

Marakwet Community Heritage Mapping Project, Kenya *Report on the first season of fieldwork, April-September 2011.*

Professor Henrietta Moore
Dr Matthew Davies

Introduction

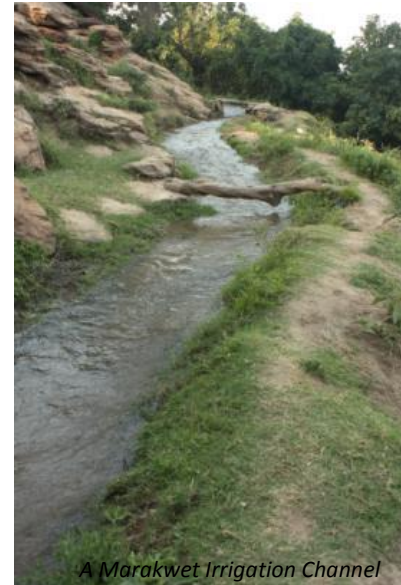
Thanks to funding from the McDonald Institute and the support of the British Institute in Eastern Africa (BIEA), the Marakwet Community Heritage Mapping project was initiated in April 2011 with the dual aims of elucidating the archaeology and landscape history of a poorly understood region and encouraging community engagement with heritage research in the Marakwet area of northwest Kenya. To date the project has been highly successful and has not only achieved the goals set out in the original application but has surpassed our expectations both in terms of the quality and quantity of data collected and the effectiveness of the novel participatory methods employed.



The Marakwet landscape

The main thrust of this first phase of pilot fieldwork was completed in September 2011, although a considerable amount of data processing is ongoing. The pilot has already led to the drafting of a large research grant application to be submitted to Leverhulme in early 2012 and the outline of an initial research paper which we seek to complete and publish early in 2012. We hope that a small follow up grant from the McDonald in 2012 will allow us to maintain the momentum of research by generating further data and keeping our trained local research teams active in the field.

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9. Archaeological survey
10. Historic aerial photographs
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A Marakwet Irrigation Channel

1. Training: Participatory methods and local heritage engagement

From the outset this project was conceived as one in which local engagement with the past might be fostered by incorporating local views and ideas at the planning stage, by training a local team of data collectors, and by encouraging the local team to have some ownership over the way the research proceeded. In particular we hoped to generate large amounts of original data by employing the local team over an extended period (five months) and trusting them with the responsibility of collecting data without full-time oversight. We were fortunate to be able to build on the extensive network of local researchers already developed by Moore over the last thirty years and to extend their skills through the incorporation of ideas about archaeology and history. We hope that this will eventually result in a novel community based and interdisciplinary research team which will form the basis for future research, training and local engagement.

Study Region

The project began with a two week training and orientation exercise in April 2011 conducted by Davies. A local team of four data collectors and one supervisor were selected and trained in the use of GPS and digital photography as well as basic note-taking and interview techniques. The team supervisor was trained to use a laptop, Microsoft office and mobile internet applications. The team were also consulted concerning aspects of the history and physical geography of the region and their views on aspects of Marakwet heritage and the broader landscape were incorporated into the research design.



The research team

On conclusion of the training phase the team were left with extensive instructions for six broad mapping and interview based tasks to complete (Tasks A-E and G above). The team was left to complete these tasks alone, explaining the purpose of the project to local people as they went. The team were in regular phone and email (via mobile internet) contact with both Davies and Moore, but were effectively

given control over the daily running of the project and encouraged to overcome various challenges using their own initiative. Mid-way through the project a student of the BIEA was sent to Nairobi to collect a copy of the data collected thus far and to check on the progress of the team.

These working arrangements were made possible through the mediation of the British Institute in Eastern Africa who were able to administer the McDonald grant from Nairobi and send the research team regular salary payments through a mobile phone banking system known as MPESA.

In September 2011, both Moore and Davies returned to Marakwet for two weeks to collect the data and assess the work done. This period had been intended as one in which various holes or problems with the data might be identified and rectified, however, the job done by the research team was to such a high standard that the time was used instead to initiate a sixth research pilot task, mapping the histories of landownership belonging to individual households (Task F above), with a view to developing approaches for the next phase of work.

This report will now outline the rationale, methods and preliminary results of each of the main tasks conducted by the local research team.

2. Task A: Main irrigation channel mapping

Rationale

The Marakwet are well known for their extensive network of irrigation channels (furrows) which descend the steep Elgeyo escarpment on which they live (Adams and Watson 2003; Kipkorir 1973; Moore 1986; Soper 1983). These channels are owned by various Marakwet clans and run through the Marakwet villages and to their fields on the colluvial sediments at the base of the escarpment. The channels are used for both agricultural and domestic purposes and are central to Marakwet concepts of themselves and the world. Alongside individual Marakwet households, various ceremonial sites and the permanent fields, these irrigation channels form one of the most important material aspects of the Marakwet landscape. Not only are they functional in the sense of bringing water but they are also pathways across the landscape and relatively permanent markers of landownership. One of the future aims of this broader study will be to effectively assess the age and chronology of construction of these furrows, but there is little doubt that the oldest furrows have existed for a number of centuries making them perhaps the most enduring feature of the Marakwet landscape. Moreover, assessment of the chronology of furrow construction and other changing aspects of land-use will shed significant light on questions of agricultural intensification and environmental sustainability (i.e. see Widgren 2000).



The only technical account of the Marakwet furrows was made by Robert Soper in the early 1980s (Soper 1983). While Soper's work is of the highest quality he freely admitted that his study was fairly cursory and limited by timescale and finances, as well as by 1980s technology. There existed therefore the opportunity to expand on and refine Soper's work and also to assess changes to the system over the last 30 years.

As a result of their significance and following discussion with a wide range of Marakwet including the research team it seemed sensible to begin our

heritage mapping work by creating a detailed record of all of the main irrigation channel branches across Marakwet between the settlements of Arror to Chesegeon. While not easy to record (Marakwet irrigation channels extend for many kilometres and originate high up on the steep

escarpment often crossing precipitous rock faces), as prominent features in the landscape the furrows seemed an appropriate class of feature through which the research team could be trained and could hone their data collection skills.

Methods

Each furrow was walked by a team of two data collectors with two teams of two working contemporaneously. The path of the furrow was mapped using a hand-held Garmin GPS MAP 60 unit. The start and end point of the furrow were also marked with GPS waypoints as were any points of interest (POIs) along the furrow course. All POIs were also recorded with one or more digital photograph. Notes and photo numbers for each POI were made in a notebook as was more general information



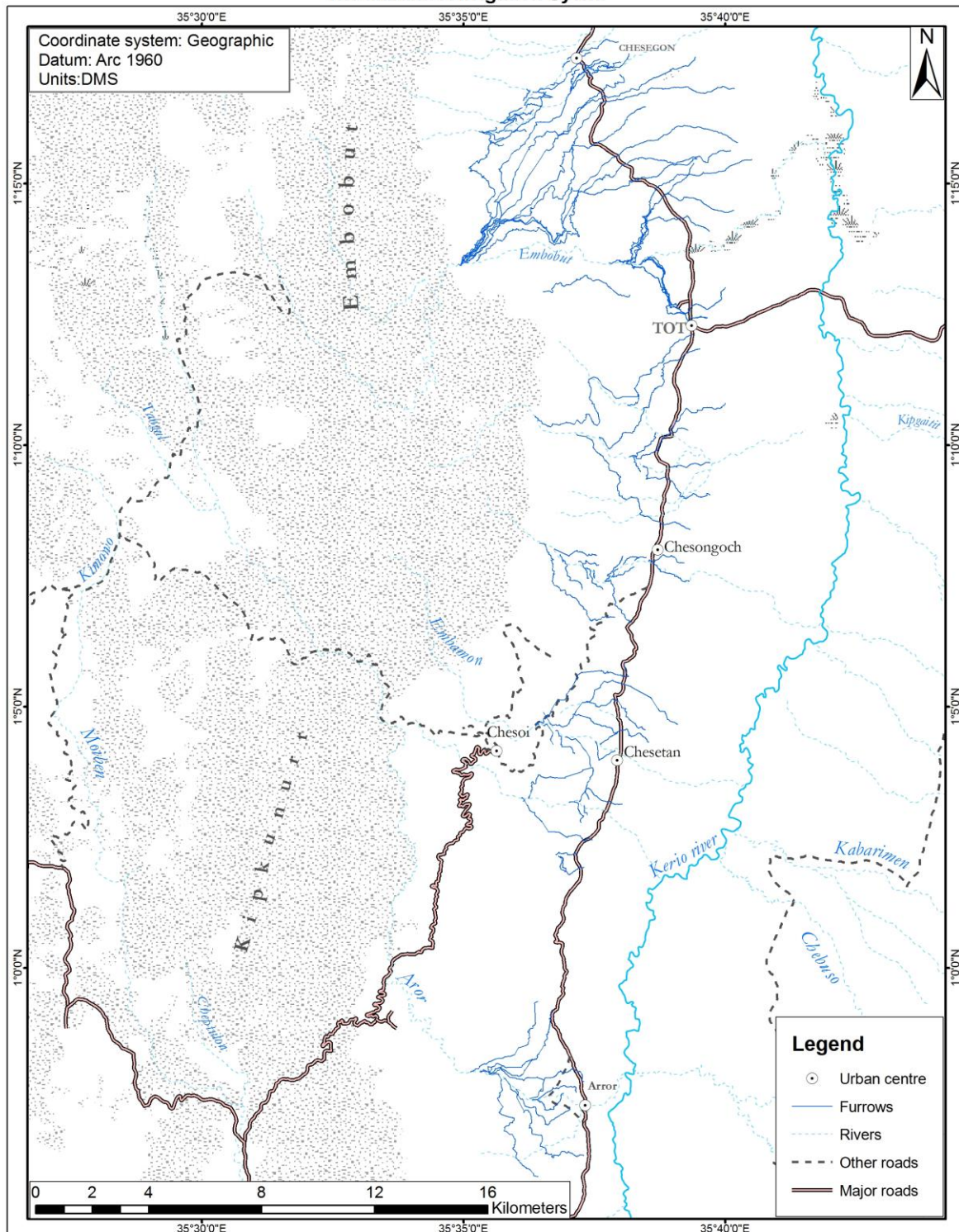
concerning the owners/users of the furrow, its name etc. On completion the GPS and photographic data were downloaded to the project laptop (netbook), by the team supervisor. He then typed general furrow information into an excel spreadsheet overview and the POI information and photo records into more extensive spreadsheets.

