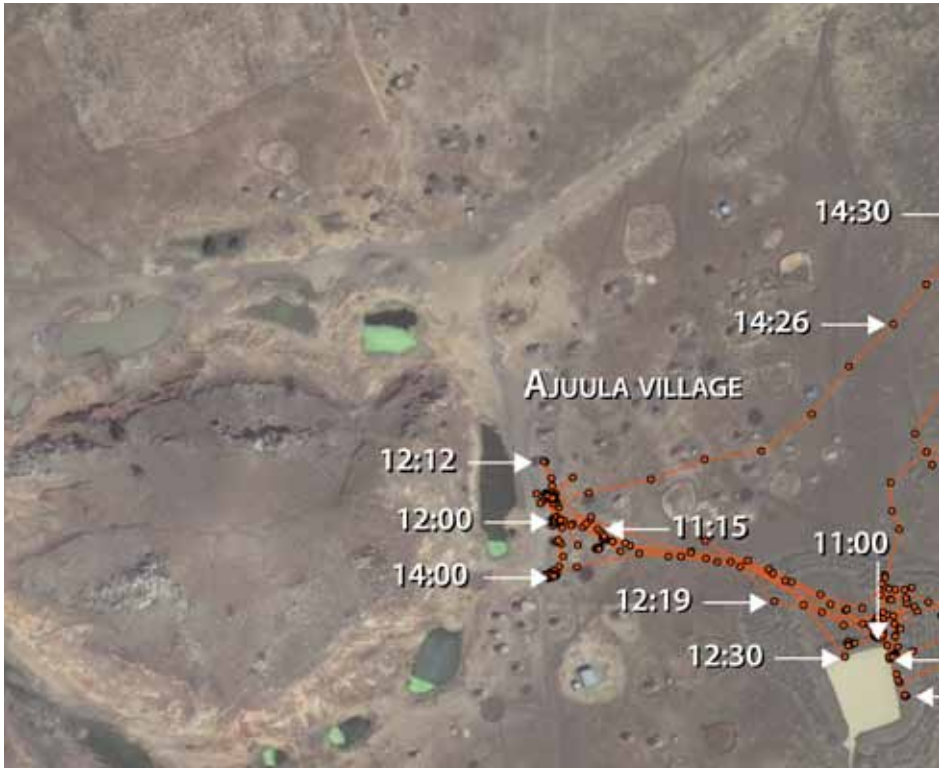


# PASTORALISM IN INTERACTION

WITH OTHER FORMS OF LAND USE IN THE BLUE NILE AREA OF SUDAN III

[Awad Alkarim, Elhadi Ibrahim Osman, Günther Schlee and Jutta Turner]



THE METHODS OF CITIZEN  
SCIENCE IN THE STUDY OF  
AGROPASTORALISM

HALLE (SAALE) 2015

MAX PLANCK INSTITUTE FOR SOCIAL ANTHROPOLOGY  
**DEPARTMENT 'INTEGRATION AND CONFLICT'**  
FIELD NOTES AND RESEARCH PROJECTS X

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# SERIES EDITOR'S PREFACE

(GÜNTHER SCHLEE)

## ABOUT THE SERIES

This series of *Field Notes and Research Projects* does not aim to compete with high-impact, peer reviewed books and journal articles, which are the main ambition of scholars seeking to publish their research. Rather, contributions to this series complement such publications. They serve a number of different purposes.

In recent decades, anthropological publications have often been purely discursive – that is, they have consisted only of words. Often, pictures, tables, and maps have not found their way into them. In this series, we want to devote more space to visual aspects of our data.

Data are often referred to in publications without being presented systematically. Here, we want to make the paths we take in proceeding from data to conclusions more transparent by devoting sufficient space to the documentation of data.

In addition to facilitating critical evaluation of our work by members of the scholarly community, stimulating comparative research within the institute and beyond, and providing citable references for books and articles in which only a limited amount of data can be presented, these volumes serve an important function in retaining connections to field sites and in maintaining the involvement of the people living there in the research process. Those who have helped us to collect data and provided us with information can be given these books and booklets as small tokens of our gratitude and as tangible evidence of their cooperation with us. When the results of our research are sown in the field, new discussions and fresh perspectives might sprout.

Especially in their electronic form, these volumes can also be used in the production of power points for teaching; and, as they are open-access and free of charge, they can serve an important public outreach function by arousing interest in our research among members of a wider audience.

## ONLINE PUBLICATIONS

Two online publications by Günther Schlee (“Fulbe Pastoralists in Eastern Sudan and Western Ethiopia: a documentation” 1996–2002 and “Ethiopian Diary 2001–2002”) can be found under <http://www.eth.mpg.de/cms/de/publications/epubs.html>

# INTRODUCTION

(GÜNTHER SCHLEE)

On June 16, 2012, Jerome Lewis from the University College London gave a talk at the Max Planck Institute for Social Anthropology at Halle. It was about Citizen Science (*Extreme Citizen Science: At the Intersection of Anthropology, Engineering, Computer Science and Environmental Justice*). It was all about the participation of ‘ordinary’ citizens, i.e. people without scientific training, in data collection. His examples were pygmies who record trees which deserve special protection or evidence for illegal logging by smartphone in the Republic of Congo (cf. Lewis 2014) and urban dwellers who record noise levels to identify sources of noise which exceed permissible limits. He met with some scepticism in the audience. Some discussants thought that these forms of data collection might impose Western models of thinking on non-Western data collectors or that the use of miniaturized portable high tech equipment might make them dependent on these gadgets by arousing consumerist desires for electronic items in them. I expressed my feeling that these considerations were of minor importance, all the more since Westernization and smartphones are on the advance anyhow. I said that I wanted to find out what herders, children, youngsters, or adults in the Sudan would record about the daily movements of their flocks to pasture and water if given a camera. I was sure that they would record different things from what we professional researchers would record if we accompany a herder and a herd (as we occasionally do; see vol. 2 of our booklets about Pastoralism in Interaction, vol. 3 of this series, for example). Awad Karim Tijani and Elhadi Ibrahim Osman, my Sudanese colleagues on this project, were in the audience and it did not take much to convince them.

We modified the equipment and methods presented by Jerome Lewis to fit our needs. We decided to give the herders a small digital camera in the morning. None of them was familiar with photography and we gave them minimal instructions: how to aim and where to press, to leave the camera in the automatic mode and not to bother about the zoom. In addition the herders were given a GPS device, the size of a mobile phone, which we had turned on in the morning and asked them to carry with them for the whole day. In the evening we would load photographs and GPS data onto our laptop computers. The camera would also record the time. The precise location, where each photograph was taken, could then be ascertained by identifying the waypoint recorded at just that time on the track the GPS had recorded.

So as long as the herders took enough pictures we would automatically know – with the help of these machines – where they took the animals at which time of the day. The pictures themselves would show us what they saw there. That is as far as technology would get us.

All this sounds fairly easy, but to bring all this information together, produce maps which show the herders' location at the correct time of the day and also visualize the different speeds of movement in different parts of the trajectory by marking points taken at fixed intervals of time, required the skills of our cartographer Jutta Turner who played an essential part in developing this method.

The rest would be research of the conventional kind: sitting down with people and talk to them. We would go through all the photographs on the laptop and ask the herders why they took these particular photographs and to explain to us what was to be seen on them.

The result of our first two tries of this kind are the subject of this booklet. My expectation that the perspectives of the herders, which could be elicited with these techniques, would be new and interesting and that the things they saw and talked about would be different from what we would have seen and talked about was fully confirmed. The captions of the photographs are all based exclusively on what the young herders explained to us. Occasional additions by one of us have been put in edged brackets ([...]). The herders not only report what they thought at each time of the day, like when to slow down the movement to have the animals eat more, when to let them drink etc., but they also report what the animals thought. What evolutionary anthropologists and psychologists call 'Theory of Mind' (TOM) and which they regard as the one feature in which human beings most markedly surpass all other species is fully played out here. A strict behaviourist would no doubt accuse the herders of giving too 'anthropomorphic' explanations of the behaviour of sheep, goats or cows. He would claim that they would talk about these ungulates in categories more adequate to human beings. But anthropomorphic or not, I was fascinated by the closeness of observation, the richness of description and the amount of detail with which herders discussed what the cows did and why they behaved the way they did.

