

# Biomass assessment field campaign

ECOserve Environmental Programme

**Report: Field studies conducted in order to  
monitor Gakh's and Yardimli's summer  
and winter pastures by collection of  
biomass and identifying plant species**

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## **Executive summary**

In this report, it is provided field studies results conducted in order to monitor Gakh's and Yardimli's summer and winter pastures by collecting biomass and identifying plant species. The field campaign has been implemented between August 2020 and May 2021. The field campaign consists out of the setup of 180 exclosure cages (prevent animals from grazing) and the collection of biomass on 180 exclosure cages and open plots. All biomass processed according to the ECOserve requirements (dried and weighted) and digitalized into a digital database, including coordinates (shapefile). Plant cover, species composition and forage production were measured to identify pasture condition and combining with remote sensing data to estimate the carrying (grazing) capacity of a pasture. Dominance of unpalatable species, regression of browse species in favor of poorly or non-palatable woody species, tendency toward dominance of annual species in the herbaceous layer, soil compacting by repeated stamping (slopes, transit routes and water points), advanced erosions (bare plants, gullies and runoffs) are signs of overgrazing and observed Yardimli's summer and winter pastures (Salyan, Saatli, Bilasuvar). Gakh's both winter and summer pasture are good condition.

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## **List of Abbreviations**

ECOserve Management of natural resources and safeguarding of ecosystem services for sustainable rural development in the South Caucasus  
SenSPa Sentinels for Sustainable Pasture Management  
kartECO Environmental & Energy Engineering Consultancy

## 1. Introduction

The republic of Azerbaijan is among the countries with limited land resources. There are 0.22 hectares of planting land and 0.58 hectares of agricultural land per person in the country. The area of pastures and meadow per person is much less. In this regard, it is important to increase soil fertility, improve the cattle breeding fodder resources, preserve natural fodder fields, improve pastures and preserve their geobotanic resources in development of agrarian sector, in particular cattle-breeding and meeting needs of people for different agricultural products. The grassland areas of Azerbaijan are under anthropogenic pressure, including unsustainable management practices, overgrazing, land use conversion to arable land, infrastructure projects, and climate change. To tackle those issues the Ministry of Agriculture of Azerbaijan was commissioned to implement the State Program on Efficient Use of Pasture and Hay Lands in the Republic of Azerbaijan for 2018-2022. The intention is to put a hold on further degradation of grasslands, conserve and sustainable use winter and summer pastures and hay meadows and increase the productivity of those areas. Solid data on grasslands is a prerequisite to achieve the state programs indicators and support the decision-making process, develop policies on pastures management and improve the understanding of the actual condition of grasslands.

The goal of measure of forage production is to know and guess future forage with the level of nutrients required for the kind and class of livestock in the herd at the least cost and in an environmentally sustainable manner. Although not a complicated issue, it is the critical component of livestock production that is the least understood. An additional goal of forage production, whether with introduced or native species, is to maintain adequate ground cover and plant vigor, reduce the incidence of weed infestation, and maintain or improve environmental parameters such as water and air quality to reduce topsoil loss due to erosion. Adequate understanding of the soil-plant-animal interaction is necessary to achieve these production and environmental goals.

## **2. PROJECT DESCRIPTION**

Field studies conducted in order to monitor summer and winter pastures by collection of biomass on grassland in the pilot districts Yardimli, Gakh, Salyan, Bilasuvar and Saatli of Azerbaijan. The field campaign has been implemented between August 2020 and May 2021. The field campaign consists out of the setup of enclosure cages (prevent animals from grazing) and the collection of biomass on enclosure cages and open plots. The original implementation plan has foreseen to set up 180 enclosure cages (120 on winter pastures, 60 on summer pastures). In total standing crop data from 180 plots collected (120 on winter pastures, 60 on summer pastures), including biomass from the 180 complementary enclosure cages. All biomass processed according to the ECOserve requirements (dried and weighted) and digitalized into a digital database, including coordinates (shapefile).

The result of study is prepared and delivered based on the “Guidelines for pastureland field measurements and pasture condition assessment” (March, 2019) Guidelines made by SenSPa.

Project “Biomass assessment field campaign” was implemented by “ELKUR” LLC based on the contracts no: 83360514 with Representative Office of “German Society for International Cooperation (GIZ) GMBH” in the Republic of Azerbaijan.

## **3. WORK TO BE PERFORMED UNDER THE PROJECT**

According to the contracts, “ELKUR” LLC had to install 60 cages in summer pastures in Gakh and Yardimli and 120 cages in winter pastures in Salyan, Saatli, Bilasuvar and Gakh. The location and time of cage installation agreed with MoA and ECOserve. During the project, inviolability of cages was supposed to be ensured, geo-botanical studies to be carried out in the territories of at the time designated by them with participation of the representative and the results to be documented and submitted to the GIZ.



