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The State Of Deterioration Of The Lands Dropper Of The Imam Ali Peace Be Upon Him Using Geospatial Tools.

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ABSTRACT

Selected Imam dropper 1987-square old Hactar located in the Western desert of Iraq, about 80 km from the city of Karbala towards the road to oasis of Ein-UL-Tamr, 15 km south of Karbala, and fall between longitude 387295,3602900 North and towards Lake razzaza and latitudes 383010,3598365 westward and toward the White Canyon using alien picture from the satellite scanned Landsat8 date of 2017-4-7 and eleven spectral space image is rated packages first non-classification methodERDAS IMAGINE programme use wave 2014 where you get 10 varieties,And then the classification is made after wave field visits with reality where merged 9 varieties of similar soil units in the study area.The measured results showed clear evidence of heterogeneous alghadari cover in the study area noting range SAVI manuals items values and MSAVI that medium and moderate vegetation soil degradation and beat on Evidence of NDVI and area of vegetation and found this evidence results in both tracks to bidonat study within a few item vegetation and severe deterioration of the lack of sufficient water for plant germination From water scarcity leading to deterioration and shallower area .

Keywords: detoriation, land dropper, Imam Ali Pease, geospatial tools.

Corresponding author and Search is derived from the second researcher's letter

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INTRODUCTION

Classified soil units to Iraqi alluvial by Buringh (1960) and using old American classification and diagnosed as unsophisticated and Azonal soils of the great Alluvial soil aggregates.

Some units are classified as rivers cutoff soils within the great group other unit Torrifluvents River basin it lies under underTorrert level when there are cracks in them by Al-Rawi et al (1968)Through its reliance on modern American classification

Janabi said,1987 the soils vary Iraq places including soils of Karbala, and that because of this world is a result of the nature of the factors affecting soil composition and properties of rock and water and natural plant resources available andThese are all represented in the land classification maps form input is necessary for the purpose of evaluating the walrzraih desert land in order to determine the use of each type of ground.

The primary purpose of SAVI guide is to see overlap and to minimize the impact of soil reflectivity on vegetation to identify different varieties of terrestrial soil paintings lids as this guide uses the degree of his boss for separating and identifying Plant covers from other types of floor coverings for the purpose of minimizing the impact of case overlap it back reload (Huete, A. R. 1988).

Remote sensor technology used in mapping land cover classification by Williams, 1992 using spectral data from satellite imagery (TM landsat-5).And added all of 2002), (Stadalninkaite&Ruzgiene that these maps can be updated if the get recent data.As I use both (2003, (Nagamani&Ramachandran this technique to study the nature of land cover changes for different soil units and land use (years (1998, 1990,2002 showed them that Sening technique reveal results with a high degree of accuracy and speed in this area.

Signalled (2004), Hill, land degradation and soil properties, vegetation indicators can be detected through the use of geospatial technologies and then can be observed and followed by using remote sensing technologies .

NDVI Differences guide uses natural green in case of deterioration of the vegetation of different soil units which is indicating to find relationships between packages that if its clear waterfall et al, 2007.

2009 concluded,Al-Quraishi Geo-Information geospatial technologies can be used to detect and identify and quantify land degradation, some high seas areas outdoor Mesopotamia adoption guides related to land degradation for the period from 1990 to 2000, includingManual (NDVI) and having low moisture content of the soil and vegetation areas and increasing the dunes where sand pool space.

He found mhaimd et al, 2010 MSAVI standard ineffectiveness of some soils North of Kut in Central alluvial lack the presence of vegetation in their study of spectral reflectance of these units primers.

MATERIALS AND METHODS

Selected Imam dropper (p) of a 1987 HA and fall between longitude 387295, 3602900 North towards Lake razzaza and latitudes 383010,3598365 westward and toward the White Canyon in the Western desert of Iraq at Karbala Governorate to execute this study as in figure (1) action steps were as follows:-

First Office work:-

1. this work getting data space bedroom study area belonging to the Groper(OLI)Captured by the satellite land sat-8 and scanned the history of 2017-4-7, obtained from the official website of the USGS Global Visualization and eleven spectral package which includes spectral 11, 10, 9, 8, 7, 6, 5, 4, 3,2, 1 with discriminatory capacity (30.0 × 30.0) and package 11, 10 thermal discriminatory power spectral (30.0 x 30.0) , which covers the area of study then digital processors for space images using ERDAS IMAGINE 2014Then make an Unsupervised wave Classification Classification according to (Prophet-et, (1992 followed by supervised Classification wave classification procedure .

2.The study area was deducted from the study of space visible.

3. the classification was made for space visible for the purpose of determining geomorphologic units in the study area.

4. Select the school tracks representing state variation in situ and factors of geomorphological units, for the purpose of positioning the actress lbidonat study.

5. Calculation of indicator values and evidence used in determining the green status of land degradation study area

1. manual variations of natural green rate (NDVI) Normalized Difference Vegetation (Index) .

To guide natural vegetative difference represents the difference between the IR wavelength (NIR) and red rays (Red) The total and used this guide in tmeishalh deterioration of the vegetation which is lumpini to find relationships between packages, can be calculated according to regard him (1973, Rouse) with the following equation:

$$\text{NDVI} = \frac{\mathbf{NIR-Red}}{\mathbf{NIR+Red}}$$

2. evidence of vegetation soil amendment Soil-adjusted Vegetation Index (SAVI)

Use this guide to see overlap and to minimize the impact of soil reflectivity of vegetation to determine ground covers varieties depending on presenting her findings (Huete, A. R.1988) can be calculated According to a sophisticated equation assuming that L: Huete factor and its value is 0.5.

$$\mathbf{SAVI} = (\mathbf{NIR} - \mathbf{Red} * (\mathbf{1} + \mathbf{L}))/(\mathbf{NIR} + \mathbf{Red} + \boldsymbol{L})$$

3- Modified Soil-adjusted Vegetation Index (MS AVI)

Use this guide to explain how soil effect in reducing the vegetation sensor based on regard him (2009,Leblon) and uses the amended soil vegetation guide MSAVI when some parameters that no evidence of different vegetation distribution explained,Especially when you apply these manuals on soils left and barren and minimal vegetation.This requires some manual corrections of the soil like the brightness factor through ago'aa processes of trial and error based on the amount of vegetation in the study area. I suppose many researchers to correct brightness value is 0.5 is calculated by the following equation:-

$$\frac{\mathbf{NIR-Red}*(\mathbf{1+L})}{\mathbf{NIR+Red}+\boldsymbol{L}}$$ ----------Qi et al . (1994a)

MSAVI=

here L is the coefficient correction factor or surfaces.