Also their own relationship to animals, their sense of beauty in selecting cows with certain colour pattern to be photographed or their sympathies expressed by making portraits of animals with which they shared more familiarity become clear from these comments, in addition to many aspects of practical management which other people might have perceived in similar ways, except that the herders might have known more about it.

To reflect the perspectives of the herders as closely as possible, the pictures have been cropped very cautiously, if at all. The focus has been preserved. Sometimes, a bit of the sky or bit of the foreground have been cut out and sometimes lateral margins have been slightly cut to let the topic the photographer wanted to depict appear a little larger. Selections needed to be made, but are reflected by the original numbers of the pictures which have been kept: 611, 618, 626 etc. If the topics of the skipped pictures allow conclusions about the importance which an observation had for the herders, this is

reflected in some captions, like “The red cow is on several photographs ...”, along with an explanation by the herder. Otherwise, the skipped photographs are similar to the ones before and after and have been left out to avoid too much repetition.

Of course, all pictures have been archived. So if a full set of uncropped pictures is needed, in order to answer a specific research question for instance, it can be provided.

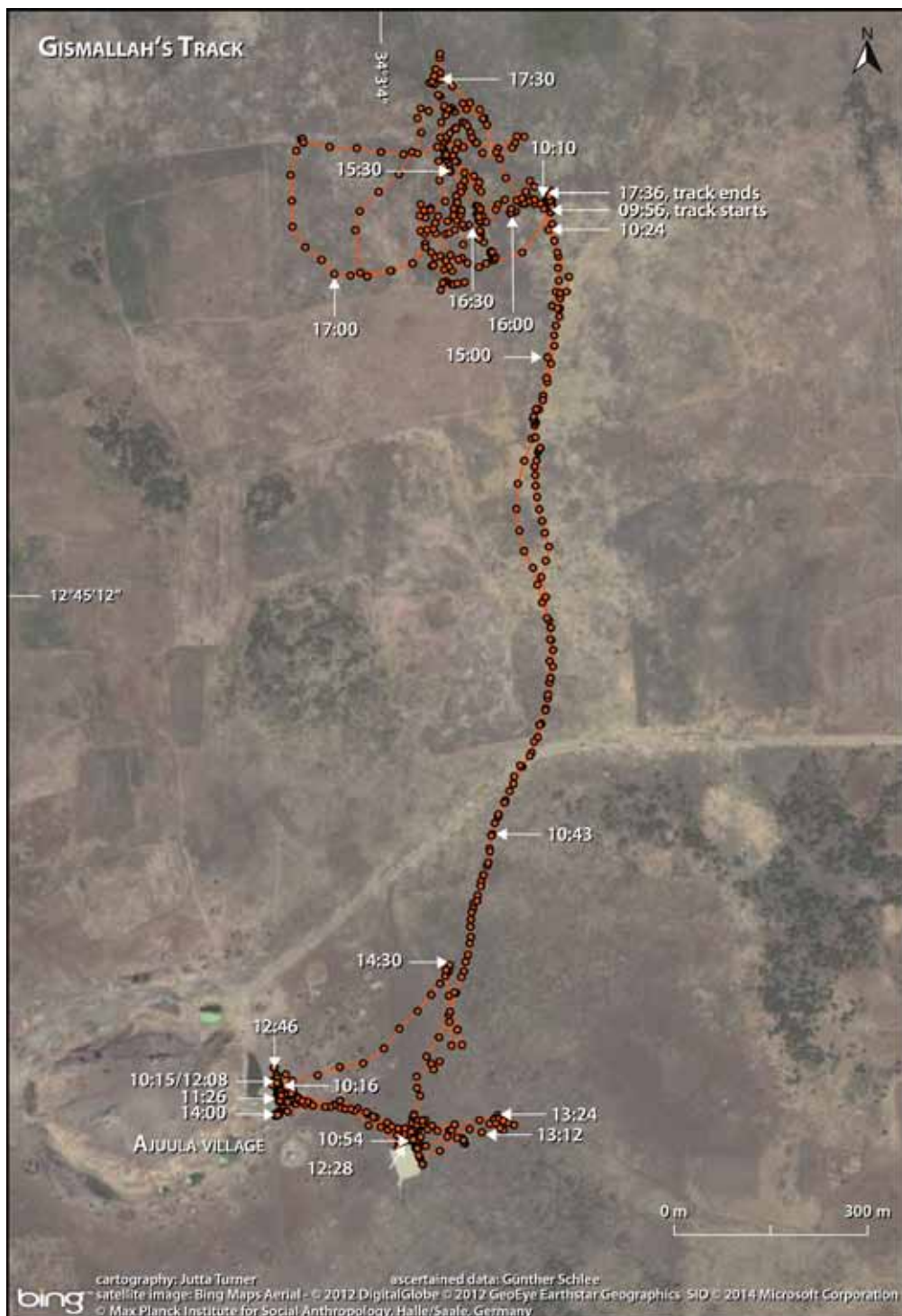
## REFERENCE

Lewis, Jerome. 2014. ‘Making the Invisible Visible: Designing Technology for Nonliterate Hunter-Gatherers,’ in Leach, James and Lee Wilson (eds), *Subversion, Conversion, Development: Cross-Cultural Knowledge Encounter and the Politics of Design*. Cambridge, Massachusetts: The MIT Press, 127-152.



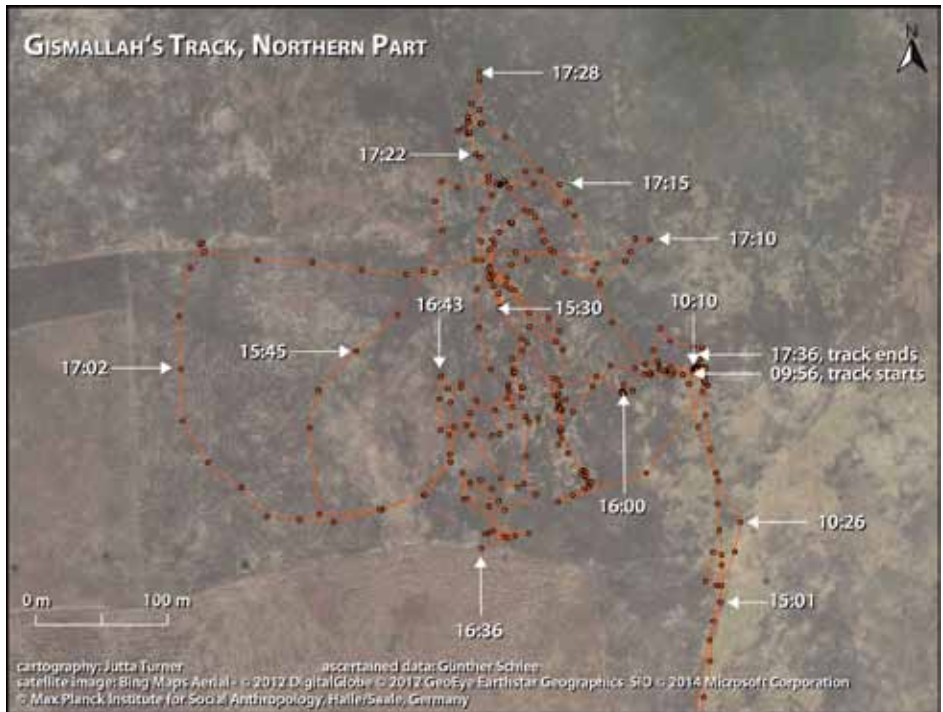
Map 1: The red points marks the project area represented on the overview map on the next page.