## 4. PROJECT PROGRESS

### 4.1 Preparatory stage

At this stage, the required map materials for the area where the study to be conducted were collected and analyzed in GIS environment. At that time, the study area was explored, the locations where cages to be installed were set, work schedule was established and agreed with the GIZ. A team and its head to carry out field work were appointed, and the necessary materials, tools and vehicles for installation of cages were supplied. 180 fence mesh and pipes were buy to use. At the end of the project all materials (fence mesh and pipes) were given to Salyan and Gakh DAIMs.

### 4.2 Installation of cages

#### 4.2.1 Summer Pastures

According to the established schedule, 30 (ST1-ST30) cages were installed in Gakh on 19.08.2020 - 21.08.2020 and 30 (ST31-ST60) cages in summer pastures in Yardimli on 22.08.2020 - 25.08.2020 by the working team. Detailed information about summer pastures cages are added in Annex 2 & 3.



Figure 1. Summer pasture (ST50, Yardimli)

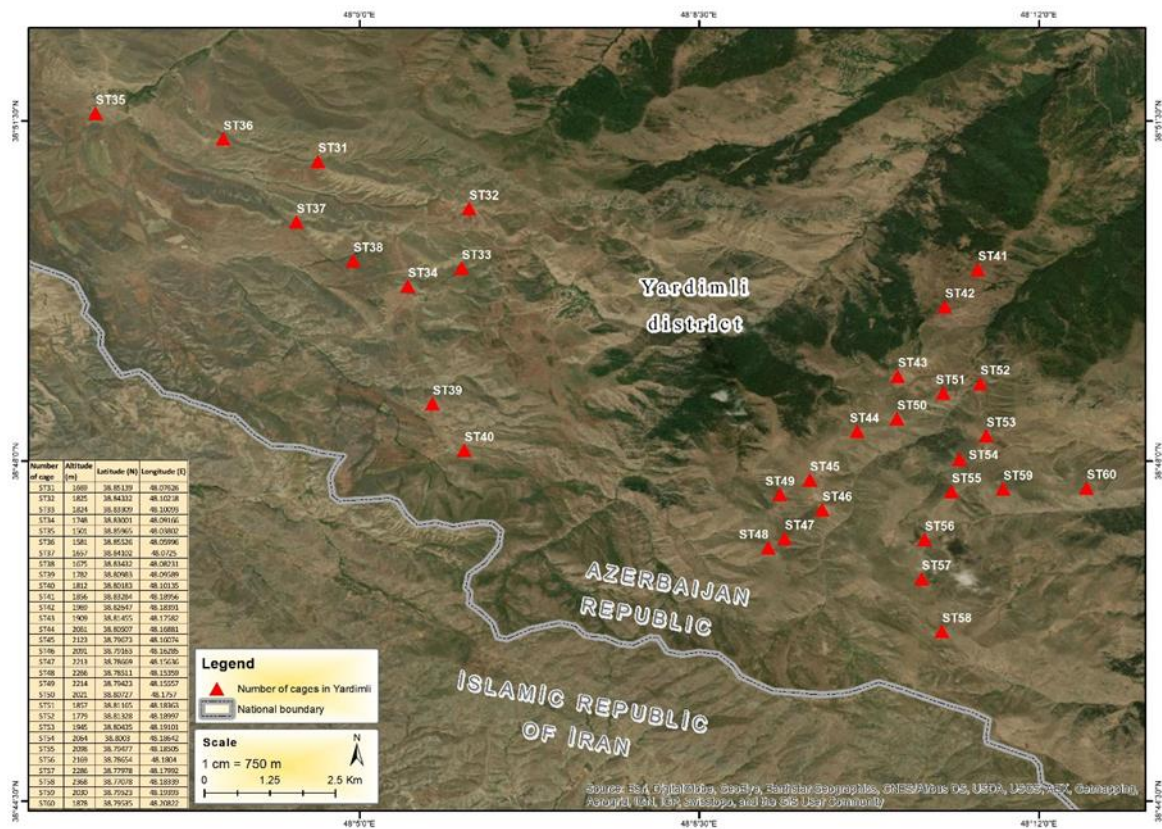


Figure 2. Identification and mapping borders of summer pasture (Yardimli)