II fieldwork:

1- Topographical map used for the study area and obtained from public groundwater alhiaeah Karbala branch to determine the direction of movement in the first and second tracks which previously identified on satellite imageAnd use your GPS to see terrain elevations in the study area and conducted field visits to selected study sites and the most important those seen in its land suffering from water deficit (drought)All year round due to high temperatures, so the moisture system prevalent is dry type Torric (Aridic) ((Soil Survey staff, 1993.

2. soil survey

Specifying two semesters depending on space and image interpretation results topographic maps, so give those tracks all case contrast study area site factors, The study area soils were surveyed using the method of perpendicular bilateral tracks integrated with the free way in scanning (Frank, 2002)Where they were preparing a guide map and survey units through those tracks as separate each checkpoint 1000 meters of soil bidonat were identified as algiomorvih units and distribution dimension and near water dropper in a starting point is dropper distribution was the number of units such as tracks geomorphological heading first path towards Lake razzaza, 4722 kilometer. Km, while the second track heading towards the white Valley along 4025m, How muchDrilling has also been hiring Trypanosoma among pedon to determine accurately survey units and outsourcing space and Visual factors of soil formation to separate and identify soil units and complete mapping of soil units at the level ofChained Turba chains having nine revealed in the study area.

3. open and dissect and describe morphological field albedonat sections in accordance with the instructions contained in the soil survey Handbook for the year 1993 and amendments contained in the structure of the American classification system U S D A, 1996)),Soil samples were taken from every horizon for physical analyses where measured distribution of volumes of minutes according to Richards (1954) bulk density (a Black, 1965)Chemical and electrical llaisalih and degree of soil interaction (Richards, 1954) and described in (USDA Handbook 60, 1954) and the interactive capacity of cation by the way (Savant, 1994)And organic matter contained in (Jackson, 1958) and lime (Richards, 1954) and metal (Folk, 1974) and (Fleet, 1926). And prepared and sent to the lab for the purpose of conducting such analyses.

4. ground water samples have been taken for dropper for each bidonat study area for chemical analyses and to determine the influence of soil quality dropper water and agricultural uses.

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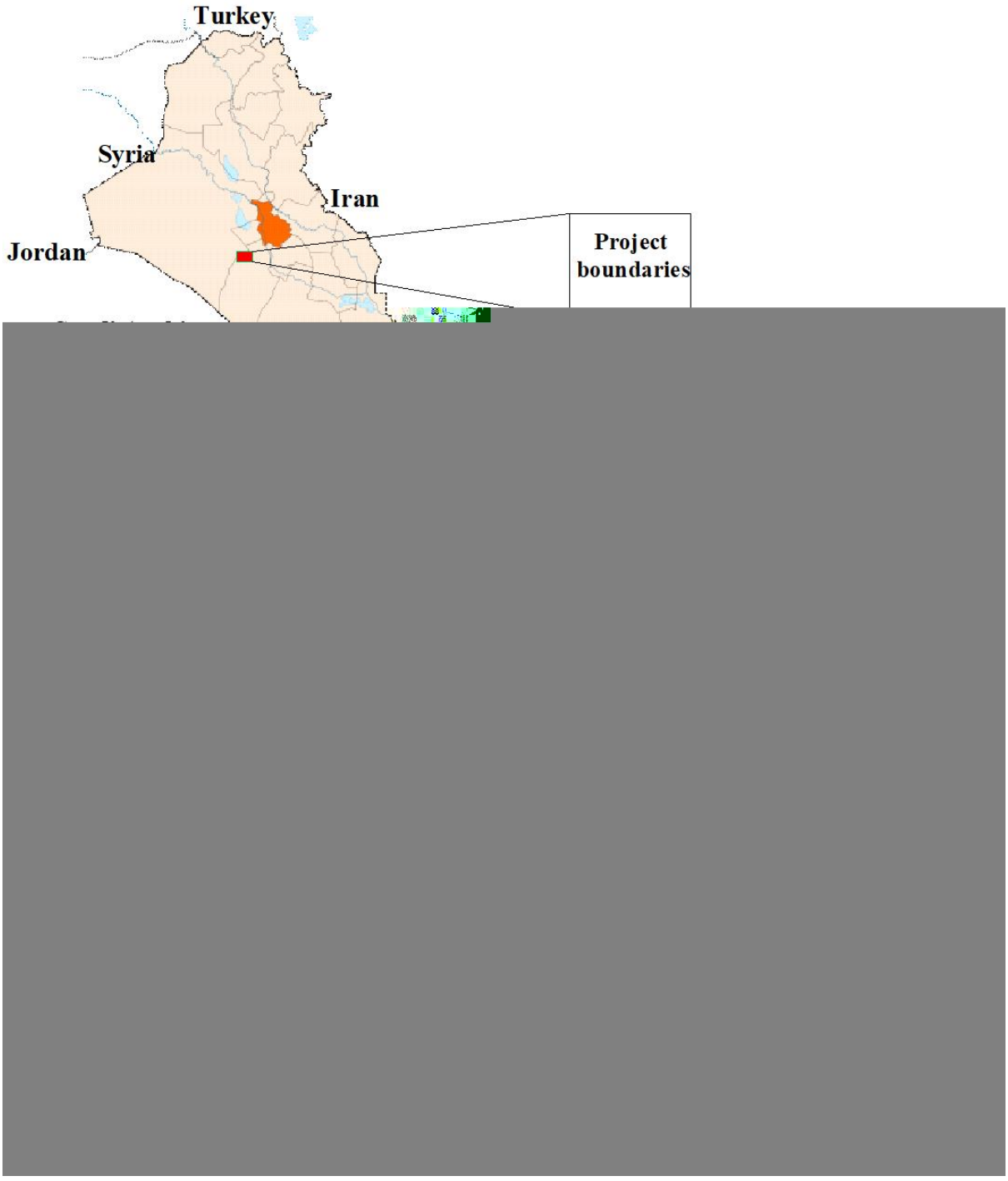

Figure (2) map of Iraq showing her study area

RESULTS AND DISCUSSION

Interpretation and analysis of satellite image

Visual data processing space (spectral)

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Before starting operations of visual interpretation and digital analysis of satellite image covering the study area and TM have been conducting some digital processors and digital classification as follows

1. improve visibility Visual Interpretation of satellite image

Spatial optimization of operation digital picture integration package space image spectral acceleration application and maintain the accuracy of the information and get photo serve Study in terms of the ability to distinguish good for soil types in the picture, and define a clear landmark where the merger of eleven spectral and using ERDAS IMAGINE 2014 Histogram was her job .Eqalizationfor the purpose of visual interpretation of the image and information retrieval and mapping its objectivity as in figure (1).