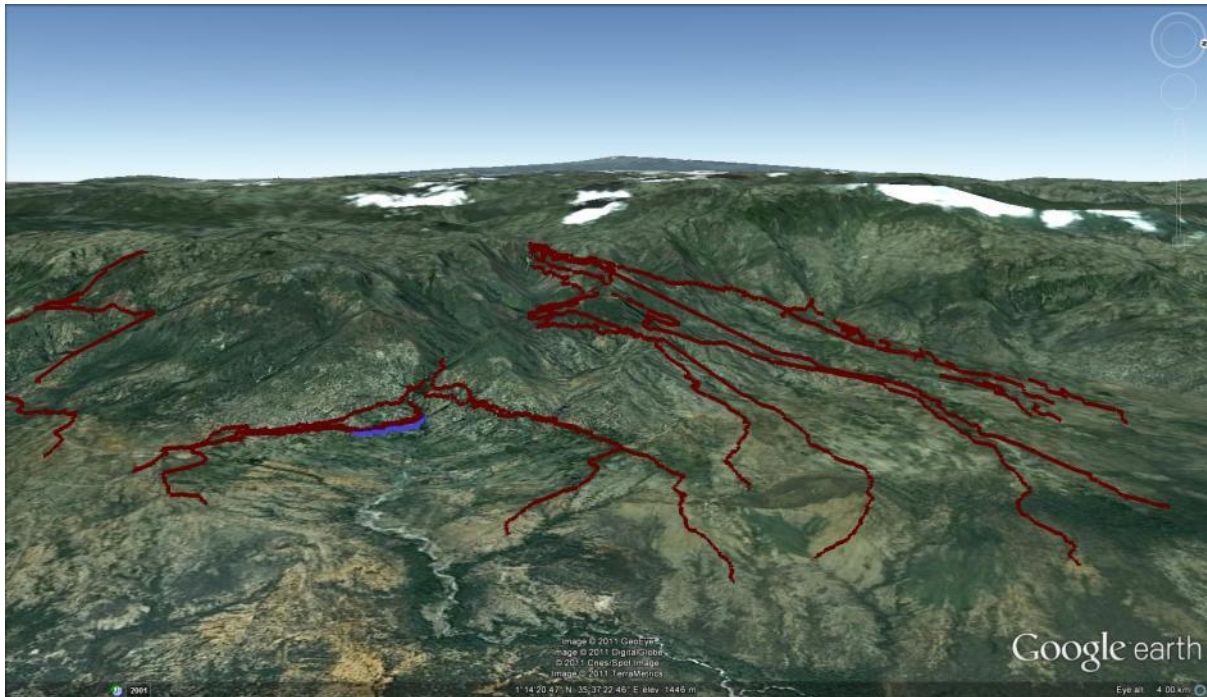
Results

Soper's (1983) account of the Marakwet furrows sketched some forty main irrigation channels running to an estimated 200km in length. The channels were spread across some 40km of the Elgeyo escarpment from Aror in the South to Chesegon in the North (see map below). Soper's longest channel was 13km in length. Although our data is not yet fully processed we can confirm that Soper's analysis was in the main extremely sound, but that extensive additions have been made to the system since his work was carried out. His furrow alignments are fairly accurate and he certainly recorded many of the main irrigation channels. Our work however adds a number of new dimensions. Firstly, our team recorded ninety four channels, over fifty more than Soper. At an initial glance it seems likely that many of our additional channels are either short (less than 2km in length) and were missed by Soper or that they have been constructed in the last thirty years, but it also seems likely that we can add a small number of older channels to Soper's tally. In addition we feel that the recording of a very large number of short channels adds a new context to understanding the system and its development over the last thirty years a point we hope to expand upon through data discussed in Task 3. Our analysis brings the total length of channels from an estimated 200km to a confirmed 350km with the longest furrow actually running for some 14km. Our digital record of each channel further allow for analysis within a GIS and in relation to satellite and aerial photographs. They also provide detailed altitudinal profiles and thus assessments of gradients, flow rate etc. for every channel.



The Marakwet Irrigation Sytem





Google digital elevation model showing some of the furrows around Tot

Reconstruction of an aqueduct using traditional techniques

Most notably our records of each furrow also include an extremely large number of Points of Interest (POIs) which provide the first systematic record of the various features of each channel and provide a complimentary analysis of the changing methods and technologies employed since Soper's time. Points of interest are extremely varied but include both photographic and textual records of major branches, off-take points, sluices, bridges (of concrete and traditional types), crossing points (some furrows cross each other), breakages/leaks, points of erosion, points of concrete repair, and examples of varying furrow construction methods. In total the teams collected over 1,100 POIs and some 1,300 photographs. All of this information will hopefully be worked into a GIS of the furrow system and made available locally as well as a resource for development planners etc.

3. Task B: Minor irrigation channel mapping

Rationale

The main branches of the Marakwet irrigation system actually only represent a small fraction of the total irrigation network and as such are only representative of a sub-set of the operation of the system and of Marakwet farming more generally. Most previous studies of eastern African irrigating communities and their attendant Indigenous Knowledge (which might be considered a form of intangible heritage) have focussed on the main channels (Adams and Anderson, 1988; Adams and Watson, 2003; Soper, 1983; Sutton and Widgren, 2004) and have largely failed to discuss the smaller scale networks through which water is distributed to the fields, as well as the system of permanent and shifting fields themselves (see discussion of Task D) and the knowledge of soils and cropping strategies within which irrigation water must be applied (although see Ssenyonga 1983 for an early exception). As such, while we were unable to map the entire network we felt it was important to gain a sense of the extent and detail of the branch channels by mapping all of the channels stemming from one single major furrow, belonging to one clan within Sibou Village.



Methods

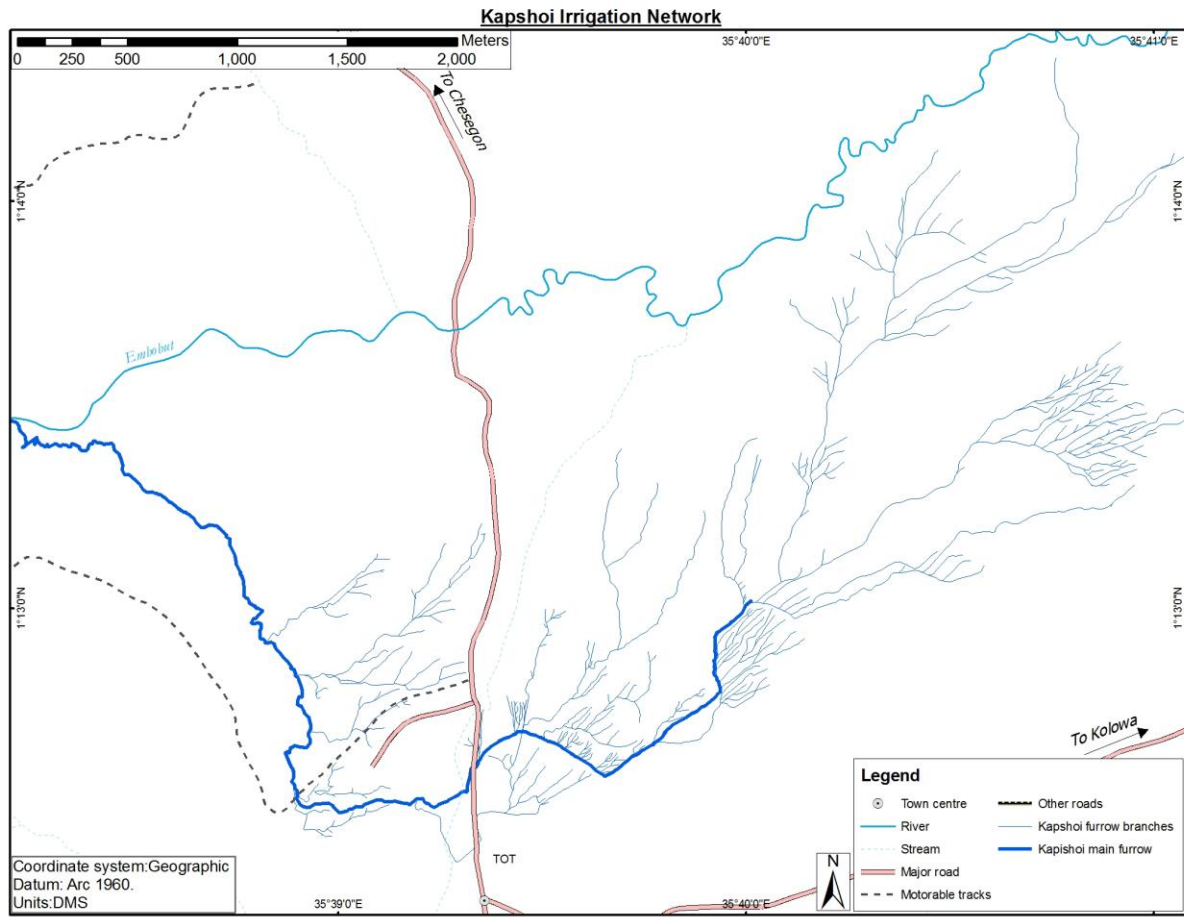
Each minor furrow branch was mapped as above by a team of two walking the branch with GPS, notebook and digital camera. Records were downloaded and metadata was typed into excel spreadsheets by the team supervisor.

Results

The furrow that we chose to record is called 'Kapishoi'. It is a medium size furrow, some 6.4km long, which runs through the Sibou/Tot village in the central portion of our study area. Some forty six major branching points were recorded totalling over 80km of channels, this being considerably more than we expected (if this figure were scaled up to the whole of Marakwet we might expect some 4000km or more of branch furrows across the region). Once again an extensive range of POIs and photographs were taken. Particularly interesting are records of the names of each branching point and what those names refer to

(i.e. a sleeping place, the place of a crocodile, the place of a monkey etc) which demonstrate the complex social geography of Marakwet villages.

These data also align well with mapped information on field boundaries and land tenure and show how branches run between and then into major field divisions and are then further subdivided into lineage and household plots (see discussion of Task D).



4. Task C: Irrigation interviews and questionnaires

Rationale

The age and chronology of construction of the irrigation channels has never been properly addressed, yet this chronology has the potential to shed a great deal of light on the history of the Marakwet and to answer questions such as when the people (and indeed different clans) arrived in the area, how they have used the landscape through time, and for how long they have sustained (or not) agricultural productivity. In order to learn more about the irrigation channels and particularly their chronology of construction it was decided that we should pilot a questionnaire/interview process. The aim of this was not only to gain information about the irrigation furrows, but also to test whether the local team were capable of conducting formal interviews (based on a standard questionnaire) and to refine the types and form of historical questions that we might like to ask in future, larger surveys.

Methods

During the training phase and with the help of the research team a basic series of questions were developed concerning the irrigation channels in any one area including their names, their relative chronology of construction, the owners/clan, any 'age-set' associated with the channel (this being an absolute chronological marker), any



stories/myths attached to the channel, and any other places or points of interest in the area. The sub-teams were given the challenge of conducting twenty interviews each making forty interviews in total. They were asked to spread these interviews out across the whole of Marakwet territory and among the many clans and to interview a fair number of women as well as men. Each interview was digitally sound recorded while basic answers were transcribed in real time on the questionnaire sheets. Consent was asked at the beginning of the interview and photographs and GPS coordinates of the interview location were taken.