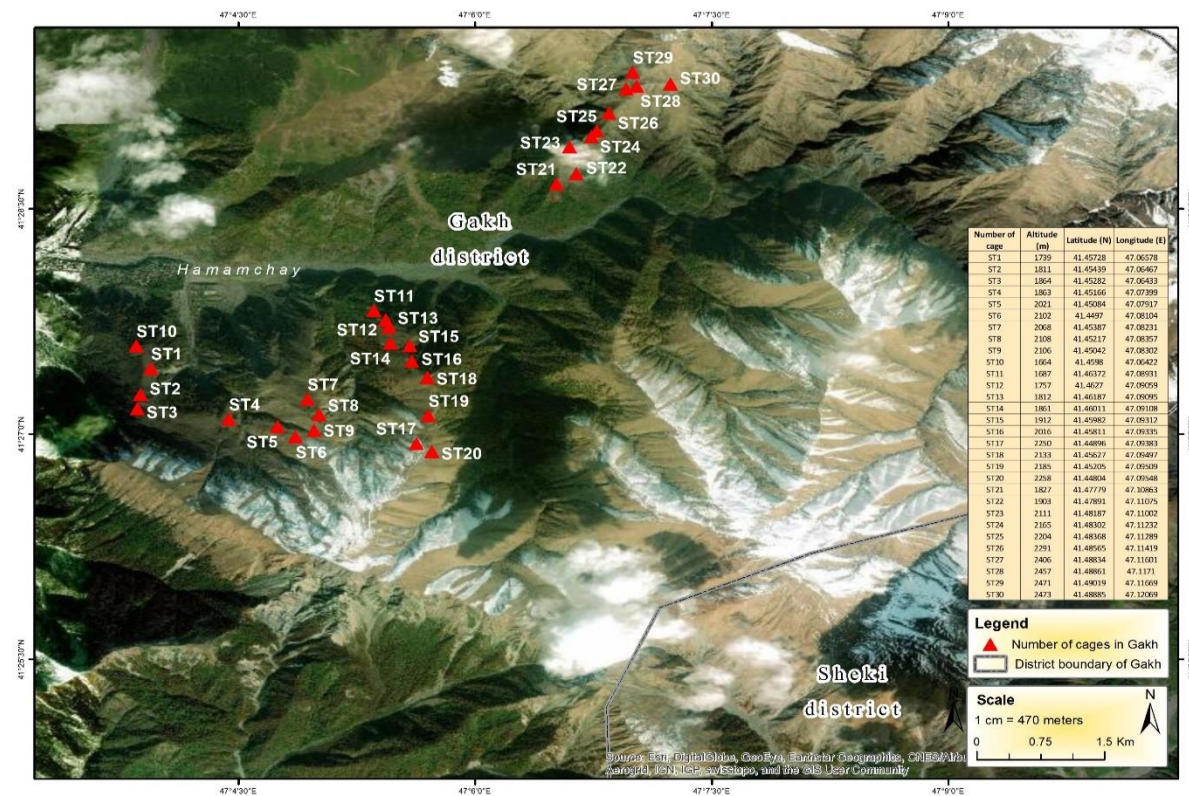


Figure 3. Identification and mapping borders of summer pasture (Gakh)

#### 4.2.2 Winter Pastures

According to the established schedule, 88 (ST 61 - ST 148) cages were installed in Salyan, Saatli, Bilasuvar on 25.03.2021 - 06.04.2021 and 32 (ST 149 – ST 180) cages in winter pastures in Gakh on 10.04.2021 - 11.04.2021 by the working team. Detailed information about winter pastures cages are added in Annex 2 & 3.



Figure 4. Winter pasture (ST134, Saatli)