Use Visual interpretation to identify phenomena and geomorphological surfaces and most complex giomorfologia in the study area and, more complex, Where the study area is characterized by uneven rocky terrain are near the right side of the dropper is heading slightly north into Lake razzaza and to determine later the motion path in the selection of study samples, So select the first path towards Lake razzaza to undergo greater complexity of giomorfologi or giomorvih surfaces as well as for the second track which features frequent floods and streams that run stream Valley West Dropper toward the Valley of the shrubby style white (calculated, 2003) .

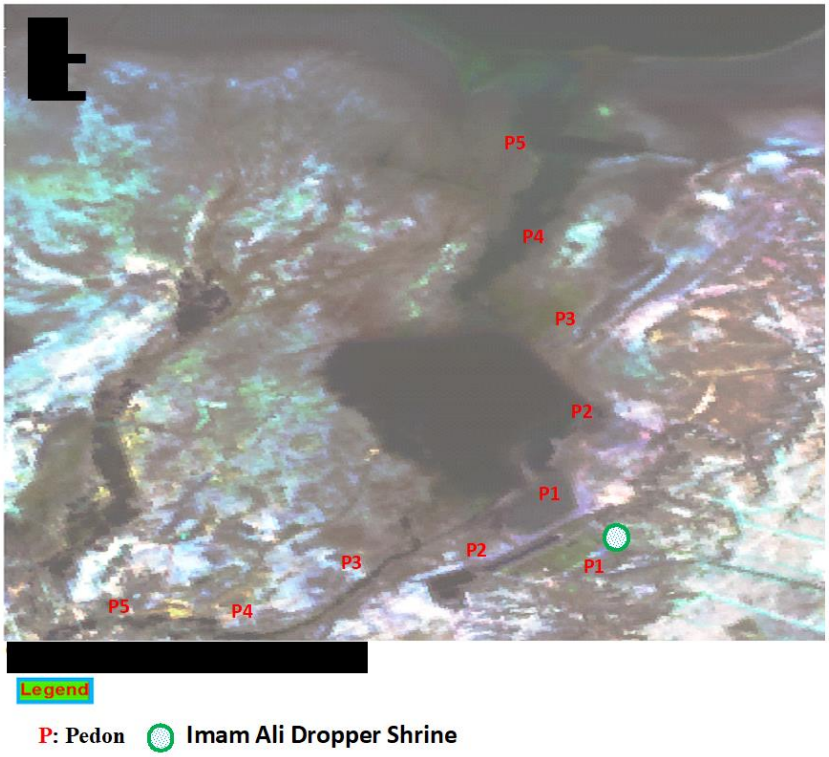

Figure (1) the study area shows 11th spectral Pack webahadi lower

2-2-4 classification of space visible

The primary purpose of the classification of Visual elements is making visualizations (Pixels) All form and automatically collect in groups known as the spectral classes be based on patterns to learn, a distraction from the varieties of floor coverings,Multispectral data are used usually to achieve classification of different types of ground contours means that different types of ground covers landmarks show different combinations of digital

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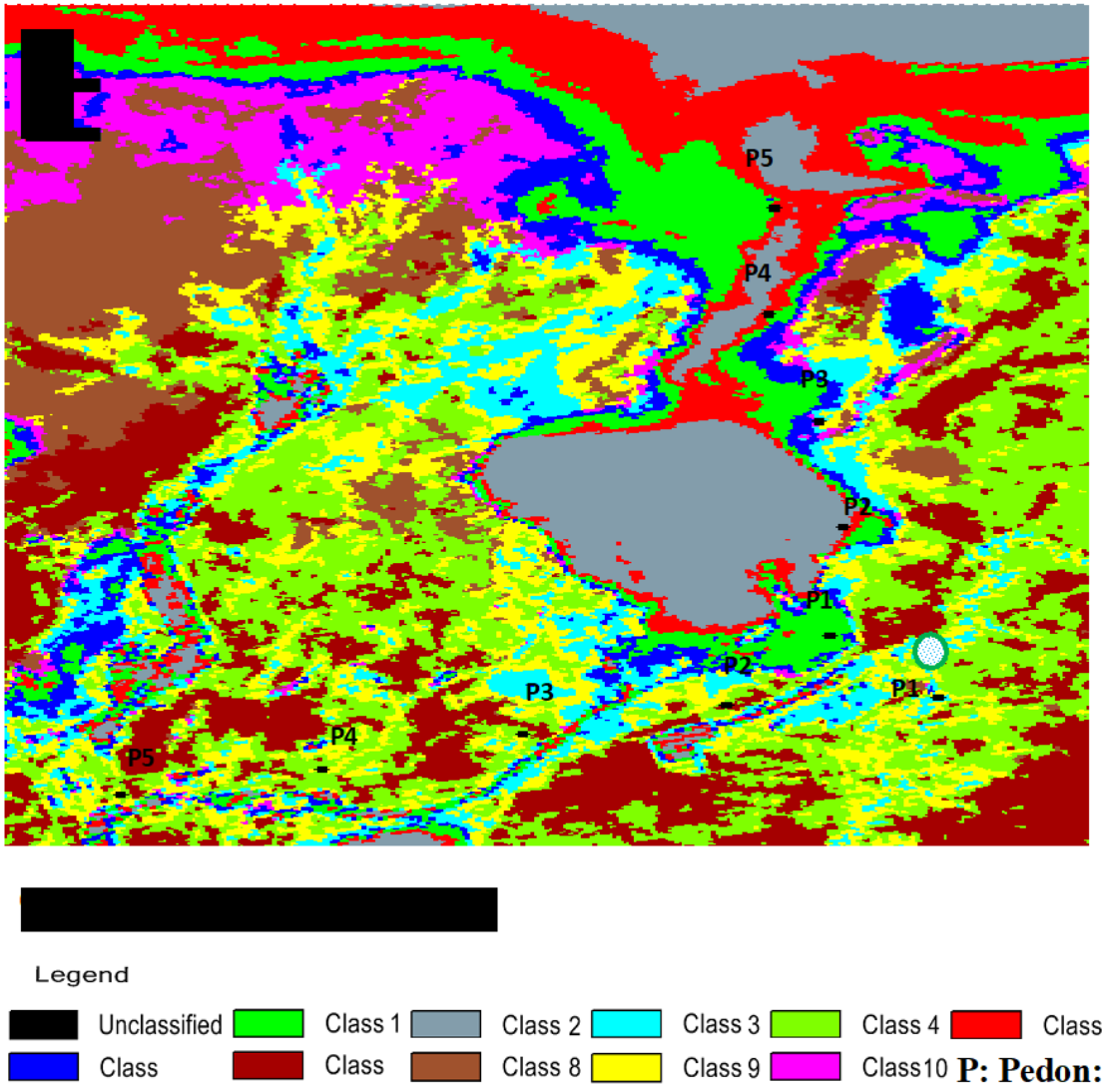
numbers depending on Anakasitha own wasdaritha spectral properties in different spectral channels (daghestani et al, 2004, Mohammed et al, 2009) categorizing digital images the most important step of these processes, A process which you extract the data from the image after you make all the spectral interpretation and improvement processes in the previous steps and classification from prominent material ratios methods for this purpose. Been using digital classification of satellite data in this study the results of the study indicated using digital classification quality and wave the wave and using ERDAS IMAGINE 2014 to get:-