Results

The research team surpassed expectations and successfully conducted sixty interviews with a wide range of informants across the region. This data has not yet been analysed and the full recordings have not been transcribed. However, a cursory glance at the questionnaire sheets suggests that they contain a great deal of useful information concerning the irrigation system and its chronology. Informants invariably suggest relative construction chronologies and in many instances make explicit links between a furrow and a named age-set. The primary challenge now is to cross-reference between informants with the aim of ascribing robust chronological data to individual channels and then to expand upon this with further, larger-scale surveys. Without doubt this pilot proves the effectiveness of using a local research team to conduct basic structured interviews and this is a method that we hope to employ to much greater effect in the future.

5. Task D: Clan and field boundaries mapping

Rationale

Following discussion with Marakwet informants and the research team it was suggested that another important aspect of the Marakwet landscape were the permanent and longstanding fields which together with the integrated irrigation system provide the basis for the Marakwet economy. Once again very few studies of Eastern African agronomies (past or present) have focussed on the actual layout of field systems, how land is distributed among clan and lineage members and how land relates to things such as household size, soil quality, and access to irrigation etc. There are therefore numerous reasons for taking time to map a large section of the Marakwet field system and to record who owns/uses each plot of land. As we had already mapped the Kapishoi furrow in detail (see Task B above) it seemed sensible to map the attendant fields of the same village to better understand how irrigation and fields were integrated.

It also seemed important to understand how land and settlement was divided on the basis of clan and lineage and so the boundaries of lands and habitation belonging to each clan in the village were mapped.

Methods

The boundaries of each individual field were walked by the research sub-teams and recorded with GPS. The teams comprise of members from this community which made the task easier and allowed them to easily access information on the household ownership of each plot of land. The teams also mapped the boundaries of land held by each clan within Sibou/Tot village in the same way and took a range of photographs of different fields under different forms/stages of cultivation.

Results

Four clans occupy Sibou village; Kapishoi, Shaban, Kachepsom and Kapsiren. The historic boundaries of these clans were mapped and can now be compared with actual residence (Task E) and field patterns. This simple map demonstrates clear disparities in the area of land owned by each clan, with Kapishoi holding by far the greatest area. Within these broad divisions of land, the research

team mapped the field boundaries of land belonging to Kapishoi and Shaban clans an area totalling 3 km² (300 ha) and comprising of some 49 major field divisions, each of which belongs to 2-6 related households. The total distance of field boundaries mapped was 86km. From this data we now know who owns every piece of land in the village and therefore how much land each household has access to and how this relates to the number of people in each household (see Task E below). We can also see how irrigation channels for Kapishoi clan relate to field boundaries and confirm the actual areas of land irrigated.

Most interestingly this field boundary mapping exercises has elucidated a pattern of permanent infields at the base of the escarpment and less permanent shifting fields further away from the area of habitation. This seems to add a new and as yet un-theorised dimension to the study of landscape use in the region, as well as to the extent to which the Marakwet have and continue to modify the natural geography of the region. From this survey and the demographic survey below (Task 3) we are also able identify the 'habitation' zone of the village (c. 5.8 km²) as distinct from the permanent fields and the shifting fields and as such to make various estimates of population densities given various criteria. These data should also serve as useful analogies for population sizes and densities at other historical and archaeological sites in Eastern Africa (see Davies 2010 for example).

6. Task E: Household demographic and structural survey

Rationale

A survey of all standing structures, households and demographics had already be started in late 2010, however, this had not been fully completed and it seemed important that we have good information of the historic development of the village and the structures within it as well as its current human composition. A primary aim of this is to be able to analyse the current and past operation of the irrigation and field systems with regards to population density and population pressure. In addition, Moore already possessed detailed demographic data from the 1980s and it was felt that a complimentary data-set would allow for useful comparison over the last 30 years.



Methods

The research team photographed and GPS mapped the location of every standing structure in the village. They then interviewed the householders to compile a basic record of who owned each structure, how many people were in each household, and their ages, sex and clan affiliation.

Results

The team recorded 1050 standing structures including houses of various types, granaries and goat kraals. These were arranged in to 503 households and the total number of residents included in the survey was 2870. This equates to 5.7 people per household with an average of 2.7 structures per household. Although the figures are yet to be fully processed we estimate a figure of 3-4 people per house and population densities of around 490 people per km² within the habitation zone and some 320 people per km² including the permanent fields.

We further hope that the various structures recorded may be put into a relative typological chronology (building upon that developed by Moore in her doctoral thesis) and can then be compared with archaeological examples, a small number of which have already been recorded in the general area.

7. Task F: Household land histories

Rationale

As an additional pilot task, we decided that having some idea of how people attain land, how it is exchanged, borrowed, loaned and sold, would be useful towards better understanding how the historic Marakwet field system has developed over time. As such we decided to test the ability of the team to collect 'household land histories' and we expect this to form a large part of further research.

Method

Twenty households, each known to members of the local research team were selected for test study. The heads of the household were informally interviewed with regard to the plots of land which they owned and/used. These plots were then recorded with GPS, photographed and extensive notes and sketches were made by hand in notebooks.

Results

The data from this task is yet to be analysed, but an initial look at the data suggests that the notebooks and attendant GPs records and photographs contain much useful information which can be correlated with that from Tasks D and F. We believe that this information will elucidate a pattern whereby the field system is primarily built up through kinship structures but which are then gradually altered through time to reflect actual patterns of social relations. These histories will be developed in much greater detail in forthcoming phases of the project and the methods developed here have been a very useful exercise.

8. Task G: Ritual and Ceremonial Places

Rationale

Another important aspect of the Marakwet landscape are a number of locales at which various ceremonies (initiations, seclusion, dances, feasts, meetings) are held and/or which have various semi-historical stories or myths attached to them. A number of these places are particularly prominent in oral histories where they are mentioned by various clans as points passed or crossed at various stages and by various age-groups. They therefore hold important chronological and

geographical data which may be used (in conjunction with other sources) to reconstruct aspects of Marakwet history.



The team at 'Tumbo Sorun' where people are said to have danced and then jumped over the cliff!

Method

A list of potential place names was pre-collated by Moore and Davies based on readings of oral histories collected by various early administrators, by Moore and by other local people. These places were discussed in detail with the research team and then the team was asked to map and collate stories concerning all 'special places' within or near Sibou village. Each location was marked with GPS, photographed and notes made on the 'story' of the place, by the team and following discussion with other locals. In the future, it would seem necessary to specify that the team conduct more formal local interviews, but at this stage again the team demonstrated a good ability to map and collate information about a variety of historical sites.

Results

The team recorded thirty-two sites including circumcision sites, various meeting places where community decisions are made (*kokwo*), 'legal courts', dancing sites, and geographical landmarks recoded in oral histories. Detailed written accounts were made of each of these sites and have been typed up, but are yet to be properly analysed. We believe that these data will add significantly both to historical/archaeological understandings of the history of the Marakwet and of land-use/settlement in the valley more generally. We also believe that they will add to our understanding of the 'social' and 'sacred' geography of the Marakwet and to deeper understandings of how the Marakwet perceive and structure the world/space around them, building on the ethnoarchaeological work of Moore (1986).

9. Archaeological survey

It was decided that during this first season of fieldwork and training that the local team should be allowed, to determine (to some extent) the course of the research and to map and engage with elements of their landscape with which they are most familiar and hold greatest understanding. The idea of more 'traditional' archaeological survey was, of course, alien to them and so we have encouraged understandings of the historic landscape through currently utilised landscape features: irrigation channels, settlement sites, field boundaries etc. We have, however, tried to promote engagement with deeper history through discussions of places and events mentioned in oral

histories. Davies was also able to conduct a couple of days more traditional archaeological survey. An opportunistic expedition to a number of geographical locations mentioned in oral histories resulted in the discovery of a wide range of abandoned habitation sites with clear material remains including ceramics and Later Stone Age lithics. A single systematic survey across the valley floor and through the Marakwet fields also identified a range of abandoned sites and material remains, including an eroding human burial. We expect in the next season to train the team to deal more directly with archaeological material. In particular we aim to develop a basic system of site and material characterisation, easily amenable to the local team, which can then be used for more detailed site follow-up visits by the project leaders. Most importantly, the local team members seemed highly interested by these finds and seem keen to be involved in conducting further archaeological work.



Sangutan Hill: a range of archaeological materials including ceramics, chert lithics and former habitation platforms were located on and around the hill.

The hill features in a number of clan oral histories.

10. Historic aerial photographs

An additional aspect of the project was to make use of historic aerial photographs from the British Ordnance Survey (Survey of Kenya) currently stored at Rhodes House, Oxford. These photographs are currently poorly curated but have the potential to prove a significant resource. The ACCESS-HAPA project directed by Dr Paolo Paron (Research Associate, University of Oxford) has been attempting to develop this archive and Dr Paron has assisted us to acquire the 1967 photo runs as a test case. Dr Paron located the correct photo runs for us and produced a comprehensive report on the coverage available (see Appendix attached). We are now able to put in a request to the Bodleian Library to have these images scanned and hope to receive the images shortly. Once acquired the images will be georeferenced by the BIEA's survey technician in Nairobi and incorporated into the extensive regional GIS (see below). We expect the images to provide a wealth of information about changing patterns of settlement and land-use including patterns of deforestation and erosion etc.

Please see attached report for more information

11. Marakwet Geographical Information System and online presentation

All of the data collected is currently being worked into an extensive GIS database. This is being conducted in Nairobi by the BIEA technician, Mr Benson Kimeu. We aim to process/clean all of the GPS data and to hyperlink various textual and photographic data into the GIS. To date the irrigation channel and field boundary data has been cleaned and a wide range of base-map data (including 20 ft contours) has been heads-up digitised for the whole region.

In January 2012 we will begin construction of a basic project website (as outlined in our original proposal) and we hope to be able to upload a basic interactive GIS/Map through which some of the spatial data will be displayed. This work will be carried out by Mr Benson Kimeu and BIEA's IT technician Mr John Arum.

12. Conclusions, community feedback and future directions

We believe that this first phase of work has been extremely successful. We have tested the potential for local community engagement through the employment of a small local team of data collectors and we are very pleased with the result. This research method has also been a highly effective way of collecting large amounts of interrelated data without having costly European teams in the field. Indeed, the research team was able to work continuously for over 5 months for a very reasonable cost. This is a mode of working that we expect to employ extensively in the future both because of the way in which locals are brought into the project and because it is a very effective research strategy.

In terms of raw data, the team mapped some 430km of historic irrigation channels and 86km of field boundaries. They took 2,400 photographs and recorded some 1,500 points of interest. They conducted some sixty structured interviews and recorded thirty two sites of local significance. The team has surveyed some 500 plus households and recorded over 1,000 standing village structures. This data adds considerably to the number and extent of the Marakwet irrigation system as well as the detail in which the system is now recorded and will be presented. The data also provides the baseline for the first full account of a traditional Eastern African field system with regard to land distribution, land-tenure, carrying-capacities and irrigation. With extension the interview data collected, when combined with the embryonic archaeological observations made, will eventually lead to a major re-evaluation of Marakwet history and the development of an applied diachronic account of changing land-use, population and environmental resource management.