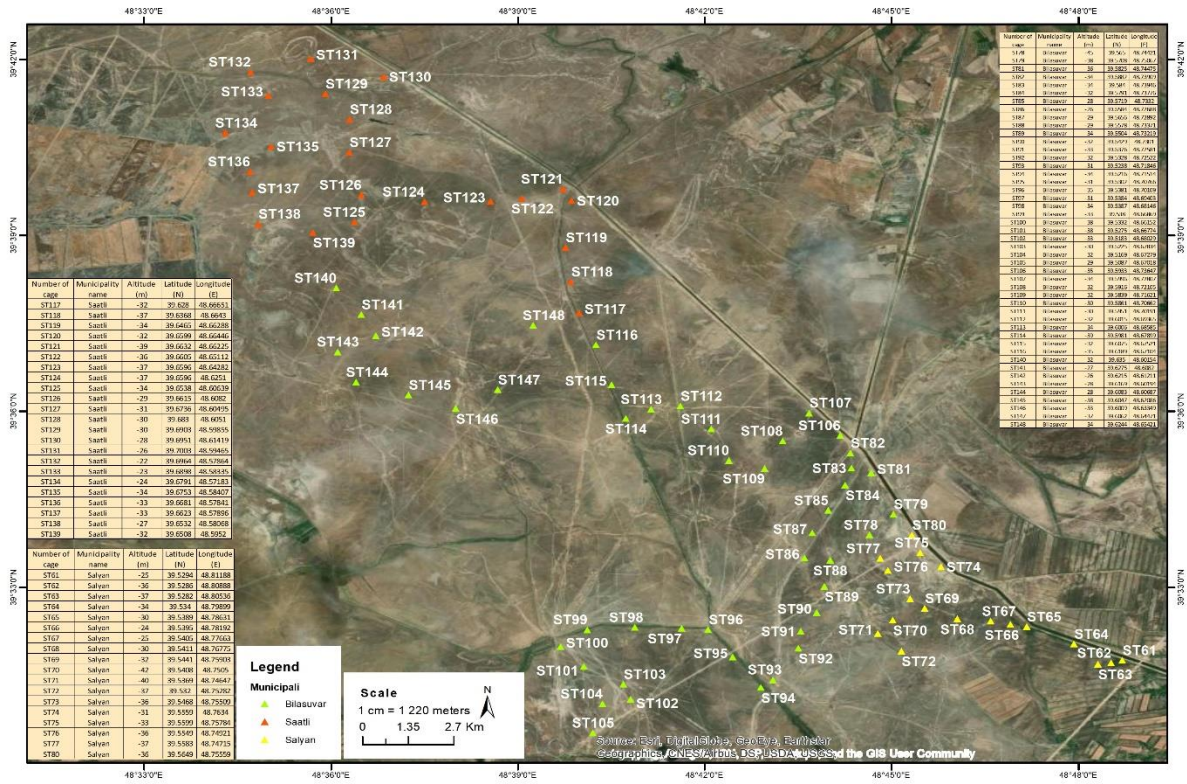


Figure 5. Identification and mapping borders of winter pasture (Salyan, Saatli, Bilasuvar)

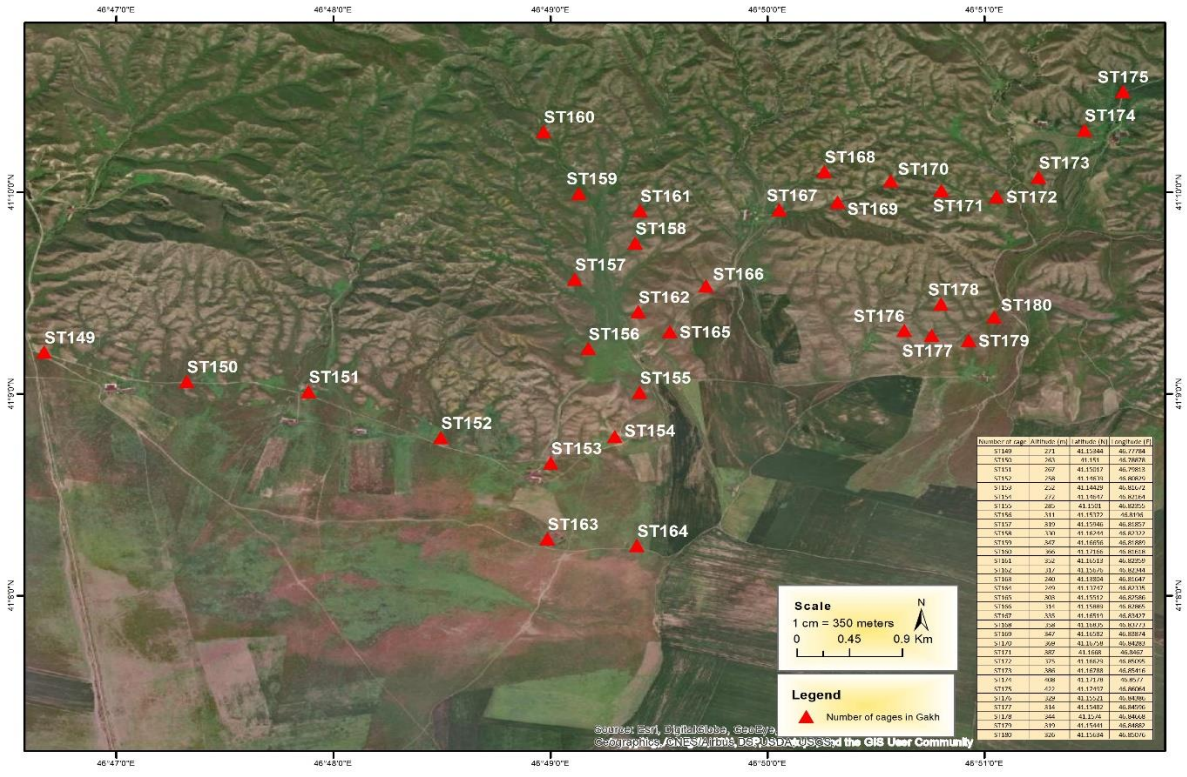


Figure 6. Identification and mapping borders of winter pasture (Gakh).



Clipping of biomass



Recording of plant cover

Figure 7. Clipping of biomass. Plant cover recording.



Before



After

Figure 8. Before and after grazing in Salyan.

## 5. OPINION ON GENERAL CONDITIONS OF PASTURES

## **5.1 Summer pastures**

Monitoring cages were installed at 60 different points in total in Gakh and Yardimli. The main problem we faced in Gakh was the lack of road infrastructure. Especially in Gakh pastures, only horse we used. Lack of roads and intensive rains made it very difficult to install cages. In Gakh, the process was even interrupted for 2 days due to rain. As the height of Yardimli summer pastures is lower compared to that of Gakh, during monitoring we observed that at some points in Yardimli, the plants had already dried up. Especially in Gakh, summer pastures were in good condition. In terms of biodiversity, Gakh differed from Yardimli as well.