1- **Unsupervised classification**

Satellite image interpretation results showed using classification method is directed there (10) Grading was non-classification results balancing results with wave farm field visits with reality and incorporated similar units, bringing the total of items 9 item when using the classification process orientated as Figure (2)



Imam Ali Dropper Shrine

2- Supervised classification

The classification results referred to there (9) varieties of floor coverings of soil units strings for first path towards Lake razzaza and second track toward white Valley as in figure (3)Below(Lilleasand and Kiffer, 1994).

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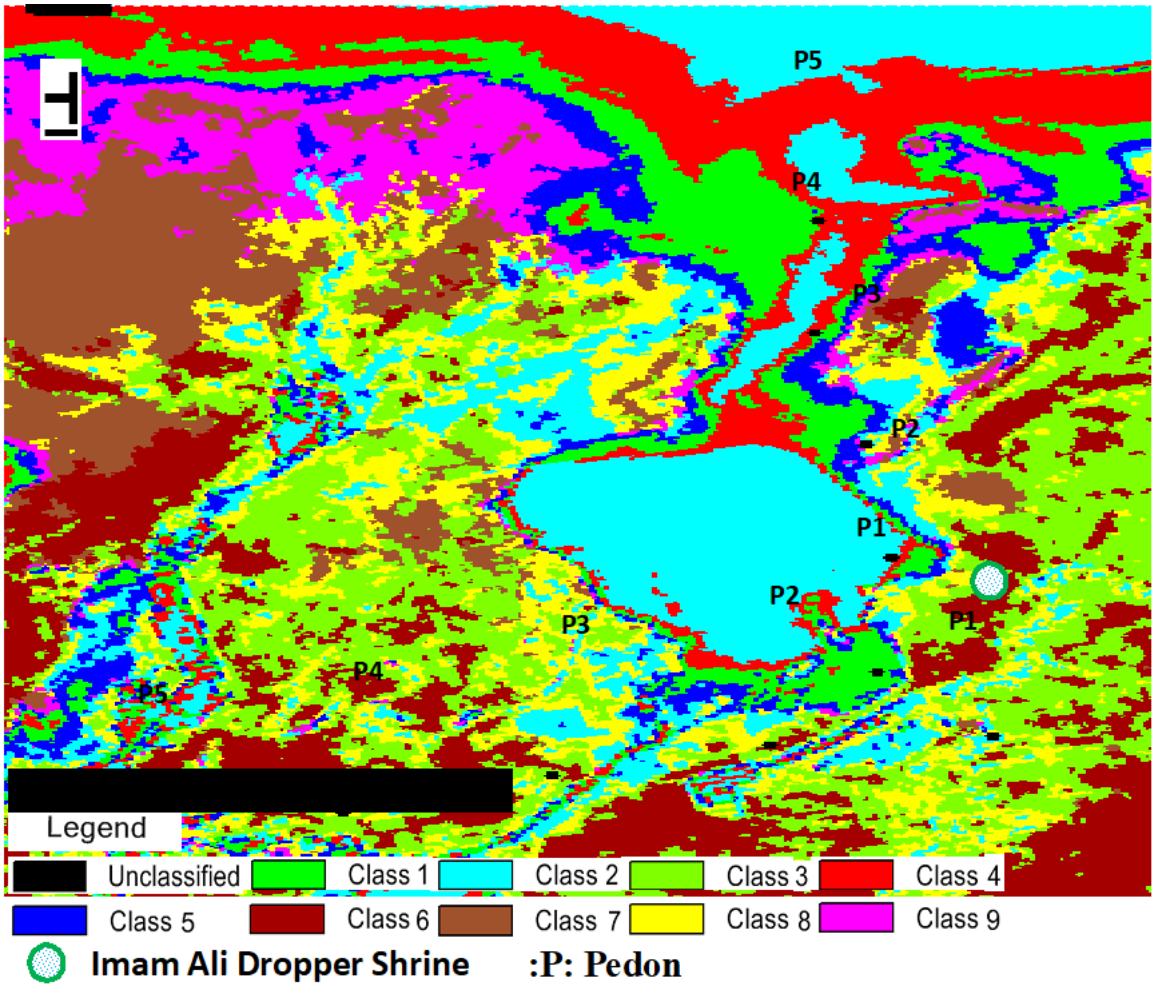

Figure (3)supervised Classification the study area

Calculation of indicator values and evidence used in determining the green status of degradation of soils study

1- directory of different natural vegetation (NDVI)Normalized Difference Vegetation Index That evidence different vegetation

NDVI is used to identify and separate the plant covers from other types of floor coverings and spatial heterogeneity results signal and NDVI values calculated zamani data space for the satellite image captured land sat-82017 year due mainly to the nature of the variation in the type of floor coverings in the study area spatial distribution.