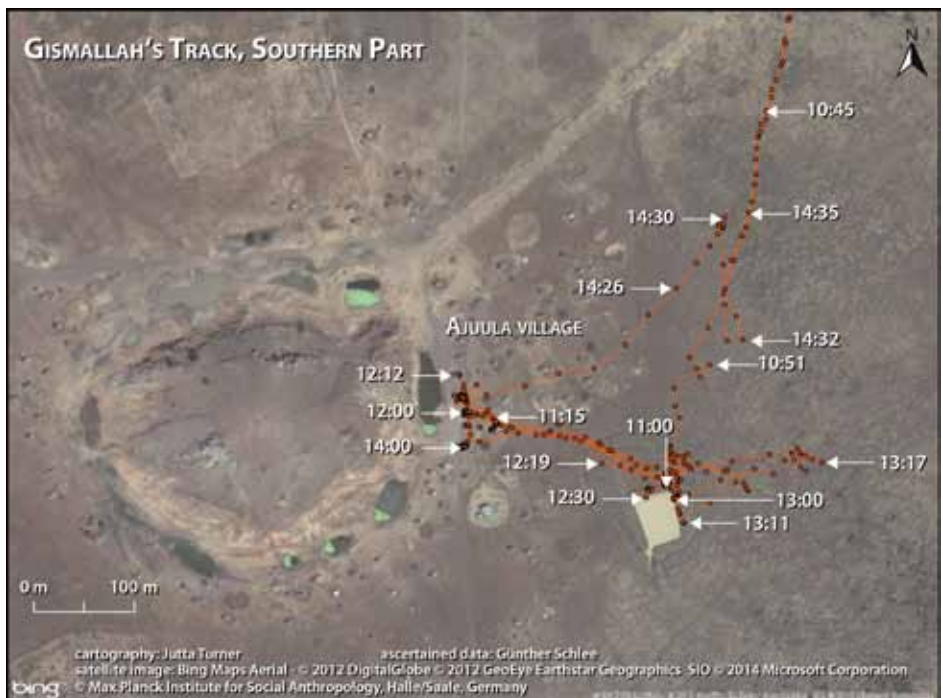


Map 2: Adam Gismallah's Track

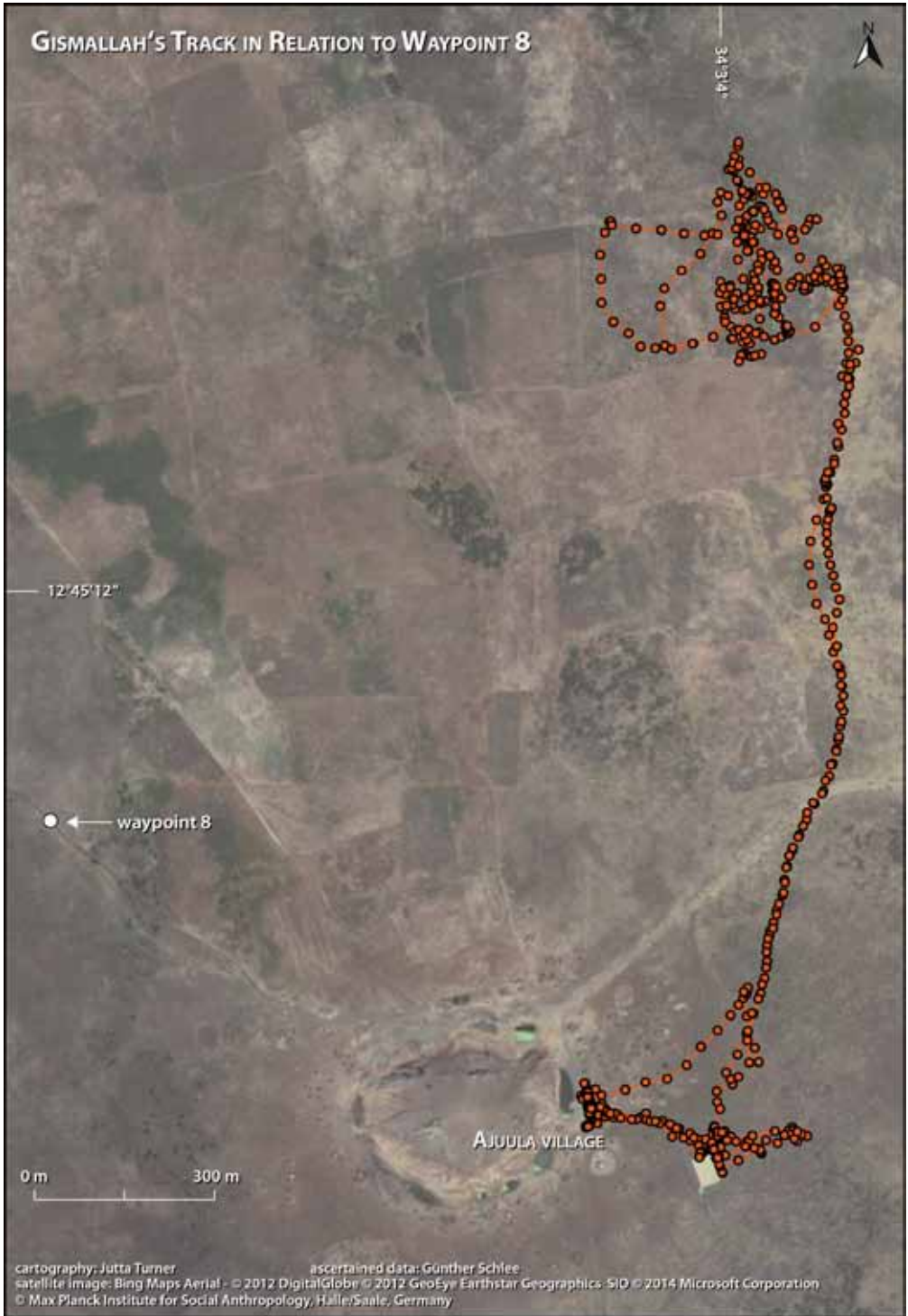




Map 3: Gismallah's Track, Northern Part



Map 4: Gismallah's Track, Southern Part



Map 5: Gismallah's Track in Relation to Waypoint 8

# GISMALLAH ADAM

Field Notes Source: 20121121GismallahA.docx

(WRITTEN BY GÜNTHER SCHLEE ON THE BASIS OF  
INFORMATION GIVEN BY GISMALLAH ADAM, MAPS BY JUTTA TURNER)

Adam, Gismallah's father, is a farmer from Ajuula village. Adam took us on the morning of November 21 to his smallstock herd, staying on the fringe of one of his harvested fields, herded by his 15 years old son Gismallah.

We gave Gismallah a GPS which he kept in his pocket for the whole day to record his movements. To match the time readings of the GPS with those of the camera we gave him, and to interpret the times recorded by the camera, it is important to note that the camera had a twelve hour time recording and the time was wrongly set as PM instead of AM. So the Picassa picture processing programme read 11.00 h as 23.00 h etc. When writing up this record this has, of course, been corrected.

We met the herd at waypoint 005 (file: 20121121), their resting place, and collected the gadgets at the same point in the evening. The animals had stayed here 4–5 days. The next day they were going to move. Two days later, on November 23, we took these notes, partly around noon in the village, partly in the evening at the new location at waypoint 008 (file: 20121123ponds). Both fields, the ones which the smallstock had been grazing on before and the present one, belong to Adam. The new location was closer to the road. When the pond at Ajuula will be exhausted, it will be possible to take water by truck to the smallstock camps along the road.

Gismallah took 125 pictures until 13:24 when the battery of his camera (which he had presumably left on all the time) went down. His comments show, among many other things, that he has an elaborate TOM (theory of mind) about smallstock.

*20121121GismallahA*



25.jpg: His father Adam

(PHOTO: GISMALLAH)



26.jpg: *Ghanam fi l-gasab* – Smallstock in the sorghum stalks. The object on the left is his stick.



27.jpg

(PHOTOS: GISMALLAH)

Elhadi, his brother, takes care of the goats. The goats spend the nights at the house in the village, while the sheep are kept permanently in the satellite camp, or the bush (*khalla*). Also the goats were brought here, because the family has a sorghum field here, where they can graze the remainders after harvest.

The goats are needed in the village because of their milk. Also two days later, at the time of discussing his photographs with Gismallah and taking the notes on which this account is based, the same procedure was to be followed. They had taken the animals to another field of theirs; the sheep would stay overnight and the goats would be taken back to the village.

Many of the sheep have small lambs and need lots of care. So his father joins him every night.





28.jpg: Elhadi, Gismallah's brother



30.jpg: Gismallah's self-portrait.



31.jpg: Followed by two similar photographs taken from his shade (*taaya*). The sheep are resting.

10:16 AM



35.jpg: *Qitir* (*Acacia* sp.), the goats like to browse it. For the sheep it is too high.  
(PHOTOS: GISMALLAH)



38.jpg: The Dog is sleeping in the shade. It barks to alert people and is especially useful at night.



39.jpg: Gismallah's stick (*u'kaas*).