## **5.2 Winter pastures**

Monitoring cages were installed at 120 different points in total in Gakh, Salyan, Saatli and Bilasuvar. The main problem we faced in Saatli and Salyan were the Agro complexes. They get huge pasture areas both Salyan and Saatli and start to grow cereals, cotton and pomegranate. Especially in Saatli pastures they surrounded entire pastures with deep walls. Because of this situation, herders went to Bilasuvar area. Some cages were damaged by fisherman. In Gakh, land status were changed and in huge area cereals were grown. As the height of Yardimli (Salyan, Saatli, Bilasuvar) winter pastures is lower compared to that of Gakh winter pastures, during monitoring we observed that at some points in Saatli, Salyan the plants had already dried up. Especially in Salyan, Saatli, Bilasuvar, winter pastures were not in good condition because of lack of water, soil salinity and overgrazing. Main shrubs are salt cedar and artemisia. In terms of biodiversity, Gakh (more) differed from Salyan, Saatli and Bilasuvar (a few) as well.

## **6. Conclusions & Recommendation**

Pastureland condition is defined as the current state of a particular pasture in

comparison to some perceived potential (NRC, 1994). Where grazing intensity and trampling is too strong, the vegetation cover becomes weakened or hurt. The consequence is open soil which is the point of attack for erosion processes. Especially in Salyan, Saatli and Bilasuvar, situation is easily observed. In Yardimli summer pastures due to the high relief and low precipitation in mountains, these erosion processes can proceed very fast. Of course, also natural erosion occurs, mainly on very steep or dry slopes, on soft bedrock or in high altitudes, where vegetation cover hardly establishes. Hence, these areas are especially vulnerable to additional disturbance by animals. Once the topsoil has been eroded, the “resource pasture” is strongly depleted as it now provides less fodder. This form of degradation of a pasture is virtually irreversible as it takes a very long time to return the grassland system to its original, more productive state. In consequence, the more degradation occurs on the pasture the less successful will be livestock production as the animals will find less and less fodder. Less advanced degradation processes, as the mere decline of the vegetation cover, can be stopped or are even reversible if you allow the pasture to recover. Depending on the level of degradation and the natural potential of the vegetation to recover, suitable measures are the complete exclusion of grazing or the decrease of the stocking rate for a certain time. The result of the monitoring showed that the location range of natural pastures, as well as altitude of the area, affects the maturity time of pastures and the quality of biodiversity. Anthropogenic factors have also a great impact. In Salyan, Saatli and Bilasuvar these were observed. As such, pastures with more favorable relief and better road infrastructure are overloaded, and as a result erosion increases. On the contrary, pastures with salient relief and inadequate road infrastructure are not properly utilized and its potential is not fully assimilated. Gakh’s summer pasture have no road infrastructure so erosion very low. Established cages should be monitored at least 3 years for proper results because annual precipitation changed year to year.

Sown pastures will have the potential to improve stock production in many areas such Salyan, Saatli, Bilasuvar and Yardimli. Introduced grasses and legumes can rejuvenate run-down native pastures and old cultivation country.

I do not recommend replacing productive native pastures of poaceae or legumes unless they have been overtaken by unpalatable species (such as wiregrass). Careful management of native pasture provides the cheapest long-term fodder source for

stock. *Kochia prostrata*, *Artemisia fragrans*, *Salsola sp.*, *Agropyron cristatum* seeds are needed for Gakh's winter pasture. *Artemisia fragrans*, *Lolium perenne*, *Salsola sp.*, *Haloxylon ammodendron*, *Agropyron cristatum* seeds are needed for Yardimli's winter pasture. The addition of a tropical legume may be all that is needed to give native pasture a worthwhile boost where irrigation condition is good. New sown pastures will be the most productive for the first 3-5 years. After this, there is usually a tie-up of nitrogen in the soil and production decreases. To maintain production levels fertiliser, scarifying and adding a legume will be required. When to plant is the most difficult decision in establishing pastures. It is always hot and dry after you plant! Plant summer pastures from August to March. Early or late is the best option. Early rain in September will be useful for germination and establishment, while rain may fall more reliably in January-February. Hot, dry spells from October to December often kill young seedlings. April-May is the preferred time for temperate species such as lucerne, medics, clovers and vetches. Grass weeds, particularly in old cropping ground, can cause establishment failures. Sometimes the pasture will not be at its best until the second year. Weeds are generally worse in spring plantings. Delaying planting until January-February is often worthwhile, but do not leave it so late that short new pasture is frosted. Pasture seeds are usually planted dry and will be dormant until the next rain. The seed zone needs to be moist for 3-4 days for germination to occur. Along with surface moisture, pasture establishment relies on deeper, sub-soil moisture.

In the future, better results can be achieved if these factors are taken into account in carrying out this type of work.