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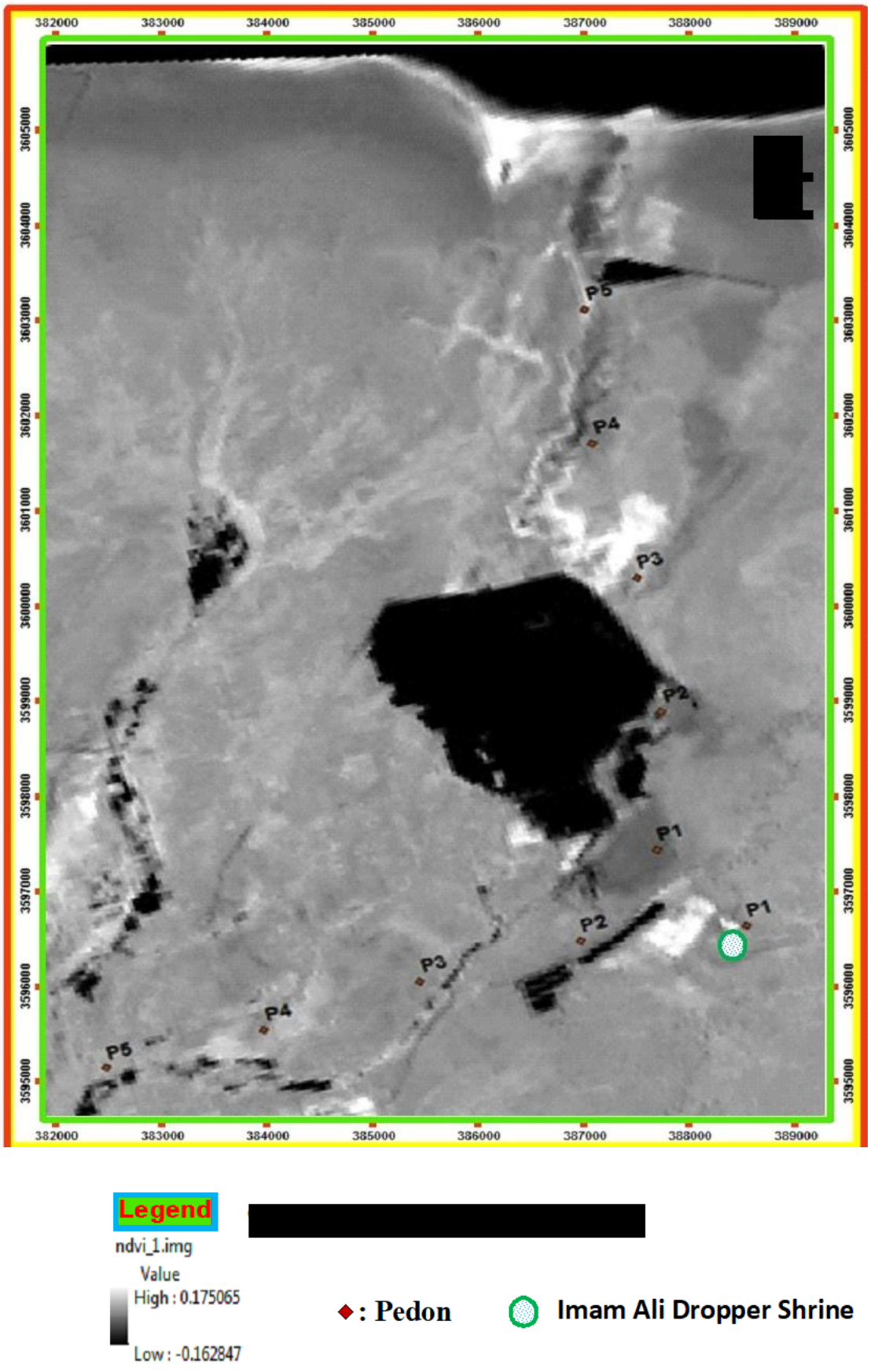

Figure (4) Estimation of the spatial distribution of values NDVI

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From Figure 4, we note that in this type of pictures appear greener areas (areas covered with chlorophyll) It is as white as his darkness increases the less chlorophyll pixels total pixels, while the black bad areas of vegetation this indicator values ranged from 0.162847 to 0.175065 this shows lack of quantity of vegetation in the study area as well as the rule of water bodies and watercourse classified according to the classification of algrisi tables (1) and (2), And a negative value indicates that the barren land or very weak salt walmtathrh vegetation as well as almtghadkh land as a result of land degradation as a result of higher salinity as specific factors and climate of The low rainfall affecting productivity and creeping storms and dunes is installed which in turn increases erosion and dryness and thus negatively affect the natural vegetative nmwalghtaa into soil and degrade Puncture networks and leave land without cultivation and a positive value to this guide means low density of existence of vegetation prevailing in that year a severe degradation.

This indicator values were classified according to the classification of algeraisy, 2013 as in the following tables:.

Tables (1) Onsite shows evidence of vegetation

A mulch	A barren or very weak.	Index	NO
Positive values	Negative values	NDVI	1
Positive values	Negative values	SAVI	2
Positive values	Negative values	MSAVI	3

Depending on the values of NDVI guide vegetation degradation degrees are classified as table (2):-

The degree of deterioration	Dense vegetation	NDVI
Very severe or barren	Barren	Negative values
Gravely	Few	0.0 – 0.19
Mild degradation	Medium	0.2 – 0.49
Slight degradation	Good density	0.5 – 0.79
Non-degraded	Very dense	0.8 – 1.0

Tables (2)Vegetation degradation limits according to the limits of NDVI

Note that the first item which represents a few intense vegetation and soil degradation which ranges of values (0.1-0) had occupied the largest area of 3613.966 HA and 88 space.896% followed by bare soils classified with very severe deterioration in range (0-1) in an area of 343.433 HA and 8.4478% space and last item worth between (0.18-0.1) similar to first class filled soils an area of 107.988 hectares and an area of 2.656 percent, bringing the total area of 4065 directory items values.387 hectares and 100% space as in Tables (3) and figure (5) which shows the classification of NDVI values lbidonat study.

