

Aerial Photography and the Southern Ghors (al-Aghwār) and Northeast 'Arabah Archaeological Survey

Introduction

The Southern Ghors (al-Aghwār) and Northeast 'Arabah Archaeological Survey (SGNAS) was in the field in 1985 (MacDonald and Koucky 1986; Koucky and MacDonald 1985) and 1986 (MacDonald, *et al.* 1992; 1987; MacDonald, Clark and Neeley 1988; MacDonald 1986) (FIG. 1). It used the Hunting Aerosurveys Limited 1977 aerial photographs, at a scale of 1:25,000, during the 1986 season. These photographs were obtained from the Royal Jordanian Geographical Society through the assistance of the Department of Antiquities.

The SGNAS team members had no special training relative to the use of these photographs. Their usage, on the part of the SGNAS, may, thus, be described as low-tech.

The SGNAS used the aerial photographs in stereoscopic pairs for four purposes: 1) to locate obtrusive sites, especially at the end of the season, in areas which had not been previously visited, due to lack of time; 2) to fill in gaps, left in part due to the nature of pedestrian transects; 3) to draw several sites, for publication purposes; and 4) to assess conditions of a site and/or area prior to modern development. In the process of carrying out these objectives, the SGNAS located additional sites. The present paper will expand on each of these purposes and indicate pertinent sites.

1) To Locate Sites

There was insufficient time to visit all the area which the survey wished to cover. Moreover, heavy rains in late November-early December 1986 washed out the routes which the SGNAS had previously taken from Qaṣr aṭ-Ṭilāḥ to Wādī Faydān. The survey team, therefore, turned to aerial photographs in search of sites in the unvisited and hard-to-get-to areas.

As a result of this examination, the SGNAS located nine sites. Two of these sites, namely Sites 239 and 240, are located in the northern segment of the survey territory, that is, north of the major east-west escarpment (FIG. 1). The remaining seven, namely Sites 232 228,

233, 236, 217, 216, and 215, are in the southern segment (or the area from the escarpment south to Wādī Faydān), especially along the Old Road between Wādī aṭ-Ṭilāḥ and Wādī al-Ghuweib (FIG. 1). SGNAS visited the sites in question, sherded and described them in the same manner as was done for the other sites of the survey.¹

Only obtrusive sites could be detected from the examination of the aerial photographs available to SGNAS. Unobtrusive sites, for example, sherd scatters, cannot be detected using a low-tech methodology on 1:25,000 scale, aerial photographs. However, this latter type of site will be found frequently in the walk to and from an obtrusive site. Specifically, SGNAS discovered Site 226, a cemetery, in the walk to Site 228, and Site 235, a light sherd scatter, in the walk to Site 236. This brings the total number of sites discovered, either directly or indirectly as a result of the use of aerial photographs, to eleven.