40.jpg: *Rabuub karr* – lambs (*rabuub*) of the shady place (*karr*). They are 10 to 15 days old. [Followed by two more such photographs. I have a brief film clip on the same topic.]



43.jpg: Elhadi, his brother, prevents sheep from entering a field of sorghum which has not yet been harvested. (PHOTOS: GISMALLAH)

10:22 AM





48.jpg: Elhadi eats *gasab*. The sorghum stems are sweet inside.

10:27 AM



49.jpg: *Raahil* (movement, trek). The sheep have started to move towards the water pond at Ajuula village.  
(PHOTOS: GISMALLAH)

10:29 AM



51.jpg: Elhadi helps a sick sheep to move along.



54.jpg: The goats move in front. They always do.

10:48 AM

NOV 21



10:50 AM

56.jpg: The sheep follow.

(PHOTOS: GISMALLAH)



10:56 AM

59.jpg: Other sheep, in the background, come back from the water.



10:57 AM

60.jpg: The pond, one of several ones, near Ajuula village.

(PHOTOS: GISMALLAH)



10:58 AM

61.jpg: The sheep are drinking.



62.jpg: The goats are drinking. The village is visible in the background.



11:00 AM

68.jpg: There are cows which have joined the smallstock at the pond. The pond will last two more months.



11:01 AM

71.jpg: A break from drinking.

(PHOTOS: GISMALLAH)



72.jpg: The sheep want to rest (*daa'iriin ya'igulu*).

Gismallah has taken several photographs of a donkey (e. g. no. 53) which another boy has taken to the water point. He would also have good use for a donkey, but he has not got one. The donkey owned by the family (below) is used for fetching water for the house.



77, 94.jpg



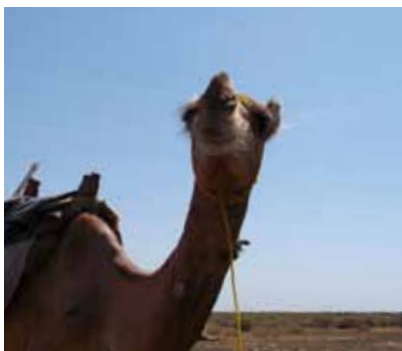
96.jpg

(PHOTOS: GISMALLAH)



108.jpg: They do have a camel, but they use it for herding the cattle.





113, 114.jpg: Other portraits of this camel come, a little later in the sequence of pictures (cf. jpg-numbers).



109.jpg: These calves belong to Gismallah's family herd.

(PHOTOS: GISMALLAH)



110.jpg: The white donkey is also theirs. It is used with the *karro* to fetch water for the house. It will not be used to take water to smallstock in the *khalla*. When the ponds dry up, water will be taken there by lorry for payment.



12:08 PM

121.jpg: Inside the house. He had his *fatuur* meal there.

(PHOTOS: GISMALLAH)



123.jpg: A newly purchased ewe. She is two years old. She is said to be of a good breed which stems from Ethiopia. She has been brought from Damazin. She is expected to give birth to triplets. In response to my comment, that I am aware that sheep breeders prefer ewes which give birth to twins to those who give birth to single lambs, but that I expect triplets to be a bit troublesome to raise, Gismallah's father says that he is aware of that but the problem can be managed by feeding grain. [So this is a clear intensification strategy.] Gismallah answers my question whether her ears are not shorter than those of Sudanese breeds in the affirmative.





124.jpg: This sheep is sick and stays in the house (*ayaan, fii l-beet*). It has diarrhoea from eating too much sorghum.



126.jpg: The goats are having a rest after drinking water. After that they will go back to the water.

12:22 PM



127.jpg: The sheep are doing the same.

(PHOTOS: GISMALLAH)

12:23 PM



129.jpg: Sheep are sleeping.



130.jpg: A lamb seeks shade under its mother.

NOV 21



132.jpg: Looking at this photo, Elhadi I. O. recognized that the sheep in the centre with the big tail is a ram. Gismallah confirmed this. Ewes do not grow tails to that size.



12:26 PM

134.jpg: A donkey belonging to other villagers also has a rest after drinking. The lamb in the middle is a ram. It is of a good breed for mutton. It has long legs and stands higher in the hind quarters. (PHOTOS: GISMALLAH)



136.jpg: Gismallah's younger brother with a goat. It is going to be milked.



12:28 PM

137.jpg: *Kharuuf qaam min an-noom*. 'A ram got up from sleep'.



12:33 PM

139.jpg: The smallstock start to drink again.

(PHOTOS: GISMALLAH)



12:51 PM

141.jpg: The sick one which is left at the house.



NOV 21



13:12 PM

142.jpg

(PHOTOS: GISMALLAH)

Sheep and goats graze on the way to overcome the feeling of having drunk “heavy water” (*mooya taqiila*). [The Rendille of Kenya have a special word for the state of an animal after drinking, namely *ebeh*. To overcome this state by taking in some solid matter is called *ebeh a guusta* (3<sup>rd</sup> Pers.).]



13:24 PM

146.jpg: Goats browsing *qitir*.



147.jpg: The animals browse or graze under shrubs to combine shade (*dul*) and pasture.



148.jpg: Sheep eating *oleef*, the fruit of *laoot*. They eat the husks with the seeds. They are *murr* (bitter) and are therefore believed to be a medicine against worms.

(PHOTO: GISMALLAH)

Here the battery of Gismallah's camera gave up. The GPS he carried in his pocket continued to work and recorded all of his movements for the rest of the day. Apart from the information elicited by discussing the pictures, the following has been recorded:

The discussion of the pictures took place at two times in two places. One was in the village near the water ponds during daytime, the other one at the *khalla* camp in the evening. The first session came to an end when some people turned up to whom his father had sold seven animals and who now wanted to take these out of the herd.

Gismallah is 15 years old. He has never gone to school. But one of his younger brothers is at school, as his father points out. There is a division of labour within the family, with some children for work, others for school. That the whole is one unit of production in which efforts are distributed and gains are shared does not seem to be questioned.

The animals are given salt every other week. They believe this increases the blood of the animals. Awad comments on this that this may well be the case, because the salt makes them eat more.



Map 6: Muhammad Yuusif's Track, Agricultural Faculty Premises





Map 7: Muhammad Yuusif's Track

# MUHAMMAD YUUSIF

Field Notes Source: 20121121 YuusifMoh.docx

(WRITTEN BY GÜNTHNER SCHLEE, AWAD KARIM AND ELHADI IBRAHIM OSMAN ON THE BASIS OF INFORMATION GIVEN BY MUHAMMAD YUUSIF, MAPS BY JUTTA TURNER)

## *20121121 YuusifMoh*

In spite of the file name, the name of this herder is Muhammad Yuusif, not Yuusif Muhammad. He is the son of Yuusif Rahama. The cattle he herds belong to a number of Kenaana from Barankawa. He has never gone to school.

We handed the GPS and the camera to him on the same occasion as we gave a GPS and a camera to Balla, the herder of the *kulliya* cattle not far from the main entrance of the *kulliya* compound at 09:00 hrs on November 21, 2012 (waypoint 004 in the file 20121121). As their GPS readings and pictures show, the two of them spent much of the day with each other or close to each other. On this day, Muhammad took the first photographs of his life. Their number turned out to be 822, and it took us later several appointments to discuss all these photographs with him. For the first 516 this was done by Awad, Elhadi and Günther, for the rest by Awad and Elhadi alone.



1.jpg: Muhammad Yuusif Rahama

(PHOTO: M. YUUSIF)



2.jpg: Balla with his telephone. The split stick (*ukaas*) has no deeper significance. It split lengthwise when he hit a cow with it. (PHOTOS: M. YUUSIF)



4.jpg: Cows eating the remainders of sorghum after harvest (*gasab*). He took this picture to show the abundance of crop residue. The field here belongs to him (i. e. his father?).



6.jpg On the right side of the picture there is a harvested field of sesame.



14.jpg: Yuusif as-Saadiq. The field here belongs to him.





16.jpg: Muhammad Yuusif Dafa'alla. He is a Kenaana from Barankawa and herds sheep of his own.  
(PHOTOS: M. YUUSIF)



18.jpg: This grass is very popular with the cattle. He took a photograph of this patch because it was untouched.



20.jpg: The cows are satiated.