The first steps towards integrating and presenting this data are being made through the development of the GIS and simple web-site. We expect to develop this aspect of the project in future years. For now the project has led to a draft research proposal for submission to Leverhulme and the first paper to stem from the work already conducted will present the irrigation system data with specific emphasis on the likely chronology of construction and changes to the system since Robert Soper's work in the early 1980s.

Immediate future work will focus in more depth on correlating oral histories across the broader region with known geographical locations and exploring the archaeological remains at these locations. The team will be further trained in base-line archaeological transect survey and the project will develop a simple system of site and material categorisation that can be employed by non-specialists. Finally, we would like to gain a deeper understanding of small-scale household movements, changes to field boundaries, and family histories etc by expanding the household land histories pilot developed in 2011. In 2012 we hope to continue to develop the project GIS and online presentation as well as beginning the construction of a broader digital archive of regional sources, including previous archaeological and ethnographic work in the region. We hope that a follow-up grant from the McDonald will help to support this course of work and feed directly into the Leverhulme proposal designed to begin in late 2012.

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Professor Henrietta L. Moore
Dr Matthew I.J. Davies
Cambridge, December 2011

Marakwet Community Heritage Mapping Project, Kenya

Report on the second season of fieldwork, April-December 2012.

Professor Henrietta L. Moore
Dr Matthew I.J. Davies

Introduction

Following an extremely successful first season of research the second season of the Marakwet Community Heritage Mapping Project was undertaken in April-December 2012 with the aim of expanding the data collected in the first season, pioneering further community participatory research methods and maintaining research momentum while applying for larger and longer-term research funding.

This report outlines the research undertaken in 2012, as well as our ongoing publication and grant application plans. In particular, much effort was expended in the summer of 2012 on the development of a Leverhulme Research Grant application; however, in December 2012 we unfortunately learned that this application had been unsuccessful. However, a smaller application to the British Academy for a three year International Partnerships and Mobility Grant beginning in January 2013 was successful and we expect to submit further funding applications in 2013.



Part of the team in September 2012 with student volunteers

As previously, the research conducted was largely undertaken by a local research team working under the supervision of the project directors. Davies initiated the research program with a field trip in March-April and both he and Moore followed this up with an extended trip in September. An intermediate data consolidation and data *cleaning* trip was conducted by BIEA graduate attachee Sam Derbyshire in June, who was able to check and refine the data and return copies to Nairobi. Sam was also commissioned by the project to conduct a preliminary study of material culture change and difference among the Marakwet and neighbouring Pokot. Another pilot study into female

exchange and economic practices was conducted under the auspices of the project by Grace Pollard an undergraduate at the University of Oxford. The project also facilitated the complimentary human and physical geography of a team from the University of Stockholm and our projects continue to share information and results. Once again the local research team was able to communicate with the project directors via the internet and financial and logistical management was conducted from Nairobi by the staff of the British Institute in Eastern Africa (BIEA).

The research activities conducted in 2012 can be subdivided into the following elements which structure the following report:

1. Household land histories
2. Mapping of shifting and communal cultivation
3. Survey of ritual, ceremonial and other sites of importance
4. Recording of historic and ongoing landscape development interventions
5. Baseline archaeological survey and methods training
6. Historic aerial Photographs and satellite imagery
7. Material culture and change (Sam Derbyshire)
8. Female economic and exchange activities (Grace Pollard)
9. GIS, data archiving and online presentation
10. Research grant applications
11. Publication and presentation
12. Conclusions and future plans

1. Household land histories

Building on a short pilot in 2011, a major task for the team in 2012 was to better understand the development of the Marakwet historic field system, which we had mapped in 2011. To this end the local research team undertook a broad-scale program of investigating the histories of land/fields owned and used by different households. The first step in this process, conducted under the direction of Davies, was to better understand *how* households came to have access to different plots of land. Following a range of informal interviews and discussions with elders and the research team, we outlined some 22 types of access to land which draw on a range of kinship, inheritance and intricate exchange practices. The most simple way to access land is inheritance from father to son, but land may also be gained through the matriline and through various reciprocal arrangements, including out-right purchase. These different land access types are as follows:

Marakwet Basic land types		
Code	Type	Explanation
1a	Inherited	Inherited from Father; land permanently held and to be passed onto sons
1b	Inherited	Inherited from other family member; land permanently held and to be passed onto sons
2a	Loaned	Loaned from childless relatives
2b	Loaned	Loaned from relatives for payment of animal (goat or cow), named after

		the animal; a formal agreement for a number of years
2c	Loaned	SAMAT Land loaned on payment of half of the harvest to the owner of the land
3a	Rented	Short term rent on payment of money; rare in valley but more common in Cherangani
4a	Exchanged	Land temporarily exchanged for another (roughly equivalent) peice of land; often for purpose of making cultivation easier i.e. Consolidating adjoining pieces of land
4b	Exchanged	Land permanently exchanged for similar reasons to 4a
5a	Bought	Land purchased for money; letters from chief will be witnessed by both parties; Land permanently transferred; usually the seller needs school or hospital fees
5b	Bought	Land permanently transferred for animals; less common today but may have been common in past
6a	Kamama	Land permanently acquired from mothers family; you may be invited or may request to use your mother's families idle land; you may cultivate multiple pieces but only be given one piece permanently; you could even 'sell' this land back to your Kamama at a later date!
6b	Kamama	Land temporarily acquired for use from mother's family but not permanently given
7a	Kabikoi	Land temporarily cultivated which belongs to your wife's family. This may become your son's Kamama
8a	Custodianship	Using a close relatives land i.e. If your father had two wives and the other wife (not your mother) had only daughters then you may cultivate their (your half sister's land) but you must 'honour' your half sisters (perhaps give them a gift, hospitality) and this land may become your 1/2 sisters' sons' Kamama
8b	Custodianship	Looking after/cultivating land for a range of other reasons i.e. Cultivating on behalf of an older relative or sick person
9a	Death/burial	[name to be found] If you take care of an old person and bury them when they die, you can be given a piece of their land in return
10a	Women's land	Women can buy/purchase land with money (usually unmarried or widowed or alienated from husband)
11b	Women's land	Women who have children and are responsible may be given land by father for cultivation esp. When looking after parents (unmarried or

		widowed or alienated from husband)
11c	Women's land	In a family with no sons women may cultivate land on behalf of their son's; the land is their son's Kamama
12a	Community land	Community land - non-permanent fields with long fallow system - not 'owned' for more than one season, only the crops are 'owned'; land cleared in one large area for use over one or more of seasons; plots divided between those families who contributed labour to clearing; size of plots allocated on scale labour provided; but plots not owed i.e. where you cultivate one year, another may cultivate the next if they beat you to it and get there first.
12b	Community land	Community land cleared for other reasons (i.e. By KVDA) and then distributed by lot
12c	Community land	Community land could be cultivated by an 'outsider' provided he worked under the 'umbrella' of an insider; presumably this also applies to some of the other categories above; the insider (i.e. From the clan) would need to vouch for the outsider and would have to help to bring the water. The outsider could not work on the furrow.

Building on this classificatory system, the team conducted interviews with some **81 householders** relating to **239 fields/plots of land**. Each plot of land was mapped with GPS, photographed and a basic questionnaire relating to the history of that land was completed. These data included how the household obtained the land, what was growing this year and what had previously been grown etc. Additional information was added to extensive notebooks including sketches of the layout of each plot and related kinship diagrams. This data now requires significant processing but we expect it to demonstrate how the field system is built-up of a complex network of social-relations. We expect to identify tensions and conflicts at points within the system relating to kin-based pressures on land. We can also identify ecological trends in terms of things such as fallowing periods and crops grown and also intricately reconstruct subsistence and exchange practices and the productivity of household farming. A sample of the written data is provided in Appendix A below, this is supplemented by photographs and GPS tracks for incorporation into the project GIS.

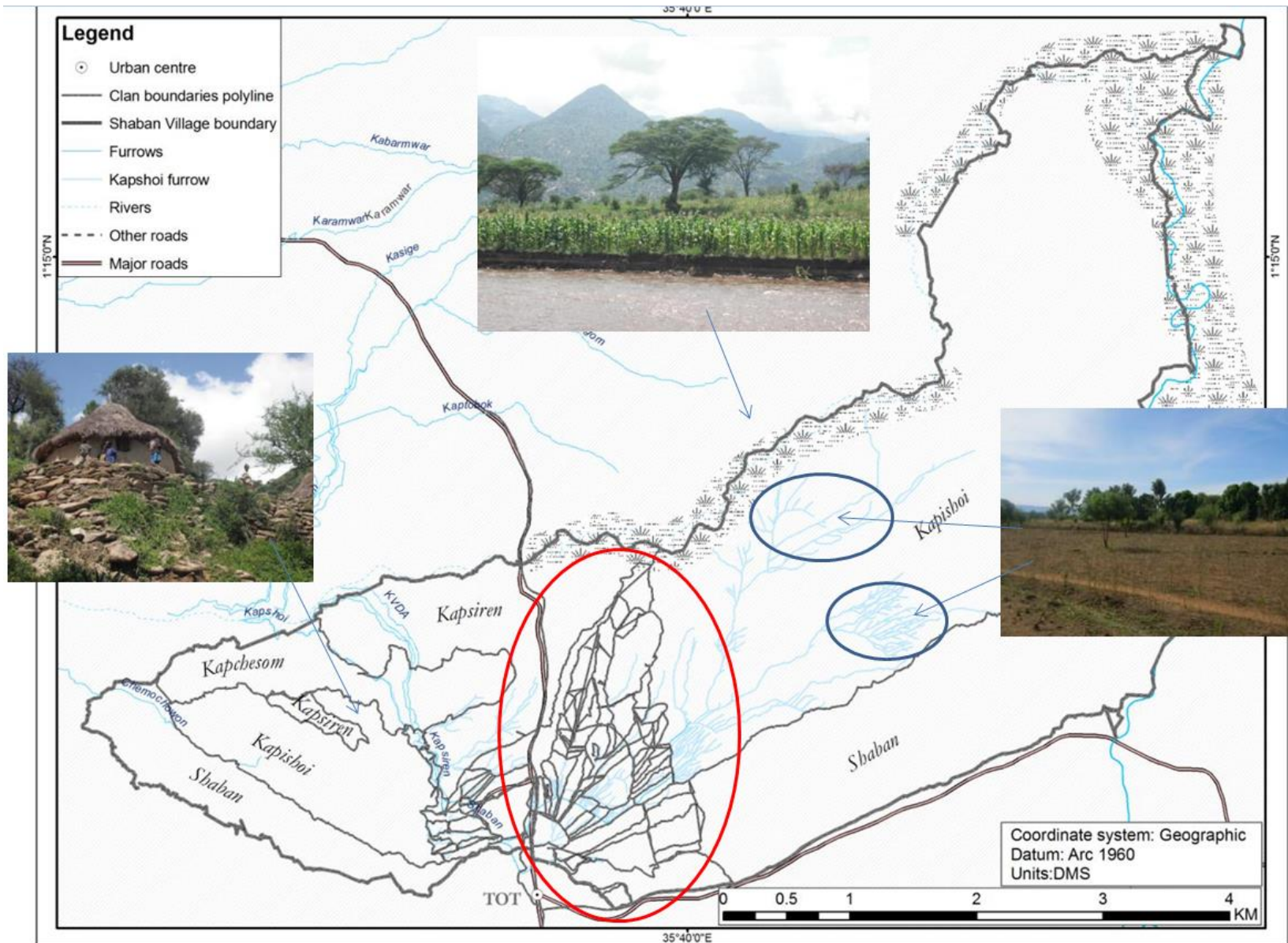


Farmer describing his fields to the research team

2. Mapping shifting cultivation and communal land

Work in 2011 demonstrated that Marakwet farming comprised not only of permanent fields held by households but also a significant quantity of land which was cultivated communally and which 'shifted' across the landscape every couple of years. This 'shifting' communal cultivation allows the community to more effectively clear large areas of bush and distribute water large distances from the source. The pattern of shifting cultivation can be seen in differential 're-growth' patterns which may have significant potential for ecologists interested in vegetation patterns. As such we commissioned the local team to begin mapping current and past areas of communal shifting cultivation.