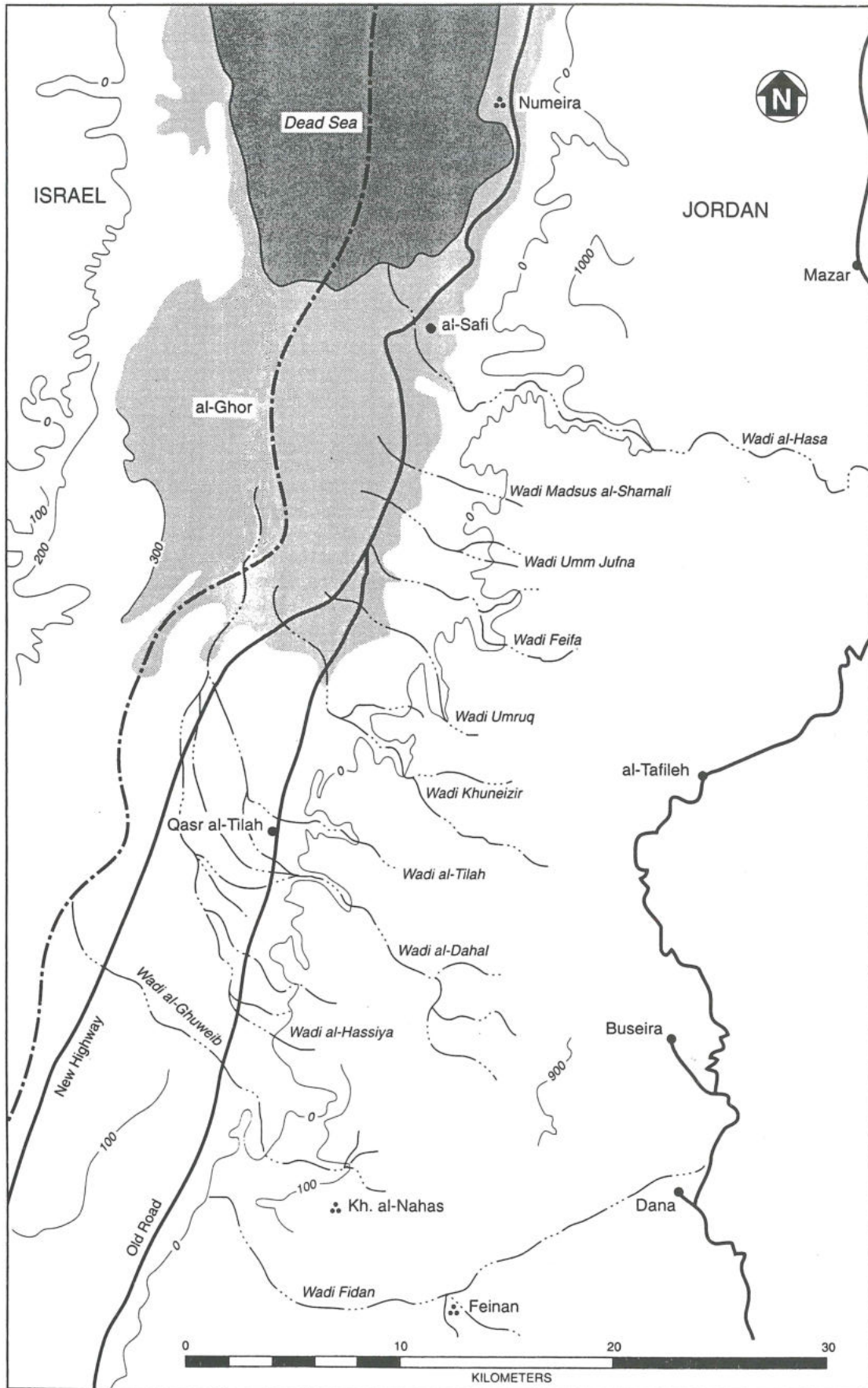
2) To fill in gaps

SGNAS employed pedestrian transects to a large extent in its survey of the territory between Wādī al-Ḥasa in the north and Wādī Faydān in the south (MacDonald, *et al.* 1992: 9-13) (FIG. 1). These pedestrian transects resulted in the lack of coverage of certain segments of the survey territory. SGNAS employed aerial photographs to fill in these gaps.

3) To Draw Sites for Publication

At the publication stage of the project, SGNAS blew up a number of aerial photographs 10 times to a scale of around 1:2,500. SGNAS' draughtsperson subsequently used these photos to draw 11 major architectural sites: Site 1 (Ṭawāḥin as-Sukkar), Site 6 (Umm aṭ-Ṭawābin), Site 75 (Ancient Feifa), Site 141 (Ab7 Irshareibeh/Khirbat al-Khunayzīr), Site 211 (Khirbat ad-Dahal), Site 155 (Qaṣr aṭ-Ṭilāḥ and adjoining fields), Site 229 (Khirbat al-Hassiya North), Site 232, Site 228, Site 216, and Site 159 (Khirbat an-Nuḥās). These sites appear as Figures 30, 17, 12, 13, 25, 19 and 20, 18, 26, 27, and 15 respectively in the final SGNAS report (MacDonald, *et al.* 1992).²

¹ It is unnecessary to describe these sites here. Their description can be found in MacDonald, *et al.* 1992, Appendix 1, "Description of SGNAS Site 1-240," pp. 249-274.



1. Southern Ghors (al-Aghwār) and Northeast 'Arabah Archaeological Survey territory.

The team of SGNAS wished to use aerial photographs to draw Site 46, Dayr 'Ayn 'Abāṭa, a monastery/church complex, located to the north west of aṣ-Ṣāfi (Politis 1993; MacDonald and Politis 1988). However, it was unable to locate convincingly the site on the available aerial photographs.

4) To Assess Conditions of a Site and/or Area Prior to Recent Development

The government of Jordan made a decision in 1977 to develop the southern half of the Jordan Rift Valley from the Dead Sea to 'Aqaba (Khouri 1981: 216). This decision resulted in the building of a new, two-lane, highway, the construction of the Arab Potash Company plant along the southeastern shore of the Dead Sea, and a drip irrigation system, especially in the Southern Ghors (al-Aghwār) for agricultural purposes. This development also includes quarries, dams, secondary roads, flood diversion devices, clearing land for agricultural purposes, and the building of houses for the increasing population. All this has resulted in the destruction of archaeological sites in the Southern Ghors (al-Aghwār) and Northeast 'Arabah. Because of this situation, aerial photographs can be helpful in assessing the condition of a site and/or an area prior to recent development. For example, aerial photographs show the condition of the mound at aṣ-Ṣāfi, SGNAS Site 2 (MacDonald, *et al.* 1992: 249), as it was before the building of the Jordan Valley Authority townsite at one of its highest points and the condition of Khirbat ash-Shaykh 'Isa, SGNAS Site 4 (MacDonald, *et al.* 1992: 249), before it was bulldozed for agricultural purposes. Such information is especially important when checking the reports of early visitors and/or explorers to the site and/or area in question.

Conclusion

The use of aerial photographs, even at a low-tech level, made the SGNAS a much more complete project. This is true relative to the coverage of the survey territory and the publication of the final report. These photographs could possibly have provided the SGNAS team, with further training and the employment of a more sophisticated technology, more information about the archaeological riches of the Southern Ghors (al-Aghwār) and Northeast 'Arabah of Jordan.

Peterman has subsequently used these same aerial photographs for his geographic information systems' work in southern Jordan (1992a and b). Moreover, Adams has employed them in his Wādi Faydān explorations (1991; Adams and Genz 1995). They are stored at the American Center of Oriental Research in 'Ammān.

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² It is not necessary to describe these sites in this publication. See the previous note as to where their description may be found.