10:03 AM



23.jpg: Balla has found this black goat kid. It belongs to his brother. It was left behind while it was asleep and the herd moved on.



24.jpg: Some cows have been left behind. They were looking for shade while the herd moved on.



37.jpg: On the empty looking field on the top and the right part of the picture sesame had been grown. The cow is feeding on sorghum residue. It has stayed behind. *Ikhwaanhu faatuu* – ‘Its brothers have disappeared.’ (PHOTOS: M. YUUSIF)

A number of pictures show the way in which cows eat sorghum stalks and other high grasses, starting from the top (31, 32, 33, 35, 53.jpg):



*Hu daa'ir yaakul. Ikhwaan daa'iriin yamshu.* ‘He wants to eat. His brothers want to move on.’



53.jpg: I noticed that the earth between the remainders of the sorghum plants here looks very clean, while in the *bildat* west of the main road (files awad20121022, awad-20121022DrAhmad in vol. III of this series after the pictures of the herbarium) there were many weeds which seemed to play a major role as livestock pasture. My question was why this is so. The answer is that here the weeds have disappeared after the rains. The next question was whether this was good or bad. Answer: For the cattle it is all the same, whether they eat sorghum or weeds. For the smallstock the weeds are more important, because they eat a smaller proportion of the sorghum, just the leaves and the heads.



10:07 AM

39.jpg: The cows are starting to move in the direction of the water.



42.jpg: This one has eaten *weeka* (like the plant in the foreground). That is why she has stayed behind.



47.jpg

(PHOTOS: M. YUUSIF)

10:09 AM





55.jpg: A calf follows its mother. Its mother has disappeared.



58.jpg: *Adar* grass rising above the grass rising above the 'eesh (sorghum).



59.jpg: *Adar* in the foreground. Notice the cattle nearly disappearing in the high grasses (*adar* and sorghum) in the background.



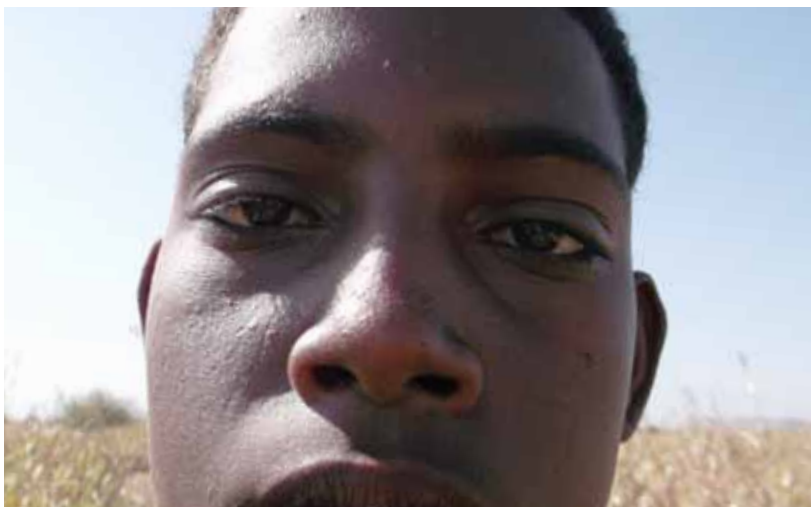
60.jpg: *Hijlij*- a suitable shade tree

(PHOTOS: M. YUUSIF)



61.jpg: A cow in high grasses. The cow is eating *adar*. Cows like to eat *adar* as much as they like to eat sorghum (*eesh*).

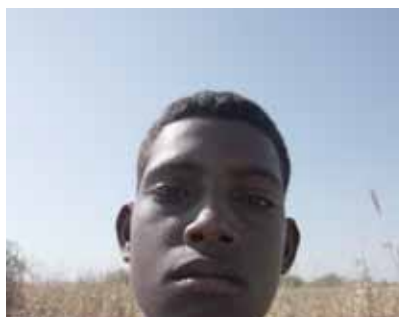
10:14 AM



62.jpg: One of several attempts to photograph himself over the stretched arm.



63.jpg



65.jpg

(PHOTOS: M. YUUSIF)



66.jpg: High grasses, shrubs. *Baggar yuhibb al adar* – Cows like *adar*.

(PHOTOS: M. YUUSIF)



67.jpg: He sat in the shade of this bush. Then he took a photograph of it because it was still green.



68.jpg: *Weeka*. Cows eat *weeka* (okra, *Polygonum persicaria*).



69.jpg: Harvested field with a *weeka* plant in the foreground.



70.jpg: He photographed this bush because it looks like planted in a garden.





71.jpg: This plant reminds one of *weeka*, but it is a different species called Abu Mruwa.



72.jpg: The heap on the right is harvested sesame. In the sesame field there is nothing to eat, but the cows are satiated now. They just want to rest.



73.jpg: The cows come back to a harvested field of sorghum. The red cow is on several photographs. Asked why, he explains that although generally they do not like the colour red (a joke which refers to the tricots of the Mirrikh football team), a red cow looks good.  
(PHOTOS: M. YUUSIF)





74.jpg: The red cow once more.  
(PHOTOS: M. YUUSIF)



80.jpg: The bull is still small but they want to raise it to become a sire. He is darker than the rest of the herd and they want to add some new colour. If the herd has only one colour, it attracts the evil eye.



82.jpg: The cattle move from one plant which still shows a bit of green to the other. These animals have remained behind because of their selective feeding.



83.jpg: The cows compete for those plants which are still a bit green.



84, 85.jpg: The cows eat *adar* but move on to the *weeka*.

(PHOTOS: M. YUUSIF)



86.jpg: The red cow uses her tongue to pull down a *weeka* plant. The other cows are eating sorghum.

10:28 AM



88.jpg: From the cows in the right half of this picture it can be seen how they eat the tall *adar* and *weeka* plants starting from the top.



89.jpg: The cow in the foreground eats *adar* and *weeka*. The white one is chasing flies with her tail.





91.jpg: Eating tall plants from the top.



92.jpg: Leaves have fallen down and are picked up.



94.jpg: This shrub is called *hasaab*. Lambs would eat of it. (PHOTOS: M. YUUSIF)



95.jpg: The fingers of the photographer



96.jpg: The left foot of the photographer



97, 98.jpg: Cows in high *adar* grass. These sorghum plants are still green. They are the best pasture.  
(PHOTOS: M. YUUSIF)



100.jpg: Cows move on from the dense pasture. They now want open spaces and wind.

11:01 AM



101.jpg: This cow has stayed behind. She was afraid of the others. That is why she has eaten from the parts with the abundant pasture only later than the others. She has short horns. Cows with short horns or hornless ones always keep separate from the others.





102.jpg: These lambs belong to Muhammad Yuusif Dafa'allah, the man who also owns the cattle Muhammad Yuusif is herding. Sheep and cattle met at the water point and then shared grazing for a while. In the evening the sheep will return to the *khalla* (their camp in the fields) and the cattle to the village. (PHOTOS: M. YUUSIF)



103.jpg: This sheep belongs to the herder who branded it on the ear.



104.jpg: The herd disperses, because some animals want to eat and others want to rest.



105.jpg: A sheep has found fallen ears of sorghum.



109.jpg: The reddish sheep is urinating. It is of a local breed mixed with Ethiopian stock. The father is Ethiopian. Also here the reason is to have different colours, because a herd of one colour would attract the evil eye.



112.jpg: Itching itself.



113.jpg: The owner of the herd with an orphan lamb. (PHOTOS: M. YOUSIF)



114.jpg: This colour pattern is called *abrag*. Here the combination of colours is red/white/red, but also piebald animals of other colours are referred to by this term.





115.jpg: The same animal.



116.jpg: Sorghum was threshed in this place. So seeds can be found on the ground.



117.jpg: The lamb moves on, but the mother is busy eating. (PHOTOS: M. YUUSIF)



118.jpg: Some sheep go to the shade while others still want to eat.

11:11 AM



120, 121.jpg: He called this sheep so that it would look into the camera.



123.jpg: The owner and herder of the sheep, Muhammad Yuusif Dafa'allah.



124.jpg: The same person.

(PHOTO: M. YUUSIF)



125, 126.jpg: Cows feeding on sorghum residue. When they come to a new source of pasture, they first eat together in one place.

11:14 AM



127.jpg: The shadow of the photographer.