The mapping of communal fields is ongoing, however the team have recorded some fifteen areas of cultivation stemming back into the 1980s and we hope to be able to extend this data back into the 1960s. Some of this data is presented on the map below.



Plan of the Marakwet field system. Permanent fields (circled red) and can be seen in outline. Irrigation channels (blue lines) extend to the East of the permanent fields into the lower parts of the valley where they supply shifting communal fields (circled blue). Habitation is confined to the escarpment in the west and temporary flood recession gardens are found around the main river courses to the north and east.

In addition to the shifting communal lands, we were also able to identify extensive amounts of temporary, seasonal cultivation based on flood recession alongside the major watercourses. These fields add further complexity to understandings of the Marakwet system of farming and will also be mapped by the research team over the course of 2013.

3. Mapping of ritual, ceremonial and other sites of interest

Building on preliminary mapping of ‘special places’ in 2011 the team have added to the data-set by collecting further oral-historical data on the sites mapped, as well as adding another four sites to the database (now 36 sites in total). Each site is now accompanied by a detailed textual description as well as GPS coordinates and digital photographs. An example of this data is given below:

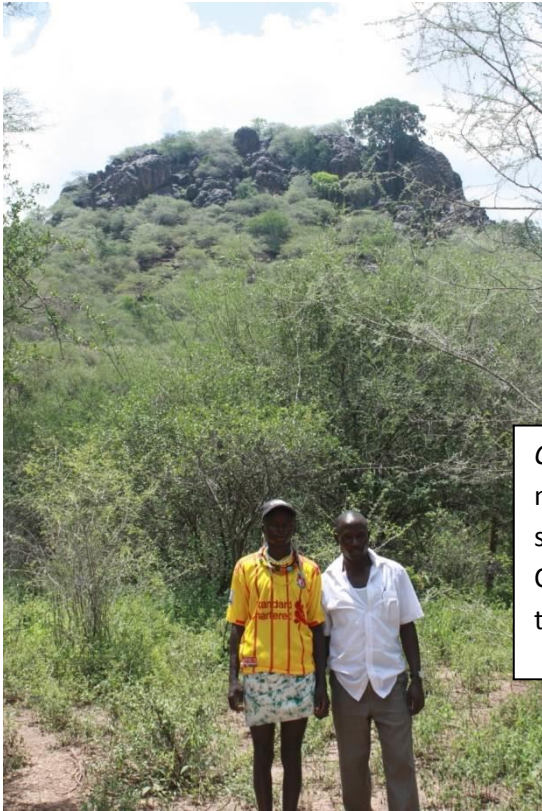
“Oronto Kapshoi (GPS: A872): Oron is the biggest and the oldest tree in Sibow. It is estimated that over 500 years many generations have seen it. It is also the central area of Sibow between the Lagam and Keu lowland area from River Kerio, and the centre between Chesongoch and Chesegeon. Many functions are done here by the people of Sibow and the whole Marakwet community. Both men and women perform their Koros (*Cleansing ceremony*) here, since many generations said so (*because it has happened in this area for many generations*). Kapshoi clans meet here to chat the way forward for farming, they also meet to draw their major water timetable according to sub-clans (*The sub-clan/family will get allocated their time to use a furrow to irrigate their land. The family must decide among themselves how they are going to use the time that they have access to the furrow*).

Kapkimwar (*the action of discussing water issues*): Marakwet community sometimes meet here when they have an important function- they come as far as Chesongoch and Kaben. Our neighbor Pokot come and hold meetings with Sibow or Marakwet and borrow pasture for their livestock. They may bring a bull to be slaughtered for the negotiations. So it is a central point for many functions.”



Kaptumu Tirkiyow a place where newly circumcised boys and girls are revealed (come out) to the community

Many of the 'special' sites recorded by the team are mentioned in 'clan' oral histories and will be used to reconstruct the history of the Marakwet and their landscape. At the same time they provide invaluable information on the complex social geography of the village.



Cheptuysum is mentioned in a number of oral histories as a stopping point in the landscape. Ceramics and lithics can be found on the slopes.

4. Recording of historic and ongoing landscape development interventions

In order both to obtain a clearer picture of the landscape history of Marakwet, as well as to contextually apply our data within the context of modern development initiatives. It was decided to conduct a detailed study of the range of 'modern development interventions' conducted in Marakwet. The local team were therefore commissioned to record all instances of modern intervention, mainly with regard to the irrigation system. Some 200 modern developments were recorded and include things such as sluices, weirs, piping, animal 'drinking' troughs, concrete aqueducts, and water mills. Most notably through 2012 the team documented the development of a major new irrigation pipeline being constructed by the Canadian Red cross. They GPS mapped the course of this pipeline and the areas of land to which it will supply water. They also documented its construction photographically.



A selection of modern 'interventions'

5. Baseline archaeological survey and methods training

Much of the fieldwork in April and September 2012 during which the project directors were present was spent conducting baseline archaeological transect survey, training the local team in such, and developing a standardised methodology which will allow the team to conduct future survey alone. Some eight 2km transects were walked by the team. The team were trained to walk straight, well spaced transects using GPS for navigation and with a well spaced, methodical walking pattern. They were also trained to identify and characterise a wide range of artefacts and features including ceramics, lithics, faunal material, structures, burning, iron slag, and rock-shelters/caves. We experimented with a range of ways of easily and systematically assessing site size and artefact density and in 2013 this will result in the production of standardised site and artefact recording sheets which can be used by the local team to conduct independent archaeological survey.

The surveys already conducted have recorded some 45 sites, mostly comprising of dense open air scatters of ceramic, faunal and lithic material and a small number of rockshelters. These span a range of periods, types and ecological zones and combined, offer great potential to create a detailed cultural-historical, artefactual and settlement sequence for the region. In 2013, further survey will be combined with mapping and test excavation of high potential sites and a more detailed study of artefactual material recovered. The local team will be further trained in survey and will conduct survey independently. In addition they will be trained in site mapping and test excavation and local schools will be encouraged to experience and engage with our archaeological activities.



A range of lithics and ceramics encountered

The survey team on the escarpment



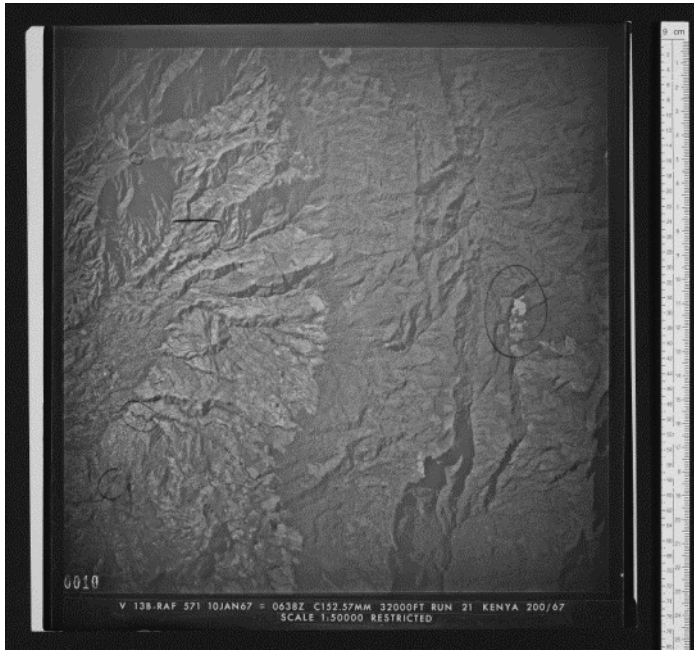
Rockshelter Ratia Kibau shows evidence of considerable activity including a range of decorated ceramics and faunal material.



Remains of former homesteads.

6. Historic aerial Photographs and satellite imagery

Since 2011 the project has obtained digital copies of the 1964 Ordinance of Kenya aerial photographs and has georeferenced these within the project GIS ready for analysis in comparison with modern satellite images. We have also obtained access to a 2012 Quickbird image of the study area courtesy of Swedish colleagues and this has also been incorporated into the project GIS.



One of 52 overlapping aerial photographs of the study region from 1964. These have now been digitised and georeferenced into the project GIS.



Quickbird satellite image courtesy of Swedish colleagues.

7. Material culture, identity and change (Sam Derbyshire)

BIEA graduate intern Samuel Derbyshire had completed a degree in archaeology at UCL with an undergraduate dissertation on Kenyan basketry. He was hoping to continue his ethnoarchaeological research into African material culture and as a result of volunteering on our project, he produced a preliminary study of material culture difference and change between the Marakwet and neighbouring Pokot. His work utilised the Marakwet research team and was supervised by Davies. It focussed on a range of material culture types including ceramics, basketry and calabashes (bottle gourds). The work is particularly notable for recording the use of modern materials such as plastics in the construction of otherwise 'traditional' artefacts and in the different forming and use practices between the otherwise similar Marakwet and Pokot communities. The work has strong stand-alone

potential and will be developed by Sam, through his masters degree at Oxford, into a PhD. However, the research will also be invaluable to the archaeological component of present project. Sam has already drafted a paper on this topic and we expect to develop a peer reviewed publication shortly.



8. Female economic and exchange activities (Grace Pollard)

This sub-project was carried out as part of Grace's anthropology dissertation at the University of Oxford and was facilitated by the Marakwet research team. It focuses on Marakwet women selling agricultural goods in local markets and the economic and social benefits that this brings to their households. It also reassesses the definition and function of *tilia* partnerships. These partnerships have previously been understood as social exchange relationships between men which primarily revolve around livestock transactions. The research looks at how these partnerships are relevant to women and what role they play both within, and beyond, the market places. The sub-project fits well within the overall research agenda since it contextualises the social and material relationships which are underpinned by agricultural activities and also details significant material and social relationships between the Marakwet and neighbouring communities.