## 7. References

Etzold and Neudert (2013). Monitoring Manual for Summer Pastures in the Greater Caucasus in Azerbaijan. GIZ

National Research Council (NRC). (1994). Rangeland Health: New Methods to Classify, Inventory and Monitor Rangelands. Washington DC. The National Academies Press.

SenSPA (2019). Guidelines for pastureland field measurements and pasture condition assessment.

## 8. Appendices

### Annex 1 – The recording of plant cover and species composition

Sent by email

### Annex 2 – Exclosure cages biomass data

No	Rangelan vegetation type	Number of cage	Date of harvesting	Date of weighing	Dry method	Herbaceous vegetation (g)		Woody vegetation (g)		Total (g)	
						Inside	Outside	Inside	Outside	Inside	Outside
1	Grassland	ST_1	28.09.2020	02.10.2020	Oven	31	30	0	0	31	30
2	Grassland	ST_2	28.09.2020	02.10.2020	Oven	30	26	0	0	30	26
3	Grassland	ST_3	28.09.2020	02.10.2020	Oven	14	5	0	0	14	5
4	Grassland	ST_4	28.09.2020	02.10.2020	Oven	13	5	0	0	13	5
5	Grassland	ST_5	28.09.2020	02.10.2020	Oven	13	8	0	0	13	8
6	Grassland	ST_6	28.09.2020	02.10.2020	Oven	10	8	0	0	10	8
7	Grassland	ST_7	28.09.2020	02.10.2020	Oven	15	4	0	0	15	4
8	Grassland	ST_8	28.09.2020	02.10.2020	Oven	14	6	0	0	14	6
9	Grassland	ST_9	28.09.2020	02.10.2020	Oven	11	4	0	0	11	4
10	Shrubs	ST_10	28.09.2020	02.10.2020	Oven	35	24	0	0	35	24
11	Shrubs	ST_11	26.09.2020	02.10.2020	Oven	32	21	0	0	32	21
12	Shrubs	ST_12	26.09.2020	02.10.2020	Oven	24	19	0	0	24	19
13	Grassland	ST_13	26.09.2020	02.10.2020	Oven	38	30	0	0	38	30
14	Grassland	ST_14	26.09.2020	02.10.2020	Oven	40	38	0	0	40	38
15	Grassland	ST_15	26.09.2020	02.10.2020	Oven	28	20	0	0	28	20
16	Grassland	ST_16	26.09.2020	02.10.2020	Oven	25	25	0	0	25	25

17	Grassland	ST_17	26.09.2020	02.10.2020	Oven	12	8	0	0	0	8
18	Grassland	ST_18	26.09.2020	02.10.2020	Oven	2	2	0	0	2	2
19	Grassland	ST_19	26.09.2020	02.10.2020	Oven	14	10	0	0	14	10
20	Grassland	ST_20	26.09.2020	02.10.2020	Oven	18	11	0	0	18	11
21	Shrubs	ST_21	27.09.2020	02.10.2020	Oven	damaged	5	damaged	0	damaged	5
22	Grassland	ST_22	27.09.2020	02.10.2020	Oven	15	5	0	0	15	5
23	Grassland	ST_23	27.09.2020	02.10.2020	Oven	15	2	0	0	15	2
24	Grassland	ST_24	27.09.2020	02.10.2020	Oven	6	1	0	0	6	1
25	Grassland	ST_25	27.09.2020	02.10.2020	Oven	20	2	0	0	20	2
26	Grassland	ST_26	27.09.2020	02.10.2020	Oven	11	0	0	0	11	0
27	Grassland	ST_27	27.09.2020	02.10.2020	Oven	14	4	0	0	14	4
28	Grassland	ST_28	27.09.2020	02.10.2020	Oven	5	2	0	0	5	2
29	Grassland	ST_29	27.09.2020	02.10.2020	Oven	6	5	0	0	6	5
30	Grassland	ST_30	27.09.2020	02.10.2020	Oven	2	0	0	0	2	0
31	Grassland	ST_31	20.09.2020	24.09.2020	Oven	14	2	0	0	14	2
32	Grassland	ST_32	20.09.2020	24.09.2020	Oven	6	5	0	0	6	5
33	Grassland	ST_33	20.09.2020	24.09.2020	Oven	9	6	0	0	9	6
34	Grassland	ST_34	20.09.2020	24.09.2020	Oven	2	1	0	0	2	1
35	Grassland	ST_35	20.09.2020	24.09.2020	Oven	4	3	0	0	4	3
36	Grassland	ST_36	20.09.2020	24.09.2020	Oven	6	3	0	0	6	3
37	Grassland	ST_37	20.09.2020	24.09.2020	Oven	8	2	0	0	8	2
38	Grassland	ST_38	20.09.2020	24.09.2020	Oven	29	13	0	0	29	13
39	Grassland	ST_39	20.09.2020	24.09.2020	Oven	4	3	0	0	4	3
40	Grassland	ST_40	20.09.2020	24.09.2020	Oven	13	3	0	0	13	3
41	Grassland	ST_41	19.09.2020	24.09.2020	Oven	9	4	0	0	9	4
42	Grassland	ST_42	19.09.2020	24.09.2020	Oven	5	3	0	0	5	3
43	Grassland	ST_43	19.09.2020	24.09.2020	Oven	1	1	0	0	1	1
44	Grassland	ST_44	19.09.2020	24.09.2020	Oven	3	4	0	0	3	4