NOV 21



128.jpg: Under this shrub they have had a rest.

(PHOTOS: M. YUUSIF)



130.jpg: Cows feeding on sorghum residues.



131.jpg: Now they move on to a harvested field of sesame.

11:15 AM



133.jpg: Ewe with two lambs. More photographs with sheep follow.



136.jpg: These sheep stick their heads together because there are grains of sorghum lying on the ground in this spot.



140.jpg: There are grains in this furrow.



141.jpg: Ewe with two lambs.

(PHOTOS: M. YOUSIF)



146.jpg: Here the cows are in the harvested field of sesame. They want to breathe the air in the open.

11:19 AM

NOV 21



147.jpg: Cows feeding on remainders of sorghum.

(PHOTOS: M. YUUSIF)



11:15 AM

149.jpg: This white bull is the sire of the herd of the *kulliya*. His herd, composed of cows from different owners in Barankawa, does not have a breeding bull. That is why he often follows Balla and the *kulliya* herd.



11:20 AM

150.jpg: Now the bull is eating.



151.jpg: Dam and calf are eating closely together.





153.jpg: This cow is irritated by the camera.

(PHOTOS: M. YUUSIF)



154.jpg: Muhammad Dafa'allah with his sheep and his donkey.



157.jpg: His goats, and in the background sheep, picking small heads of sorghum left behind at the time of threshing.



158.jpg: Reminders of sorghum. He photographed these, because they were so abundant.





159.jpg: The low camera position is due to the fact that the photographer was still sitting under the shade tree while the cattle were moving on. (PHOTOS: M. YUUSIF)



160.jpg: The cow in front of the others (to the right of the others) has no horns and therefore keeps a distance from the others.



163.jpg: Muhammad Yuusif himself.



168.jpg: The cows move on from the sorghum field to the one of sesame and wild *weeka*.



171.jpg: One of seven pictures with a low camera position of cows feeding on sorghum residues.



172.jpg: Urination (PHOTOS: M. YUUSIF)



173.jpg: This cow (the same as the one urinating on the preceding picture) has come in response to his call. It is more responsive to people than other cows, because it has been fed grain in the village.



174, 175.jpg: A shade tree.



176.jpg: Muhammad Dafa'allah's donkey has gone to the water pond to drink. The things he used to carry have been unloaded.



177.jpg: Lambs belonging to Muhammad Dafa'allah's herd.



178.jpg: The lambs are *not* leaving the shade to go anywhere in particular. They were just a bit afraid of the photographer. This place is where they spent also the night. During daytime their mothers come around 'asr (16 hrs) for suckling them. Apart from that the lambs can suckle the whole night. (PHOTOS: M. YUUSIF)

11:37 AM

What follows is a series of 10 photographs taken within the next two minutes of the lambs of which two have been selected here.



182.jpg: The piebald lamb has come as he was calling.



187.jpg: It wants to follow him.



We here skip 14 pictures with cows eating the remainders of sorghum and six self-portraits.



210.jpg: Cows eating sorghum residues.

(PHOTO: M. YUUSIF)

11:47 AM



211.jpg: Balla



217.jpg: The cows are walking towards the water, with Balla in front.



220.jpg: Boiling *sabaris* (milk with tea leaves).

12:09PM



222.jpg: This shrub is called *tundub*. Now it just provides some shade. The cows would not eat it, but at the end of the dry season they would.



223.jpg: Boiling milk.



225.jpg: Water container



226.jpg: *Sabaris* (milk with tea).

(PHOTOS: M. YUUSIF)



From here, Elhadi's notes on Yuusif's record start!



517.jpg: They are all grazing gasab.(PHOTOS: M. YUUSIF)



520.jpg: Grazing another field of gasab closer to the water pond.



523.jpg: Moving out of gasab towards the water pond.



524.jpg: On their way to the water pond, stopped grazing as they found good gasab with many falling leaves and stalks ('adom, 'bone' = sorghum roots)

2:22 PM





526.jpg: This cow is grazing *weeka*. Cows like *weeka* and prefer its green leaves but in June with the blow of the summer wind the hungry cattle eat even the hard stalk which by that time is still a bit wet. (PHOTOS: M. YUUSIF)



529.jpg: Smelling at the camera because it thought it was sorghum. The cow is so tame that it eats from the herder's hand.



530.jpg: Looking to the herder holding his camera.



532.jpg: *Surret* (biting flies) bites are itching. Due to heavy rains there are still few *surret* in the area.



534.jpg: They are grazing intensively as they found good gasab.



537.jpg: They are all intensively grazing gasab.

(PHOTOS: M. YUUSIF)



544.jpg: They are grazing lightly while going to the water pond. Afraid of the old ones, the calf goes ahead.



546.jpg: Balla is resting.

(PHOTOS: M. YUUSIF)



549.jpg: Stopped grazing gasab and are looking for water. They are heading towards the water but the herder slow them so that they reach the water at a suitable time and return home at a suitable time (*morawaha*). According to the herder it is early for watering.





550.jpg: This cow is obstinate ('big headed'). It did not obey the herder and wants to go to the water pond.  
(PHOTOS: M. YUUSIF)



551.jpg: The herder forced the herds to go back.



552.jpg: The herder turned them back but they stopped grazing and are waiting for watering.



553.jpg: Female farmer is going to fetch water from the faculty(*kulliya*) guard office.



554.jpg: Plastic container the herder uses for keeping drinking water. He filled it from the guard office (*haras*) tap.



555.jpg: The herders *garo* in which he keeps his pot (*kora*), cups, sugar and tea; all are necessary for making *sabaris*. The herder hangs his *garo* on a stick and holds it over the shoulder.



561.jpg: The *kulliya* guard office is a meeting place near the water point. Herders and farmers fetch drinking water and rest nearby. (PHOTOS: M. YUUSIF)



562.jpg: These trees near the water point are very important. They provide shade for resting people and animals.



563.jpg: The herder rested under this Hajliij tree (*Balanites aegyptiaca*). The cattle are behind near the place of water.



564.jpg: Balla under the shade playing or checking his camera.



565.jpg: Yuusif is resting. He is using his stick as cushion.

(PHOTOS: M. YUUSIF)





572.jpg: Balla



573.jpg: They stopped grazing because they wanted to water but the herder prevented them.



577.jpg: Waiting for the herder's permission to water: Some are lying down, others are sleeping



582.jpg: This cow mooed as some calves were moving. It thought its three months old calf was among them. (PHOTOS: M. YUUSIF)



583.jpg: Among the shades, waiting for the herder's permission to water.



584.jpg: Waiting for going to the water, some cows resumed grazing.



586.jpg: The majority resumed grazing while others were still waiting for going to the water.



588.jpg: An isolated cow returned to the herd thinking of going to the water.

(PHOTOS: M. YUUSIF)



592.jpg: All cows stopped grazing because of thirst.



593.jpg: Crying for water



595.jpg: Sleeping while waiting for water



596.jpg: Resorting to shade to escape the heat of the sun at midday. (PHOTOS: M. YUUSIF)





597.jpg: Sleeping near its mother.



600.jpg: All are waiting for going to the water.



605.jpg: Sunut trees (*Acacia nilotica*) near the water pond.

(PHOTOS: M. YUUSIF)

2:51 PM



607.jpg: The pond near the *haras*, the main watering point.



608.jpg: Kittir trees (*Acacia mellifera*)



611.jpg: Boys from Barankawa going to fetch water from the *haras* before going to their farms



618.jpg: Balla



626.jpg: Muhammad Idriis Az-Zaaki herding cattle to people from Om Bineen. Here he is going to fetch water from the *kulliya*.



629.jpg: Idriis's cattle coming back after being watered.

(PHOTOS: M. YUUSIF)



632.jpg: Among the shades resting after having been watered.



633.jpg: Returning to the shade of the *talh* (Acacia seyal). 634.jpg: Resting under the shade of *lalob* (Acacia seyal).



635.jpg: Muhammad Idriis's cattle going to be watered.

(PHOTOS: M. YUUSIF)





636.jpg: The watering.

(PHOTOS: M. YUUSIF)



639.jpg: Resting after being watered



640.jpg: Some are drinking while others are coming to drink some water.



641.jpg: Still drinking



642.jpg: Some are drinking, others are getting out  
643.jpg: Some are going to be watered.



645.jpg: Adam from Barankawa is watering his cattle.