The fieldwork was primarily focused upon women living in Tot, Marakwet and also upon three local markets at Chesegon, Koloa and Tot itself. Each market was surveyed twice collecting information about the type and quantity of agricultural goods on sale, the number of men and women selling the goods, and the place of origin of the people selling in the markets. Informal conversations with people selling in the market established how often they attended the market, why they chose that particular market, where their goods were coming from, what profits they were making and how they would use these profits. More extensive interviews were carried out with women living in Tot; these were mostly with young women who sold agricultural goods in the markets, although some older women were interviewed in order to discuss how the markets had changed over time. These longer interviews went into greater depth on similar topics covered in discussions in the market. These interviews were also an opportunity to find out how women perceived their economic contribution to the household compared to their husband's contribution, and discuss their husband's attitudes towards them working in the markets. In depth attention was also paid to how women were spending the profits from the market and how much autonomy they had over decision making regarding how the money was used. These longer interviews were also an opportunity to discuss the definition and function of *tilia* partnerships and to learn more about the nature of women's *tilia*. The results of this fieldwork will be used to highlight the importance of understanding the economic contribution that Marakwet women selling agricultural goods in the market make to their household. The work will also discuss how female *tilia* partnerships are formed through market activity and the important social and economic roles these relationships have within the market and outside of the market between households. The aim is to set this work from Marakwet within the wider context of research looking at women's participation in informal economic sectors in Africa,

and the important contributions that these activities often make to the household both economically and socially.



Markets and interviewing

9. GIS, data archiving and online presentation

Throughout 2012 an extensive amount of spatial and related data was incorporated into the project GIS held at the British Institute in Eastern Africa. We have been conducting extensive research into ways to best publish/present this data online and are looking at a range of Google Earth based solutions as well as bespoke data conversion by the Archaeological Data Service at York.

Establishment of a bespoke BIEA hosted website where basic archival data and working papers can be presented was delayed by the re-development of the BIEA's main website. However, these plans are now set to go ahead in 2013.

10. Research grant applications

In 2012 we explored a range of research grant options. Early in the year we applied for a British Academy International Partnerships and Mobility Grant for a three year networking project linking researchers working on traditional African farming systems in Cambridge, Kenya, South Africa and Nigeria. The project entitled, *African Farming Systems: An interdisciplinary pan-African perspective* will involve a training workshop in Marakwet in the summer of 2013, followed up in 2014 by an exploratory field-season and training workshop in Tiv-land Nigeria a possible field visit to Bokoni

South Africa, and in 2015 by a series of laboratory training days and workshop in Cambridge. Further details are on the McDonald website at: http://www.mcdonald.cam.ac.uk/news/121005_1/

In mid-2012 we also submitted a Leverhulme Research Grant application for a major interdisciplinary archaeological and anthropological study entitled 'Cultural Resilience of an African Landscape (CRAL)' in collaboration with colleagues from the University of York. This submission passed the first round assessment but was unfortunately turned down following the submission of a detailed application. Nevertheless, the process of producing this application has allowed us to significantly crystallise our thinking and passing the first round process encourages us to press forward with further applications in 2013, potentially to the ESRC.

In addition to these research project applications, the project has also formed the basis for Post-doctoral applications by Davies to the University of Stockholm and (forthcoming) for a Leverhulme Early Career Research Fellowship.

We hope that the McDonald Institute and the British Institute in Eastern Africa will continue to support the research as we develop further large-scale funding bids.

11. Publication and presentation

Through 2012 a great deal of work was focussed on the production of the British Academy and Leverhulme research applications. Consequently we are yet to fully bring our research to press. Nevertheless, we have drafted an outline of the first season of fieldwork and Davies presented this to the UK African Archaeology Research Day in Southampton in October. We expect to submit this paper for peer review in early 2013 and are beginning work on a number of other more specific papers which we expect to finalise throughout 2013. In addition Davies is in the process of finalising a paper drawing on the project and on the topic of *Landesque Capital* which will be published in an edited volume in the Left Coast Historical Ecology series. Derbyshire, Davies and Moore also expect to improve a draft paper on Marakwet-Pokot material culture and to submit this for peer review in 2013. Pollard will complete her dissertation on market and exchange practices by mid 2013 and we also hope to develop this into a further peer reviewed article.

12. Conclusions and future plans

Through 2012 work in Marakwet progressed at pace. A large amount of data was collected by the local research team working largely independently and with considerable competence. We believe that the project demonstrates the great potential of local research collaborations and using local data collectors. We have a deal of work ahead of us to collate and analyse the data collected but have strong plans for publication and presentation in 2013. While we are disappointed that our larger funding bid to Leverhulme was unsuccessful we are pleased that we were successful with our British Academy grant and look forward to conducting the field workshop element of this grant in Marakwet in the summer of 2013. We also look forward to develop further funding applications and believe that we will have considerable success in the near future. In the meantime we hope that we will receive ongoing support to maintain the pace of research. We especially look forward to the development of the project website/digital archive and to further community feedback. We are particularly pleased that, alongside the general 'Landscape History' design of the project, the traditional archaeological sub-component is progressing well and look forward to making this a major focus of work in 2013.

Professor Henrietta L. Moore
Dr Matthew I.J. Davies
Cambridge, January 2013

Appendix A: Sample of Land History Data

Date: 02.04.2012

Name: Barnaba K Cheserek (Barkinam)

Clan: Kapishoi

Age set: Kaplelach

Age: 70

Sex: Male

No. Sons: 5

No. Daughters: 1

Other dependants: 1 Grandson

No of Shambas: 3

No. Wives: 2

Types of Shamba:

1. 1A
2. 1A
3. 1A

Others: None

GPS tracks for Shambas: SA27-Sa29

Photo numbers for Shambas: 107-1624 - 1628

For each Shamba:SA27 107-1624 SA28 107-1625-26 SA29 107-1627-28

How did you get this land (and how long have you had it)?

1. 1A Years: 49
2. 1A Years: 49
3. 1A Years: 49

What did you grow here September 2011?

1. Millet and green grams
2. Fallow
3. Maize and green grams

What is growing here now?

1. Fallow
2. Fallow
3. Fallow

What will you grow next?

1. Green grams
2. Undecided

3. Maize and green grams

Is the land fallow and for how long (Y/N + years)?

1. 7 months
2. 32 years
3. 7 months

Who assists with cultivating this plot (i.e. your wife, relatives or assisted help)?

1. Wife and children
2. Fallow
3. Wife and children

Is the food from this plot for eating or sale?

1. Eating
2. Fallow
3. Eating

Who will eat the food (i.e. your wife, children or relatives)?

1. Wife, children and relatives
2. Fallow
3. Wife, children and relatives

If sold, who will get the money (i.e. your wife, sons or relatives)?

1. Not for sale
2. Fallow
3. Not for sale

Does this land belong to you, but is used by someone else?

1. No to all

Who else is using your land?

1. Nobody to all

Additional Data

SA27: inherited this land in 1963 from father. Last year grew millet and green grams. This year intending to plant green grams. Fallow for 7 months. Planted three mango trees and arboreal trees.

SA28: inherited in **Chemoyes** and lastly cultivated in 1980 with sorghum, and left fallow. Settled with **boria maryatta**. Cultivation undecided.

SA29: inherited in 1963 and has been cultivating since with millet, sorghum frequently. Last year cultivated maize, serena and green grams. It started in Oron and extended to **Kibokurkur**. I intend to plant maize and green grams after maize harvest.

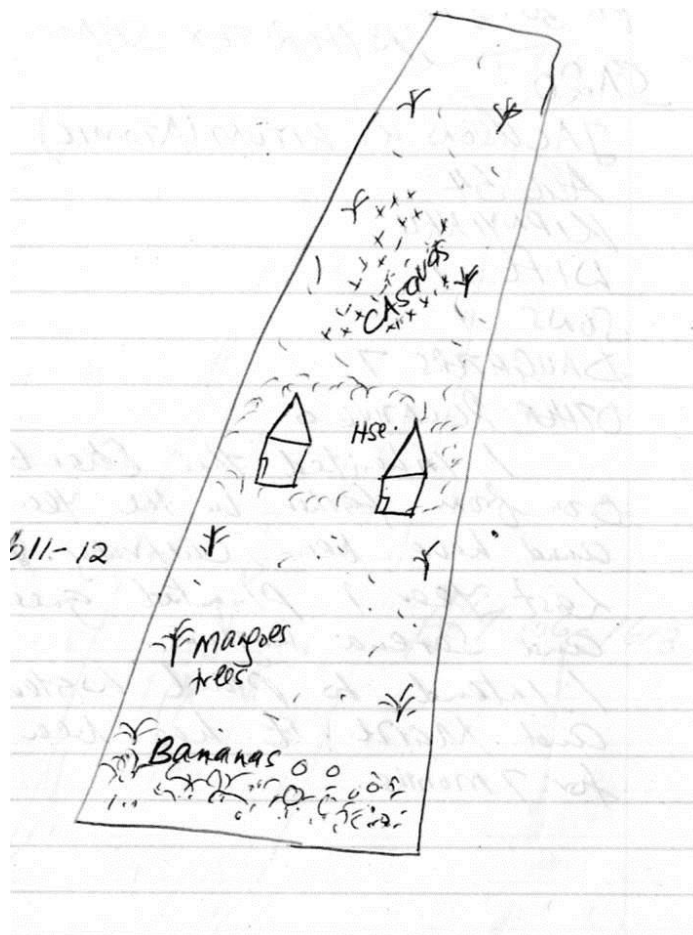
Cleaned Data

Barnaba used to have two daughters but one died. He is also taking care of the son of the daughter who died.

He inherited the plots at the same time 49 years ago.

Plot 2 has been cultivated for 32 years. The reason for this is that the land there is not very fertile and quite rocky. There is also limited access to water for this plot.

Although in his interview, Barnaba claims that his produce is not sold and only for consumption needed, the whole team agree that he probably sells maize and green grams.



Sample of field sketch

Marakwet Community Heritage Mapping Project, Kenya

Report on the third season of fieldwork, April-December 2013.

Professor Henrietta L. Moore
Dr Matthew I.J. Davies

Introduction

Following successful first and second seasons of research the third season of the Marakwet Community Heritage Mapping Project was undertaken in April-December 2013 with the aim of expanding and consolidating the data collected in the first two seasons and maintaining research momentum while applying for larger and longer-term research funding. In 2014 we do not expect to apply for a McDonald grant, instead we will operate under the funding offered by Dr Davies' successful Leverhulme/Newton Trust ECRF grant and by our successful British Academy International Partnerships and Mobility grant. At the same time we will aim to consolidate and publish the data already collected and to focus on developing further large grant applications.

This report outlines the research undertaken in 2013, as well as our ongoing publication and grant application plans. As previously, the research conducted was largely undertaken by a local research team working under the supervision of the project directors. Davies initiated the research program with a field trip in March-April and this was followed up by a trip in September and then by both Moore and Davies in December. Once again the local research team was able to communicate with the project directors via the internet and financial and logistical management was conducted from Nairobi by the staff of the British Institute in Eastern Africa (BIEA).



