 1995, 2003, 2012 and 2020 was 74.44%, 80.00%, 78.89%, 75.56% and 76.67%, respectively. The change/no-change map was created by subtracting the 1986 classification map from the 2020 one, and the resulted map has an accuracy of 77.00%. The remote sensing result shows that the mining (quarrying) area increased by 29% in total from 1986 to 2020. In another word, the mining area increased from 158.94 ha to 204.57 ha, which represents 10% of Gouraya National Park area. A social survey was conducted in the area to assess more information about the park management, aggregates quarries existence and factors threatening biodiversity in the park. The social survey suggested that the first danger for the park is forest fire, followed by urbanization as the second and quarrying as the third main threatening factor. The change/no-change map shows that areas affected by vegetation loss are mainly found around the aggregates quarries in the center of the park, in the west of the park, where landslides have happened because of the geology and earthquakes. The map also shows that vegetation loss occurred in other areas with the dense forest due to forest fires. Therefore, the main causes of GNP changes are: (1) expansion of urbanization, and (2) decrease of dense forests due mainly to human pressure, quarrying activity, and forest fires in summers which are reported as the largest threat due to long periods of droughts by previous studies (Megdouda et al., 2017).