650.jpg: Adam still waters his cattle.

(PHOTOS: M. YUUSIF)



651.jpg: Adam is trying to release a cow which got stuck.



653.jpg: Other cattle are drinking.



655.jpg: Getting out from the water. The Bull in the back raising its tail from the water's surface.



656.jpg: Resting in shade after having been watered.

3:05 PM



658.jpg: Resting inside the water in order to cool its body.

(PHOTOS: M. YUUSIF)





660.jpg: Resting after the watering. A calf is drinking on the margin to avoid harm by bigger cows. (PHOTOS: M. YUUSIF)



661.jpg: Some are drinking while others are standing inside the water (cooling off).



663.jpg: Resting by the water side.



664.jpg: Balla is pushing cattle from the open road for the car to pass.



670.jpg: Some are drinking, others are resting inside the water.

672.jpg: Most cattle rest after drinking



678.jpg: Cattle are looking at the camera.



680.jpg

(PHOTOS: M. YUUSIF)

A long haired cow (*mohayisha*) stays inside the water. With its erected hair and open skin it doesn't tolerate heat and prefers wet places and the shade.



682.jpg: Out of the water towards the *magiila*.



683.jpg: Cattle are in the *magiila*.



685.jpg: Still in the *magiila* but one cow has resumed drinking water.



686.jpg: The *mohayisha* is still inside the water.



687.jpg: In the *magiila* under trees' shade.

(PHOTOS: M. YUUSIF)





691.jpg: Adam and his herd are in the *magiila*.

(PHOTOS: M. YUUSIF)



693.jpg: Some of the cows want to return to their young calves in the village.



696.jpg: Muhammad Idriis with his cattle



698.jpg: Cattle are standing near the water pond.



701.jpg: This cow is resting inside the water, however, it is not *mohayisha* [it has black hair that allows heat absorption] .

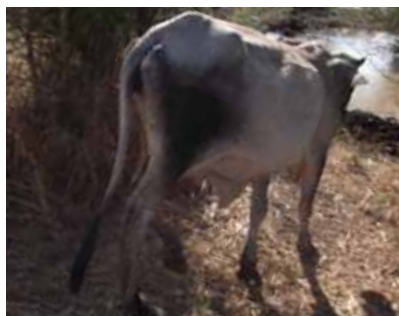


703.jpg: Two cows getting out of the water.

3:13 PM



704.jpg: Two cows drink for the first time (The big one is either pregnant or has food issues).



706.jpg: Resting in the *magiila*.



707.jpg: Some are resting, some are drinking. Others are grazing. (PHOTOS: M. YUUSIF)



709.jpg: Getting out after the watering. Two are still drinking.



710.jpg: Some are drinking, others are getting out of the water.



712.jpg: Resting during midday (*magiila*).



716.jpg: A stray cow coming from the grazing area for water.

3:20 PM



720.jpg: Bashir (Balla brother) from Barankawa on his way to his farm. (PHOTOS: M. YUUSIF)





723.jpg: Cattle are going to rest (*magiila*).



726.jpg: Cattle are going to the place of the *magiila* which they had used in the past.

3:25 PM



731.jpg: A fearful young and hornless cow heading to the herd and the place of the *magiila*.



732.jpg: Balla leading his cattle to the *magiila*.

(PHOTOS: M. YUUSIF)



734.jpg: The frightened female calf leaving the place of the *magiila*.



735.jpg: Balla going to rest in the shade after he took his cattle to the *magiila*.



739.jpg: Balla's cattle in the *magiila*



740.jpg: The frightened calf going at the end of the herd.

(PHOTOS: M. YUUSIF)



741.jpg: In the *magiila*.



748.jpg: Cow that wants to go to the village to suckle its newly born calf.



751.jpg: In the *magiila*.



752.jpg: Balla's shadow

(PHOTOS: M. YUUSIF)





753.jpg: Cattle are returning to a grazing area near the *magiila*. (PHOTOS: M. YUUSIF)



755.jpg: Balla returning to the *magiila* carrying firewood to make *sabaris*.



757.jpg: The herder's pot (*kora*) full of milk.



758.jpg: Making *sabaris* (boiled milk with tea without adding water)

3:54 PM



759.jpg: Balla holding the *mahaweeb* (rope to tie the cow before milking).

4:09 PM



760.jpg: Balla's equipment (camera and GPS).

(PHOTOS: M. YUUSIF)



761.jpg: In the *magiila*.



764.jpg: *Shajarat* (trees) of the *magiila*.

4:31 PM



765.jpg: Cow kneeling to rest in the *magiila*.



766.jpg: Balla's cattle going to the *zariiba*.



767.jpg: The *najiila* near the *zariiba*.



768.jpg: *Hajaliij Balla* (Balla's *Balanites aegyptiaca*) trees. It is often seen in this place.



769.jpg: Cattle are grazing *najiila* near the *zariiba* (fenced enclosures). (PHOTOS: M. YUUSIF)





774.jpg: Balla's cattle going to the *zariiba*. 782.jpg: Grazing *najiila* near the *zariiba*.



783.jpg: Isolated calf with some pain in its foot.

(PHOTOS: M. YOUSIF)



786.jpg: Grazing *najiila* on the way to the *zariiba*. 792.jpg: Cow going to the *zariiba*.

4:33 PM

After this, Muhammad Yuusif took his cows to their various owners in Barankawa village, one kilometre to the east. Here, Balla's cattle, who belong to the Faculty or individual faculty members, had reached their final destination. There are no GPS data photographs about the last leg of Muhammad Yuusif's circuit from the Faculty to Barankawa.

# EVALUATION

Field Note Source: 20150302Evaluation.docx

(GÜNTHER SCHLEE)

Just two such records of daily movements of herds do not merit much of an evaluation. This little volume just wants to demonstrate a new method of data collection. The findings based on our two first tries with this method are, of course, of a modest scale. One would have to be careful not to generalize from them to make statements about agropastoralism in the Sudan or even just a subtype of agropastoralism in a given area.

Still, it might be useful to have a look at what we can see from these two examples of indirect observation. Indirect, because in reading these records and writing about them we now make observations about the observations of others, while other anthropological methods (like ‘participant observation’) stress the importance of the researcher himself or herself getting as close as possible to what is going on and making direct observations. By making observations about the observations of our research partners, we engage in an intersubjective exercise. We discuss what they have recorded against the background of our expectations. There, the element of surprise comes in, the finding of things which are new to us, as I explained in the introduction. The young herders point out things which we would not have seen or which we would not have described in the same terms. Yet, these perspectives are completely legitimate and hard to refuse in ‘scientific’ terms. Confronted with them we have to admit: Yes, why not?

Apart from this intersubjective dimension, we also have used the young herders, in a straight and unadorned fashion, as tools, as mobile devices. By carrying around a GPS for the whole day, they automatically recorded all their movements and, as proxies, the movement of their herds. That is like using a human being as a kind of pencil to draw a line on a map.

Is this dehumanizing and purely instrumental? A brief discussion of research ethics may be in place here. Dehumanizing or not, I do the same thing often to myself and therefore have no ethical quibbles about it. When traveling, I often carry a GPS around. In the evening I then put on my computer and figure out where precisely I have been. And, of course, the herders were aware of the purpose of the GPS, they will get copies of this booklet, and the results of the work in which they have participated will be fully explained (they do not read English) to and discussed with them.

The two records are of one-day cycles of movement from and back to the place where the animals spend the night. The extreme points of Gismallah’s track are about 1,850 metres apart. In the case of Muhammad Yuusif’s track this distance is 2,500 metres, not counting the 1000 or so metres he had come with his cows from Barankawa village and the same distance he had to take



them back in the evening. So in fact, what we have described here is the track of Balla, the herder of the cows of the Faculty, whom Muhammad accompanied with his cows during the day. Also without counting the piece of way between the Faculty and Barankawa, the actual distance covered by Muhammad and Balla was considerably longer than that of Gismallah, because there were also movements vertical to the line of the main extension of the track in the range of 700 and 800 metres. This, of course, is still nothing in comparison to the distances animals can cover in the course of nomadic movements or when a satellite herd belonging to agriculturalists (a herd which does not spend the night in the village, like Gismallah's) is taken to a new camp. But even such movements do not need to be much longer. The map opposite page 1 shows a 'waypoint 8' which marks the location of Gismallah's next camp. It was at the same distance from the old camp as the village and closer to the village than the old camp was.