Professor Moore and Dr Davies deliver laptops to the local school as part of a growing community engagement and education program (see part 14. below).

The research activities conducted in 2013 can be subdivided into the following elements which structure the following report:

- 1. Archaeological field survey and site mapping**
- 2. Detailed investigation of 'special sites'**
- 3. Mapping shifting land-use**
- 4. Recording of historic and ongoing landscape development interventions**
- 5. Crops and crop processing (with Anna Shoemaker)**
- 6. Geoarchaeological and palaeoecological analyses**
- 7. Historic aerial Photographs and satellite imagery**
- 8. Metalworking (with Alex Walmsey)**
- 9. Material culture, identity and change (with Sam Derbyshire)**
- 10. Female economic and exchange activities (with Grace Pollard)**
- 11. GIS, data archiving and online presentation**
- 12. International Partnerships Field workshop**
- 13. Research grant applications**
- 14. Publication, presentation and community engagement**

1. Archaeological field survey and site mapping

To develop initial base-line archaeological survey work that began in 2012, it was hoped that in 2013 the local research team would be able to conduct archaeological survey in the absence of the project directors. However, reflecting on this situation it was decided that the local team were not yet proficient to undertake take this task. As such, in 2013 the team under took a further two transect surveys in the company of Dr Davies and recorded a further ten archaeological sites – each being a scatter of ceramic and/or lithic material, plus one metal-working site (see below). Further base-line survey and excavation will be delayed until 2014 and conducted under Dr Davies recently acquired Leverhulme/Newton Trust ECRF fellowship.



Workshop 'survey team' just outside Ratia Kibau (place of rhinos) rockshelter.

2. Detailed investigation of 'special sites'

Following up on work in previous years, in 2013 we returned to Kobirir Hill, in the Kerio Valley – a former settlement site with extensive evidence of previous habitation and attached oral histories. We again spoke to local residents and recorded their ‘stories’ of the hill and we began mapping the specific geography of the hill, including routes up and down the mountain and the locations of abandoned habitations sites. Selective collections of surface material were also made. It is hoped that excavation of one or more of the abandoned habitation structures will be conducted over the next couple of years allowing us to relate archaeological sites to historically recorded settlement layouts.



Kobirir Hill



Scatters of surface material on Kobirir Hill.



Abandoned house remains on Kobirir Hill.

3. Mapping shifting land-use and the ‘temporality’ of the landscape

Work in 2011 and 2012 demonstrated that Marakwet farming comprised not only of permanent fields held by households but also a significant quantity of land which was cultivated communally and which ‘shifted’ across the landscape every couple of years. This ‘shifting’ communal cultivation allows the community to more effectively clear large areas of bush and distribute water large distances from the source. The pattern of shifting cultivation can be seen in differential ‘re-growth’ patterns which may have significant potential for ecologists interested in vegetation patterns. As such we commissioned the local team to begin mapping current and past areas of communal shifting cultivation. In 2013 the local team have completed this mapping process, using a range of experienced elders to guide them through the sequence of communal farms going back into the 1960s. Overall the team have mapped some 43 plots of land stretching back to 1960. This work contributes significantly to understandings of the complexity of Marakwet agronomy and the ecology of the Marakwet landscape as a partial human construct with distinct temporal cycles.

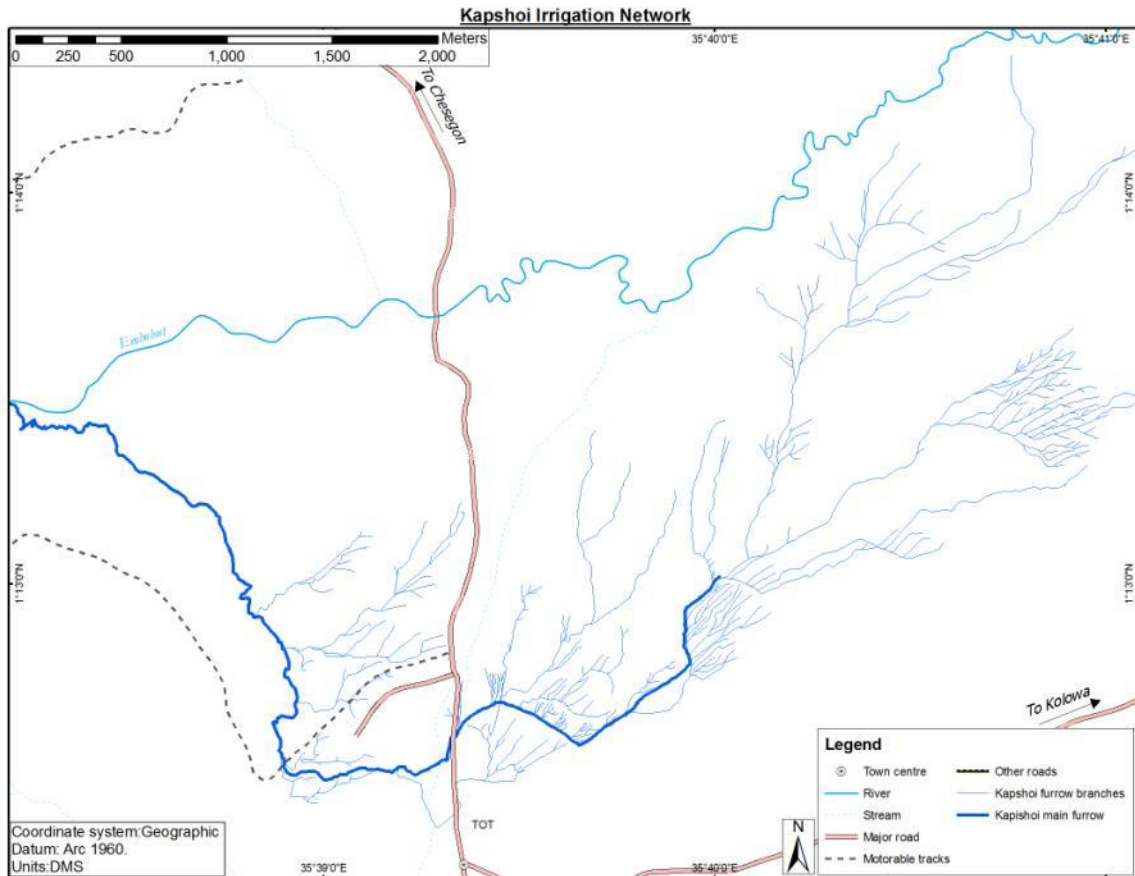


Communal fields like this shift every couple of years resulting in a patch-work of re-growth across the landscape.

In addition to mapping the patterns of shifting fields, it was also recognised that the irrigation networks which serve these fields also move and shift across the landscape. One ‘capillary-like’ network (Kaposhoi irrigation furrow) had been recorded and mapped in 2011 and since that time the field system which it served had altered. As such, we decided to re-map this network in 2013 and also to map the adjacent Shaban furrow network. The GPS/GIS data for this analysis has yet to be processed, however, we believe that we will be able to quantify the degree of movement and reconstruction that occurs within the traditional irrigation network every couple of years.



Small irrigation channels like this, move and shift across the landscape from year to year.



Kapishoi irrigation network in 2011

Also, in addition to the shifting fields and irrigation the team have further mapped and collected land-histories for areas of flood recession cultivation around the main river courses. These areas represent a hitherto un-analysed aspect of the agricultural system yet based on the preliminary areas mapped these likely contribute a significant amount to household economies. The GPS/GIS data for these fields are currently being processed.

4. Recording of historic and ongoing landscape development interventions

In line with Dr Davies proposed Leverhulme/Newton Trust ECRF project and in order both to obtain a clearer picture of the landscape history of Marakwet and contextually apply our data within the context of modern development , we initiated a study by the local team of the history of various ‘development’ interventions. The team physically GPS mapped a variety of structures, from irrigation channels/pipelines, through to experimental farm plots, and then photographed them and made extensive notes on the date and context of the intervention. So far the team have recorded 135 different ‘development’ interventions. The vast bulk of these are relatively small scale interventions in irrigation maintenance via the sponsoring of cement, stone and other building materials largely by church groups and other NGOs (world vision, red cross etc). Major projects recorded included major irrigation schemes by the Red Cross (ongoing) and the Kerio Valley Development Agency; major crop test plots including for cassava, sugar cane, cotton and various fruits; and major piped domestic and animal water schemes, including by the Kenya wildlife service. This history of development

interventions will for one base-line data-set within Dr Davies ECRF project which will examine the effectiveness of outside development interventions in light of long-term landscape change.



The changing material landscape: Top left - concrete repairs on a traditional irrigation channel; Top right – major watering-hole project; bottom left and right – mechanical and large-scale clearance in relation to the ongoing Red Cross irrigation scheme.

5. Crops and crop processing (with Anna Shoemaker)

Though 2013, British Institute Graduate Student Anna Shoemaker assisted Davies to develop a botanic reference collection for Marakwet and conduct an ethnographic study of crop processing and grinding/pounding implements. The botanic collection consisting of 27 separate varieties (see table below) has already served the basis for discussions with Professor Martin Jones on the potential for archaeogenetic research into African cereal crops – especially finger millet. Martin Jones’ own investigations in the region during the recent field workshop (see below) have identified a further forty staple recurrent food crops including four African, nine American and nine Asian varieties. These further include some 15 different varieties of finger millet.

Ground food plants in Marakwet

Marakwet Name(s)	Latin Name	English Name	Photo Numbers
Chepknur	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4384-4386
Kipokitin (Kipokitis pl.)	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4387-4388

Kptot	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4389-4390
Chepkorit	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4391-4392
Kiptkonis/Chorongo	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4393-4394
Kulwu	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4395-4396
Kptot	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4397-4398
Kptukani (black)	<i>Eleusine coracana</i> (L.) Gaertn	Finger Millet	4399-4400
Serena (red)	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4401-4402
Mosong	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4403-4404
Serena (white)	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4405-4406
Chepolos	<i>Zea mays</i> (L.)	Maize	4407-4408
Katumonu/Ksim	<i>Zea mays</i> (L.)	Maize	4409-4410
Kunten	<i>Vigna unguiculata</i> (L.) Walp	Cowpea	4411-4412
Serena (red)	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4413-4414
Serena (white)	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4415-4416
Mosong	<i>Sorghum bicolor</i> (L.) Moench	Sorghum	4417-4418
Cassava	<i>Manihot esculenta</i> Crantz.	Cassava	4419-4420
Maan	<i>Ricinus communis</i> (L.)	Castor Oil	4421-4422
Loom	<i>Balanites pedicellaris</i> Mildbr.	-	4423-4424
Kinyat	<i>Ximenia americana</i> (L.)	Yellow Plum	4425-4426
Tuyun	<i>Balanites aegyptiaca</i> (L.) Del.	Desert Date	4427-4428
Tuyun	<i>Balanites aegyptiaca</i> (L.) Del.	Desert Date	4429-4430
Rosecoco	<i>Phaseolus vulgaris</i> (L.)	Pinto Bean	4431-4432
Yellow	<i>Phaseolus vulgaris</i> (L.)	Kidney Bean	4433-4434
Ngengech	<i>Piliostigma thonningii</i> Schum.	Camel Foot	4435-4436
Tilam	<i>Ziziphus mauritiana</i> Lam.	Jujube	4437-4438



Botanic reference collection samples of finger millet (left and middle) and sorghum (right)

Anna has further developed a morphological typology of grindstone styles for use with different cereal crops and other substances which will have wide-ranging archaeological potential – both in Marakwet and further afield in Africa, not least because grindstones provide an underutilised source of information on economy and chronology (relative to different crop introductions, particularly maize). We are in the process of writing up this grindstone data and hope to develop this study into more scientific analysis of grindstones including residues, phytoliths and micro-wear.