45	Grassland	ST_45	19.09.2020	24.09.2020	Oven	4	1	0	0	4	1
46	Grassland	ST_46	19.09.2020	24.09.2020	Oven	2	0	0	0	2	0
47	Grassland	ST_47	19.09.2020	24.09.2020	Oven	7	4	0	0	7	4
48	Grassland	ST_48	19.09.2020	24.09.2020	Oven	2	2	0	0	2	2
49	Grassland	ST_49	19.09.2020	24.09.2020	Oven	5	1	0	0	5	1
50	Grassland	ST_50	19.09.2020	24.09.2020	Oven	8	3	0	0	8	3
51	Grassland	ST_51	19.09.2020	24.09.2020	Oven	5	3	0	0	5	3
52	Grassland	ST_52	19.09.2020	24.09.2020	Oven	6	1	0	0	6	1
53	Grassland	ST_53	19.09.2020	24.09.2020	Oven	4	2	0	0	4	2
54	Grassland	ST_54	19.09.2020	24.09.2020	Oven	3	1	0	0	3	1
55	Grassland	ST_55	19.09.2020	24.09.2020	Oven	2	1	0	0	2	1
56	Grassland	ST_56	19.09.2020	24.09.2020	Oven	2	4	0	0	2	4
57	Grassland	ST_57	19.09.2020	24.09.2020	Oven	1	4	0	0	1	4
58	Grassland	ST_58	19.09.2020	24.09.2020	Oven	15	4	0	0	15	4
59	Grassland	ST_59	19.09.2020	24.09.2020	Oven	3	2	0	0	3	2
60	Grassland	ST_60	19.09.2020	24.09.2020	Oven	3	1	0	0	3	1
61	Grassland	ST61	22.05.2021	27.05.2021	Oven	64	13	0	0	64	13
62	Grassland	ST62	22.05.2021	27.05.2021	Oven	50	7	0	0	50	7
63	Grassland	ST63	22.05.2021	27.05.2021	Oven	7	1	0	0	7	1
64	Grassland	ST64	22.05.2021	27.05.2021	Oven	94	28	0	0	94	28
65	Grassland	ST65	22.05.2021	27.05.2021	Oven	45	7	0	0	45	7
66	Grassland	ST66	22.05.2021	27.05.2021	Oven	32	15	0	0	32	15
67	Grassland	ST67	22.05.2021	27.05.2021	Oven	25	5	0	0	25	5
68	Grassland	ST68	22.05.2021	27.05.2021	Oven	3	3	0	0	3	3
69	Grassland	ST69	22.05.2021	27.05.2021	Oven	19	15	0	0	19	15
70	Grassland	ST70	22.05.2021	27.05.2021	Oven	15	2	0	0	15	2
71	Grassland	ST71	22.05.2021	27.05.2021	Oven	13	3	0	0	13	3
72	Grassland	ST72	22.05.2021	27.05.2021	Oven	10	1	0	0	10	1

73	Grassland	ST73	22.05.2021	27.05.2021	Oven	damaged	2	0	0	damaged	2
74	Grassland	ST74	22.05.2021	27.05.2021	Oven	damaged	1	0	0	damaged	1
75	Grassland	ST75	22.05.2021	27.05.2021	Oven	damaged	1	0	0	damaged	1
76	Grassland	ST76	22.05.2021	27.05.2021	Oven	damaged	0	0	0	damaged	0
77	Grassland	ST77	22.05.2021	27.05.2021	Oven	damaged	5	0	0	damaged	5
78	Grassland	ST78	22.05.2021	27.05.2021	Oven	6	1	0	0	0	1
79	Grassland	ST79	22.05.2021	27.05.2021	Oven	7	1	0	0	7	1
80	Grassland	ST80	22.05.2021	27.05.2021	Oven	41	39	0	0	41	39
81	Shrubs	ST81	22.05.2021	27.05.2021	Oven	8	0	0	0	8	0
82	Shrubs	ST82	22.05.2021	27.05.2021	Oven	damaged	2	0	0	damaged	2
83	Shrubs	ST83	22.05.2021	27.05.2021	Oven	damaged	2	0	0	damaged	2
84	Shrubs	ST84	22.05.2021	27.05.2021	Oven	damaged	2	0	0	damaged	2
85	Shrubs	ST85	22.05.2021	27.05.2021	Oven	damaged	6	0	0	damaged	6
86	Grassland	ST86	22.05.2021	27.05.2021	Oven	6	6	0	0	6	6
87	Grassland	ST87	22.05.2021	27.05.2021	Oven	5	5	0	0	5	5
88	Grassland	ST88	22.05.2021	27.05.2021	Oven	6	1	0	0	6	1
89	Grassland	ST89	22.05.2021	27.05.2021	Oven	8	4	0	0	8	4
90	Grassland	ST90	22.05.2021	27.05.2021	Oven	4	3	0	0	4	3
91	Grassland	ST91	22.05.2021	27.05.2021	Oven	15	13	0	0	15	13
92	Grassland	ST92	22.05.2021	27.05.2021	Oven	26	26	0	0	26	26
93	Grassland	ST93	22.05.2021	27.05.2021	Oven	damaged	2	0	0	damaged	2
94	Grassland	ST94	22.05.2021	27.05.2021	Oven	damaged	4	0	0	damaged	4
95	Grassland	ST95	22.05.2021	27.05.2021	Oven	9	2	0	0	9	2
96	Grassland	ST96	22.05.2021	27.05.2021	Oven	7	1	0	0	7	1
97	Grassland	ST97	22.05.2021	27.05.2021	Oven	8	4	0	0	8	4
98	Grassland	ST98	22.05.2021	27.05.2021	Oven	11	3	0	0	11	3
99	Grassland	ST99	22.05.2021	27.05.2021	Oven	damaged	3	0	0	0	3
100	Grassland	ST100	22.05.2021	27.05.2021	Oven	6	1	0	0	6	1

