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Title: Remote Sensing Analysis Of Selected Wetlands In Dasht-E-Nawar Basin, Ghazni Province, Afghanistan

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ABSTRACT

Large wetlands are rare in Afghanistan. Afghanistan's few large wetlands are imperative for the sustainability of the local human and wildlife populations, and globally renowned for being indispensable staging and breeding areas for migratory waterfowl, waders and flamingos. A series of armed conflict since 1979 has impeded extensive study and management of these essential wetlands. There is an urgent need to implement a wetland management program before these wetlands are lost. A rapid status assessment is necessary to enable updated and robust wetland stewardship programs. Landsat imagery since 1972 allows for the investigation of historic changes, as well as the present condition of Afghanistan's vital wetlands.

Using remote sensing data and processing techniques, this dissertation delineates and temporally analyzes the areal dynamics of the vegetation of the largest perennial wetland, Nawar Wetland, in Ghazni Province. Because there is little known about wetlands in Afghanistan, wetland delineation and temporal analysis using remote sensing is discussed as a feasible solution to the assessment of inaccessible wetlands and ultimately furthering the protection of wetlands in the country and possibly elsewhere. In the process of researching and writing this dissertation, a literature review was conducted on the natural science topics of

the area studied and on the analytical techniques used to delineate and analyze temporal trends in the area.

This research is the most extensive study of the Nawar Wetland and illuminates and explains the spatial and temporal trends of the wetland vegetation. This study discovers the Nawar Wetland vegetation green period; proves the persistence of the wetland since 1972; and reveals and thoroughly maps the wetland spatio-temporal dynamics. This manuscript can serve as a guide and resource for *ex situ* wetland delineation, wetland temporal analysis studies and wetland sustainability initiatives.