The needs to be met in the course of a day are pasture, water, nightly rest and daytime rest. In the case of Gismallah's track the pasture area is the same as the place of night time rest, because the camp has been set up right in the middle of a stubble field to be grazed. Also the places of daytime rest and watering coincide: The animals are taken to the pond at the village, drink there and rest there. In the case of Muhammad Yuusif's track (recording the movements of the Faculty herd of his friend Balla), the animals spend the night in the stables (open shelters) of the Faculty of Agriculture. The premises of the Agricultural Faculty also provide grazing to quite an extent. After letting them drink at the pond right outside the gate of the Faculty premises, Muhammad and Balla took the cows onto the premises and let them rest and graze there for over an hour (pictures 731 to 786) before they took the Faculty cows to the stables and left them there at 16.45. The main pasture areas were, however, the harvested agricultural fields off the road which leads westwards from the faculty to the Sinja-Damazin road. There was much socializing going on with other herders from Barankawa and the fields, now harvested, also belonged to villagers from Barankawa, so that the fields were treated as a commons and pasture was shared, an arrangement from which the Faculty cows profited, too. Officially, the strip of land south of the road is a livestock corridor and no cultivation should take place there, but no one seems to care about that.

Both accounts are rich in depicting vegetation and animals eating vegetation, so they provide information about pasture, wild and domestic plants, and animal preferences. They also describe other types of animal behavior, often inferring intentions:

Name of the person reporting	Pict. numb.	Caption
Gismallah	54	The goats are moving in front. They always do.
	56	The sheep follow.
	72	The sheep want to rest ( <i>daa'iriin ya'igulu</i> ).
	134	<i>Kharuuf qaam min an-noom</i> . 'A ram got up from sleep'.
Yuusif Muhammad	24	Some cows have been left behind. They were looking for shade while the herd moved on.
	37	... It has stayed behind. <i>Ikhwaan faatu</i> – 'Its brothers have disappeared'.
	55	A calf follows its mother. Its mother has disappeared.
	100	Cows move on from the dense pasture. They now want open spaces and wind.
	101	This cow has stayed behind. She was afraid of the others. That is why she has eaten from the parts with the abundant pasture only later than the others. She has short horns. Cows with short horns or hornless ones always keep separate from the others.
	104	The herd disperses, because some animals want to eat and others want to rest.
	146	Here the cows are in the harvested field of sesame. They want to breathe the air in the open.
	153	This cow is irritated by the camera.
	160	The cow in front of the others ... has no horns and therefore keeps a distance from the others.
	173	This cow ... has come in response to his call. It is more responsive to people than other cows, because it has been fed grain in the village.
	550	This cow is obstinate ('big headed'). It did not obey the herder and wants to go to the water pond.
	582	This cow mooed as some calves were moving. It thought its three months old calf was among them.
	588	An isolated cow returned to the herd thinking of going to the water.
	740	The frightened calf going at the end of the herd.
748	Cow that wants to go to the village to suckle its newly born calf.	

Apart from this empathetic approach, they also discuss animals in very practical terms: Types of breed, their advantages and disadvantages.

Collecting more data of this kind, also from other ethnic groups, may reveal interesting differences in livestock management and knowledge about animals. Currently we are working on data collected by and about Fulbe pastoralists in the Blue Nile region.

A potential use of the data presented here is ‘grounding’ satellite images and maps produced on the basis of remote sensing methods. This is not what we are currently working on, but everyone who is, is welcome to use these data and to ask for more. Each of the pictures reveals aspects of the physical environment, its mineral, plant and animal components, with precise date, time, and location.



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# TEXT SOURCES

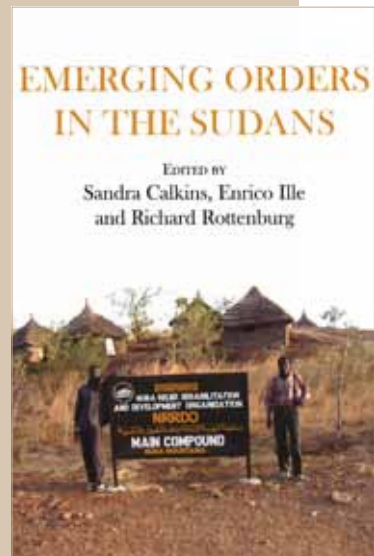
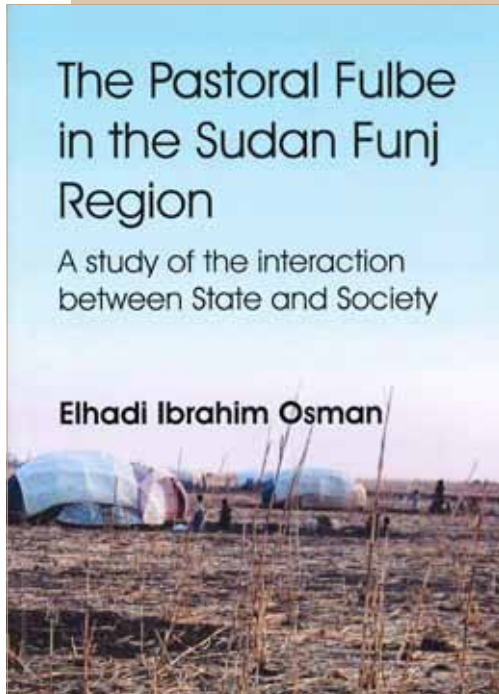
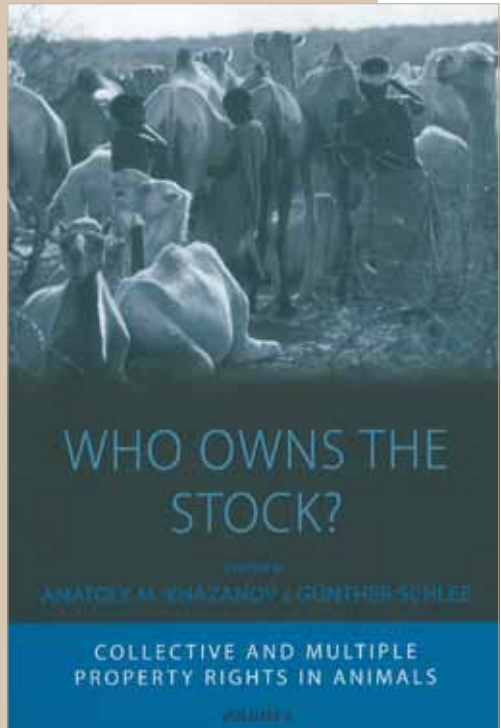
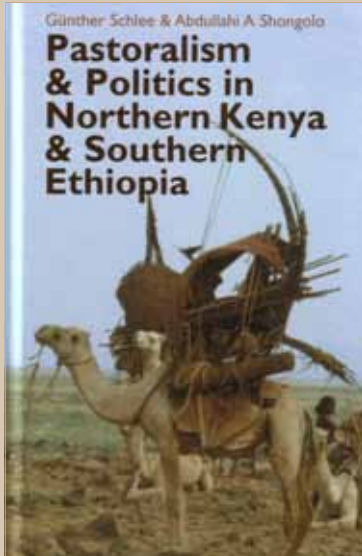
Gismallah Report

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Yuusif Report

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# PASTORALISM IN INTERACTION

WITH OTHER FORMS OF LAND USE IN THE BLUE NILE AREA OF SUDAN



PROJECT OUTLINE  
AND  
FIELD NOTES 2009-11

MAX PLANCK INSTITUTE FOR SOCIAL ANTHROPOLOGY  
DEPARTMENT 'INTEGRATION AND CONFLICT'  
FIELD NOTES AND RESEARCH PROJECTS

# PASTORALISM IN INTERACTION

WITH OTHER FORMS OF LAND USE IN THE BLUE NILE AREA OF SUDAN

[A. M. M. M. M. M.]



HERBARIUM AND  
PLANT DIVERSITY IN THE  
BLUE NILE AREA, SUDAN

MAX PLANCK INSTITUTE FOR SOCIAL ANTHROPOLOGY  
DEPARTMENT 'INTEGRATION AND CONFLICT'  
FIELD NOTES AND RESEARCH PROJECTS III