Various grinding stones in Marakwet



Grinding finger millet in action

6. Geoarchaeological and palaeoecological analyses (with Charly French and Emuabosa Orijiemie)

In December 2013 we were also able to draw on the expertise of Professor Charly French (University of Cambridge) and Dr Emubosa Orijiemie (University of Ibadan, Nigeria) to begin a thorough assessment of the palaeogeography (geoarchaeology and palaeoecology) of the Tot-Sibou region. Professor French was able to conduct a preliminary survey of soils and depositional sequences along the Embobut River and to collect samples from two soil profiles for further micro-morphological analysis in 2014. In addition to this, Dr Orijiemie, a palynologist, was also able to take samples for bulk pollen analysis at the longer of these soil profiles, these will also be processed in 2014.

Professor French's preliminary report on the geoarchaeology of the Tot-Sibou region can be read via the project website:

<http://farminginafrica.wordpress.com/2014/01/13/geoarchaeological-assessment-of-the-area-around-tot-marakwet-kenya/>



Professor Charly French and Dr Emuabosa Orijiemie describe a soil profile along the Embobut River.

7. Historic aerial Photographs and satellite imagery

Since 2011 the project has held digital copies of the 1964 Ordinance of Kenya aerial photographs and has georeferenced these within the project GIS ready for analysis in comparison with modern satellite images. We have also obtained access to a 2012 Quickbird image of the study area courtesy of Swedish colleagues and this has also been incorporated into the project GIS. During 2013 we have been fortunate to find a graduate student from Kenyatta University in Nairobi who would like to analyse these images as part of his masters degree in Environmental Science – fortunately this student is not only a resident of the Marakwet area and so familiar with the region, but is also well trained in GIS, having worked for ESRI Eastern Africa and GeoMaps Africa for several years. We have spend some time in 2013 familiarising this student with the data-set and we look forward to making more of our remote sensing data in 2014.

8. Metalworking (with Alex Walmsey)

During archaeological survey work in 2013 we encountered one metal working site. This is probably a smithing rather than smelting site, however, this data builds on previous work into iron smelting in the region conducted by Davies. In particular, two different types of smelting furnace have been excavated in regions immediately adjacent to Marakwet and the newly discovered site offer the

potential to place historic Marakwet metal working into broader sequences. To this end, Alex Walmsey a Cambridge undergraduate supervised by Davies is currently working on a dissertation analysing iron slag from these two previous excavations and writing up aspects of each site. We hope that these preliminary investigations may lead into broader studies of metal working in the region and more broadly.



Left: iron slag and spear tip at site located by Marakwet survey; Right: excavation of furnace base in neighbouring region.

9. Material culture (with Sam Derbyshire)

In 2013, Sam Derbyshire completed an M.St. in Archaeology at the University of Oxford on the material culture of the Marakwet region entitled '*Kalenjin Ethno-archaeology: Perceptions of Material Culture*'. The dissertation was given a high first and Sam will now undertake a doctoral study of material culture history in the broader region. We expect to work with Sam as this research continues and we are making plans to collaboratively publish some of the results of the masters work.

10. Female economic and exchange activities (with Grace Pollard)

In 2013 Grace Pollard completed an Oxford Undergraduate social anthropology based dissertation in Archaeology and Anthropology on the nature of female economic exchange practices in Marakwet. This work innovatively linked 'traditional' exchange partnerships with market based activities and provides a rich ethnographic context for understanding broader temporal patterns of exchange and interaction – especially between farming and pastoral communities within the study region. Through 2013 we have been working on the collaborative publication of Grace's results.

11. GIS, data archiving, social media and online presentation

As previously, throughout 2013 an extensive amount of spatial and related data was incorporated into the project GIS held at the British Institute in Eastern Africa. Unfortunately this process has been delayed by the loss of our BIEA GIS technician in Nairobi who has moved on to establish his own survey company. However, Dr Davies is currently working on the processing and analysis of a range of spatial data. A selection of this map format data is now available via the project website: www.farminginafrica.wordpress.com/marakwet.

We are further exploring opportunities to develop more effective online resources so as to feed back our research results to a broader community. To this end, in 2013 Dr Davies successfully applied for and AHRC/CRASSH Social Media Scholarship which has allowed him to explore issues of the use of social media in the conduct and communication of archaeological research. This included the

running of a one day workshop at the McDonald Institute and the establishment of an online community 'group space' and 'wikidocument' exploring the best use of social media in archaeology. Dr Davies has also presented on this topic and especially the possible roles of social media use in the communication of archaeology in Africa at a range of venues. Further information including a film can be found via the following links:

<http://smke.org/technology-social-media-and-public-archaeology-in-africa/>
<http://smke.org/matthew-davies-at-smke2013/>
<http://groupspaces.com/SMPA/wiki/>

12. International Partnerships Field workshop

Between the 6th and 18th of December 2013 we also hosted the first field workshop in a sequence under the African Farming (an interdisciplinary pan-African perspective) research network. This is funded by a British Academy International Partnerships and Mobility grant to Professor Moore and Professor Caleb Adaebayo Folorunso (University of Ibadan, Nigeria) and is coordinated by Dr Davies. The network links archaeology based research projects dealing with Iron Age African farming, situated in Kenya (Marakwet), Nigeria (Tiv) and South Africa (Bokoni), this workshop will be the first of four, with visits to Tiv and Bokoni planned for 2014 and to Cambridge in 2015. Multiple workshop sessions focussed on a wide range of topics relating to African farming including traditional irrigation systems, cultigens, cropping and fallowing patterns, kinship and land tenure, local knowledge of soils and fertility, geo-archaeology, crop-histories and archaeobotany, oral histories, domestic architecture, settlement patterns and demography, material culture, conflict and exchange and development practice.

The workshop was part led and supported by the Marakwet research team developed under this grant. Further information on the network and the first field workshop can be found via the following links:

www.farminginafrica.wordpress.com/about
<http://farminginafrica.wordpress.com/2014/01/07/from-the-first-field-workshop-2/>

13. Research grant applications

Much of 2013 was spent applying for and managing larger grant applications. We were successful in obtaining a three year British Academy International Partnerships and Mobility Grant (see above) and Dr Davies applied for and successfully obtained a Leverhulme/Newton Trust Early Career Fellowship which will support this research for the next three years (2014-2016) (see: <http://md564.wordpress.com/about/research/applied-agro-archaeology-in-eastern-africa/>). Dr Davies was also awarded an AHRC/CRASSH Social Media Exchange scholarship to explore the role of Social Media use in Archaeology: <http://smke.org/scholar/matthew-davies/>.

In addition to these successful applications we also submitted an outline proposal to the AHRC under the 'Care for the Future' call. Unfortunately this application was unsuccessful, however, Dr Davies has been selected to participate in the Early Career forum under the same theme which may lead to further funding applications. In addition, we have drafted and aim to submit a follow-up application for a standard research grant to the ESRC. We hope that the McDonald Institute will continue to support this research as we apply for further funding.

14. Publication, presentation and community engagement

During 2013 we have worked on a large number of publications. Our website www.farminginafrica.com has come online and contains a wide range of project information and posts/blogs from affiliated scholars. We have also produced a special issue of the Newsletter of the British Institute in Eastern Africa which is downloadable here:

<http://farminginafrica.wordpress.com/2014/01/17/the-african-farming-network-is-featured-in-british-institute-newsletter/>

Dr Davies has published the following book chapter:

Davies, M.I.J. 2014 (March). The temporality of landesque capital: farming and the routines of Pokot life. In Håkansson, T. and Widgren, M. (eds). *Landesque capital: the historical ecology of enduring landscape modifications*. Left Coast Press, Historical Ecology series.

And the following papers are currently under production:

Davies, M.I.J. In prep. Public Archaeology in Africa and Beyond: post-colonial, historical, indigenous, ecological and other useable pasts.

Davies, M.I.J. and Moore, H.L.M. In prep. Revisiting the Irrigated Landscape of the Marakwet.

Dupeyron, A., Davies, M.I.J. and Moore, H.L.M. In prep. Mobile internet technologies and the possibilities for public archaeology in Africa.

Pollard, G. Davies, M.I.J. and Moore, H.L.M. In prep. Women, marketplaces, and exchange partners amongst the Marakwet of northwest Kenya

Shoemaker, A., Davies, M.I.J. and Moore, H.L.M. In prep. Back to the grindstone? The archaeological potential of grinding-stone studies in Africa with reference to ethnographic grinding practices in Marakwet, northwest Kenya.

In addition to these we have plans for a number of further papers and are in the process of outlining a short monograph.

In terms of presentations in 2013, we have given the following in relation to the current project:

December 2013: 'Historical Ecology, Landscape and Applied Agro-Archaeology in Marakwet, Kenya', *National Museums of Kenya*, Nairobi, Kenya.

November 2013: 'Who is the client and what will they do with it? Archaeology, development and heritage in South Sudan and Marakwet, Kenya'. *British African Archaeology Research Day*, University of East Anglia.

June 2013: 'Social Media and Public Archaeology in the Developing World: potential applications from Kenya' *SMKE Social Media Knowledge Exchange conference, CRASSH*, University of Cambridge.

May 2013: 'Introduction' and 'Social Media and Public Archaeology in the Developing World: potential applications from Kenya', *SMKE Social Media and Public Archaeology Workshop*, McDonald Institute, University of Cambridge.

April 2013: 'Historical Ecology and Applied Agro-archaeology in Eastern Africa', *McDonald Seminar*, University of Cambridge.

January 2013: 'Why Archaeology is important in Africa'. *Oxford Archaeological Society*, University of Oxford.

As previously we continue to engage extensively with the local community. This is primarily conducted through the local research team. We have also participated in a range of local community events and conducted numerous discussion meetings. Following-up on previous donations of books to the local primary school, in this season we have donated three lap-tops – the first that the school has. We are also beginning to promote the local research team as a ‘Research Station’ and thus as a resource base for all research in the region – potentially leading to additional research engagements with other projects. The will provide further education and resources to the community and effectively build on the investments already made in the region. To these ends, Professor Moore has also supported the publication of a volume by the local council of elders on Marakwet culture and we hope to extend these engagements over the coming years.

Professor Henrietta L. Moore

Dr Matthew I.J. Davies

Cambridge, January 22nd 2014