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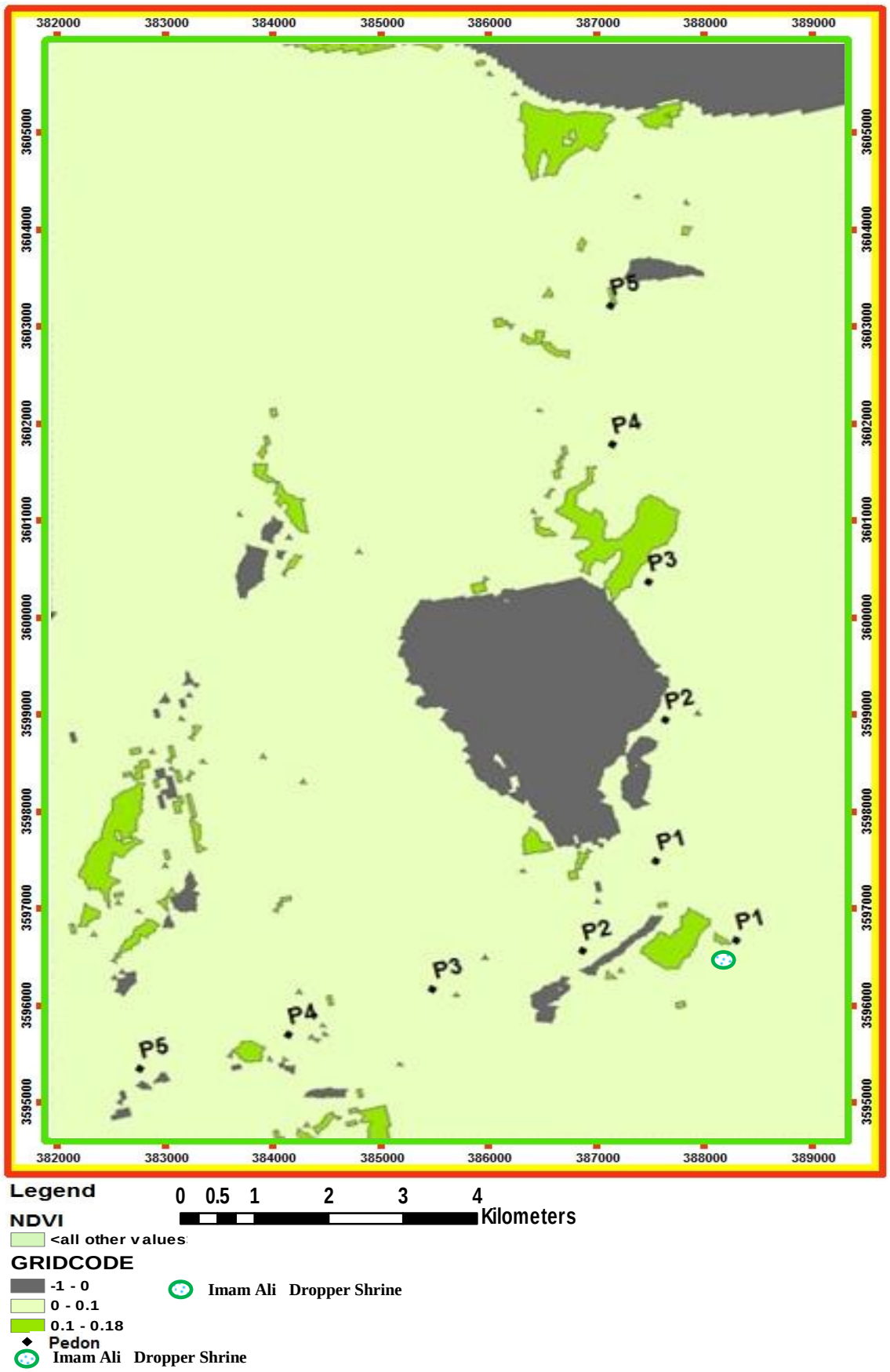

Figure (5) Estimation of the spatial distribution of NDVI values items of study area

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Tables (3) Vegetative differences guide values (NDVI) to study sites

The first track (towardsLake razzaza)			The second path (toward the white Valley)		
Site No.	NDVI	Land degradation	Site No.	NDVI	Land degradation
1	0.035	Few	1	0.043	Few
2	0.053	Few	2	0.058	Few
3	0.083	Few	3	0.069	Few
4	0.057	Few	4	0.065	Few
5	0.102	Few	5	0.081	Few

From the table (3) Note that both tracks with severe deterioration between (0.035-0.102) of the first path and (0.043-0.081) for second straight track and that are within a few species of vegetation by the aforementioned classification and may be due to water scarcity afflicting the country and especially in the recent period.Infer from that according to inquiries and field observations and laboratory analyses of results depending on the physical and chemical characteristics of soil, soil morphological description to a representative physical degradation degradation types Covering the soil building affected by fragile salts and soils walnsgh coarse sand bulging from the dunes are installed and not installed and that helped their degradation and chemical degradation of high salinity Some sites represented by fragile salt-affected soils and high lime content bulging mainly affecting the characteristics of the soil and leads to low productivity, Bio-degradation actor down soil organic content and lack of vegetation .

2- Soil-adjusted Vegetation Index (SAVI)

This guide uses the degree of his boss for separating and identifying of plant covers for other types of floor coverings for the purpose of minimizing the impact of case of overlap,SAVI guide are defined by using the spectral package 4-actress (Red) and the spectral package 5 representing nearby infrared NIR for Groper OLI of 2017.

The results indicated in figure (6) Spatial heterogeneity of presence in the values calculated for SAVI space data visible on this site this is due mainly to the nature of the variation in the type of floor coverings in the study area spatial extent values varieties

Cursor over the higher values of NDVI evidence which indicates that the soils are medium and moderate vegetation degradation because this guide reveals the vegetation in the soil, as in table (4) (7) Following that show the distribution of varieties of SAVI values study area.

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Tables (4) SAVI guide values items of study area

The degree of deterioration	Dense vegetation	Ratio of area%	Area Hactar	Values of SAVI	No.
Very severe	Barren	39.562	2435.696	-1 - 0	1
Gravely	Few	22.61375	1392.257	0 -0.1	2
Mild degradation	Medium	37.82442	2328.729	0.1 – 0.27	3
----------	----------	100	6156.682	Total of Area	

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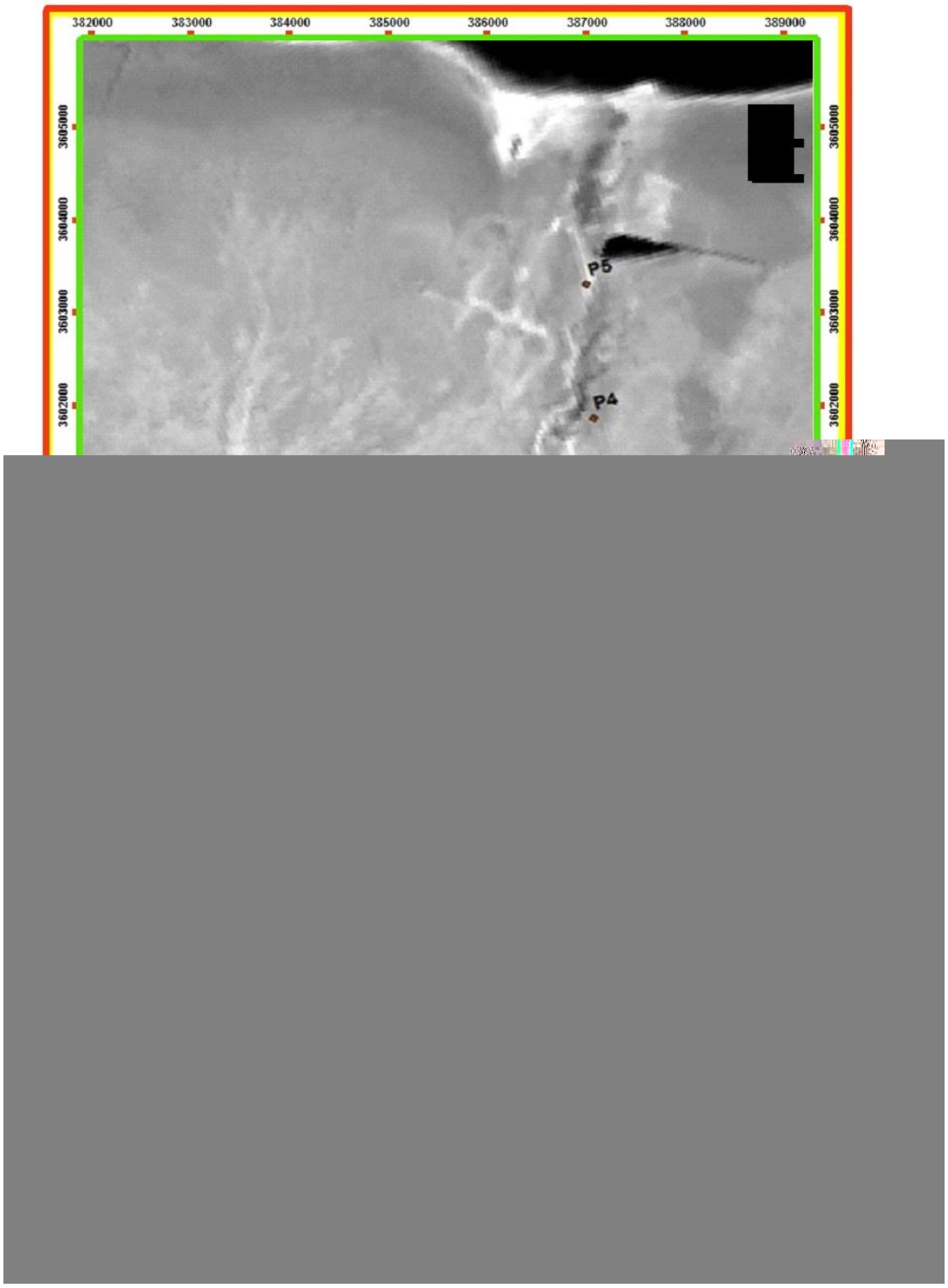

Figure (6) Estimation of the spatial distribution of values SAVI

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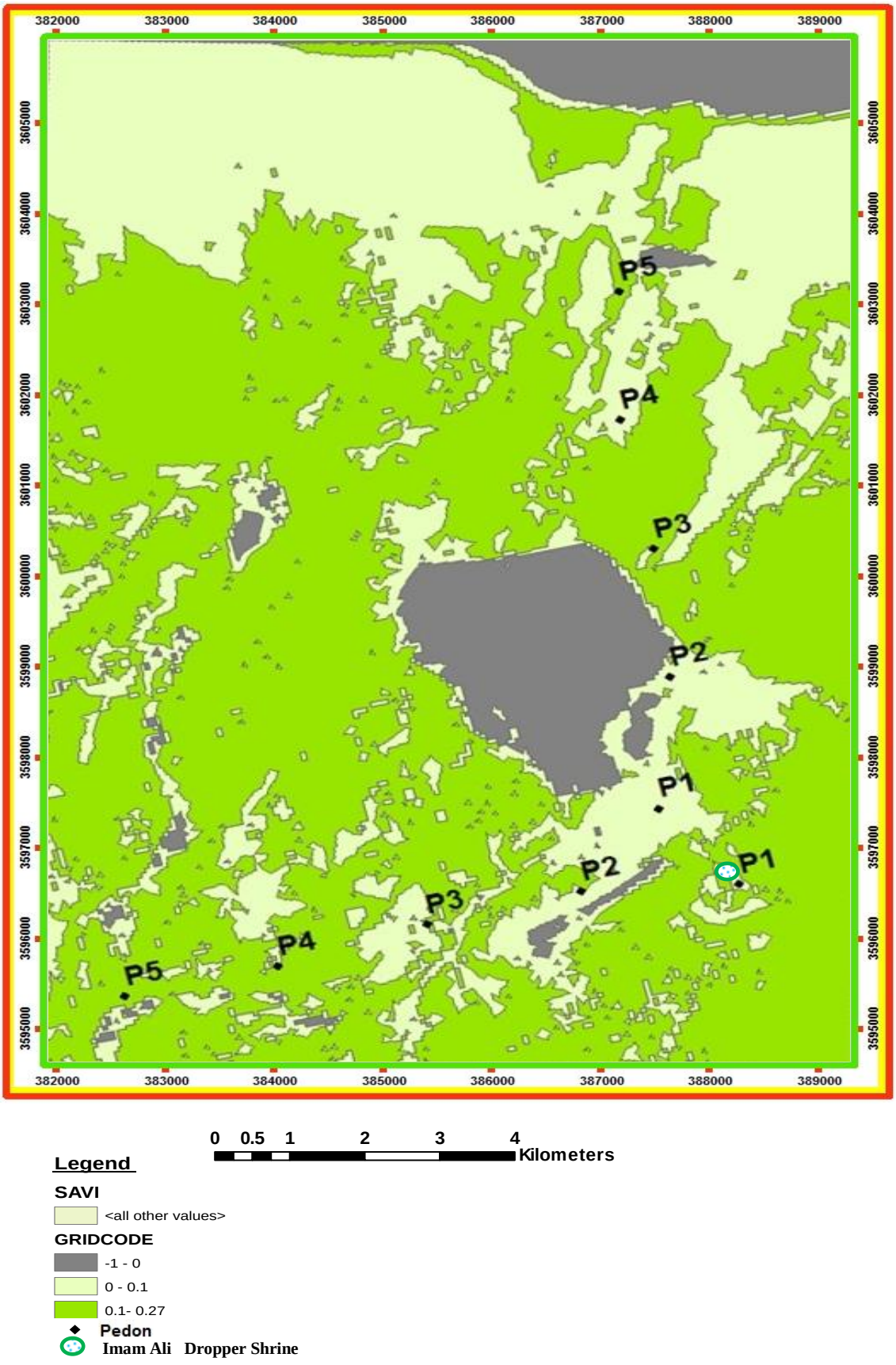

Figure (7) Estimation of the spatial distribution of SAVI values items of study area

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Tables (5) The values of vegetation soil amendment guide SAVI to study sites

The first track (towards Lake razzaza)			The second path (toward the white Valley)		
Site No.	SAVI	Land degradation	Site No.	SAVI	Land degradation
1	0.053	Few	1	0.064	Few
2	0.078	Few	2	0.084	Few
3	0.124	Few	3	0.097	Few
4	0.086	Few	4	0.098	Few
5	0.149	Few	5	0.122	Few

From the table (5) Note that the lowest and highest value when Pedon first and five respectively to both tracks and deterioration which fall within a few species of vegetation .

3-11-4-Guide to different vegetation soil amendment (MSAVI)

This guide refers to different vegetation taking into account soil that affect the reflectivity on vegetation, its values are more than natural vegetation variation guide values when someParameters that no evidence of different distribution of vegetation interpretation, and shape (8) Note that the minimum value for the density of the vegetation is 0.389-and the highest value is 0.297 for MSAVI varieties of shape note values (9)The highest values of NDVI and items similar to SAVI varieties values because it takes additional conditions affecting the distribution and density of the vegetation in the soil as in the table (6).

The degree of deterioration	Dense vegetation	Ratio of area%	Area Hactar	Values of SAVI	No.
Very severe	Barren	39.56771	2436.082	-1 - 0	1
Gravely	Few	8.447419	520.086	0 -0.1	2
Mild degradation	Medium	51.98488	3200.575	0.1 – 0.30	3
----------	----------	100	6156.742	Total of Area	

Tables (6) SAVI guide values items of study area

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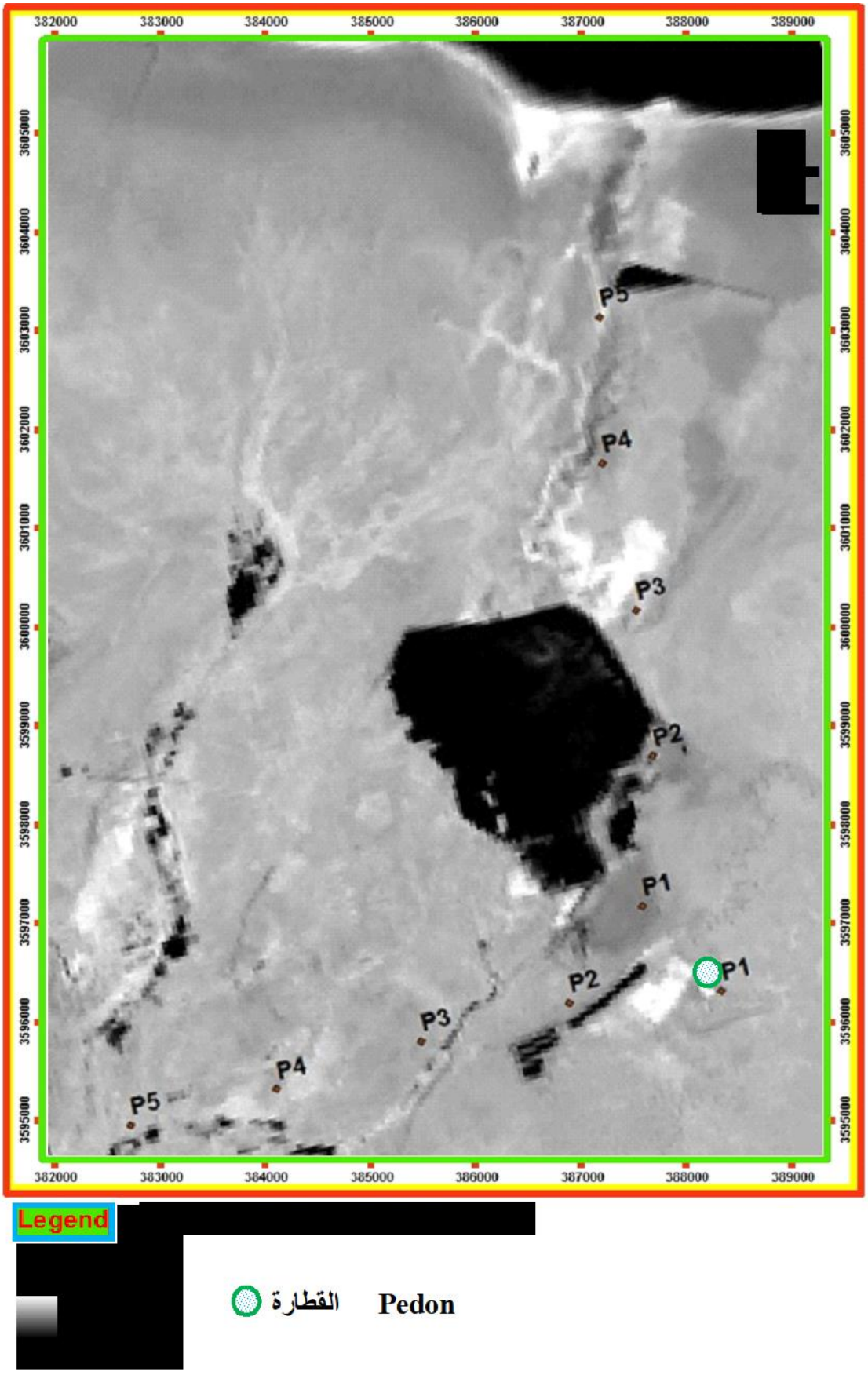

Figure (8) Estimation of the spatial distribution of values MSAVI

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Figure (9) Estimation of the spatial distribution of MSAVI values items of study area

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The first track (towardsLakerazzaza)			The second path (toward the white Valley)		
Site No.	MSAVI	Land degradation	Site No.	MSAVI	Land degradation
1	0.068	Few	1	0.082	Few
2	0.099	Few	2	0.106	Few
3	0.153	Few	3	0.122	Few
4	0.109	Few	4	0.123	Few
5	0.181	Few	5	0.150	Few

Tables (7) Guide to different vegetation soil amended MSAVI study sites

From the table (7) Note that both tracks with little degradation between (0.068-0.181) of the first path and (0.082-0.150) for the second straight path,These values are similar to SAVI NDVI and guide values that are within very few vegetation degradation and that the results of this guide and the rest of the aforementioned evidence consistent with a funeral as morphology in terms of being a little For plants in the bidonat study to water scarcity leading to deterioration and shallower area for lack of sufficient water to grow plants. And that changes in vegetation soil amendment was clearer than previous evidence that shows the need to use different directory modified vegetation soil where he takes into account the additional conditions affecting The nature and intensity of vegetation .

CONCLUSIONS:

1. the field study indicated the presence of severe deterioration in soil in the study sites the reason President so deteriorate to soil salinity of soils affected by salts walnsgh coarse sand site representative Specific climate of low rainfall affecting productivity and creeping storms and dunes is installed which in turn increases erosion and dryness and thus negatively affect vegetative nmwalghtaa Naturally in the soil and degrade land left puncture networks without planting as well as some other qualities which lead to low productivity and low vegetation cover and low organic matter content,He had gotten through periods of different years of unjust land use result in that area.

2. the results indicated that SAVI manuals and MSAVI are better at detecting vegetation in the study area, had given up over the values of varieties and size for each item and that overtook her on the NDVI Guide

Recommendations:

1. determine the suitability of land qualities of agricultural projects within the diameter of the suitability for growing different types of crops within the study area.

2. the study recommends that the important role of remote sensing in monitoring geomorphological study area and identify areas of drought and desertification and salinization, drought and desertification, in addition to the possibility of monitoring and control.
3. you must expand study projects covering larger areas of study area in the future, and test to detect albioviziaaeh indicators of land degradation.

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