101	Shrubs	ST101	22.05.2021	27.05.2021	Oven	5	0	0	0	5	0
102	Grassland	ST102	22.05.2021	27.05.2021	Oven	9	2	0	0	9	2
103	Grassland	ST103	22.05.2021	27.05.2021	Oven	7	6	0	0	7	6
104	Grassland	ST104	22.05.2021	27.05.2021	Oven	6	4	0	0	6	4
105	Grassland	ST105	22.05.2021	27.05.2021	Oven	12	6	0	0	12	6
106	Grassland	ST106	23.05.2021	28.05.2021	Oven	33	14	0	0	33	14
107	Grassland	ST107	23.05.2021	28.05.2021	Oven	22	18	0	0	22	18
108	Shrubs	ST108	23.05.2021	28.05.2021	Oven	9	5	0	0	9	5
109	Grassland	ST109	23.05.2021	28.05.2021	Oven	14	6	0	0	14	6
110	Grassland	ST110	23.05.2021	28.05.2021	Oven	12	4	0	0	12	4
111	Grassland	ST111	23.05.2021	28.05.2021	Oven	9	1	0	0	9	1
112	Grassland	ST112	23.05.2021	28.05.2021	Oven	11	1	0	0	11	1
113	Grassland	ST113	23.05.2021	28.05.2021	Oven	6	0	0	0	6	0
114	Grassland	ST114	23.05.2021	28.05.2021	Oven	25	12	0	0	25	12
115	Grassland	ST115	23.05.2021	28.05.2021	Oven	24	16	0	0	24	16
116	Grassland	ST116	23.05.2021	28.05.2021	Oven	6	1	0	0	6	1
117	Grassland	ST117	23.05.2021	28.05.2021	Oven	30	21	0	0	30	21
118	Shrubs	ST118	23.05.2021	28.05.2021	Oven	9	2	0	0	9	2
119	Grassland	ST119	23.05.2021	28.05.2021	Oven	8	1	0	0	8	1
120	Grassland	ST120	23.05.2021	28.05.2021	Oven	29	13	0	0	29	13
121	Grassland	ST121	23.05.2021	28.05.2021	Oven	18	1	0	0	18	1
122	Grassland	ST122	23.05.2021	28.05.2021	Oven	25	4	0	0	25	4
123	Shrubs	ST123	23.05.2021	28.05.2021	Oven	25	24	0	0	25	24
124	Grassland	ST124	23.05.2021	28.05.2021	Oven	damaged	3	0	0	0	3
125	Grassland	ST125	23.05.2021	28.05.2021	Oven	damaged	2	0	0	0	2
126	Grassland	ST126	23.05.2021	28.05.2021	Oven	8	5	0	0	8	5
127	Grassland	ST127	23.05.2021	28.05.2021	Oven	damaged	4	0	0	0	4
128	Grassland	ST128	23.05.2021	28.05.2021	Oven	damaged	1	0	0	0	1

129	Grassland	ST129	23.05.2021	28.05.2021	Oven	damaged	13	0	0	0	13
130	Grassland	ST130	23.05.2021	28.05.2021	Oven	damaged	8	0	0	0	8
131	Grassland	ST131	23.05.2021	28.05.2021	Oven	10	2	0	0	10	2
132	Grassland	ST132	23.05.2021	28.05.2021	Oven	14	9	0	0	14	9
133	Grassland	ST133	23.05.2021	28.05.2021	Oven	3	0	0	0	3	0
134	Grassland	ST134	23.05.2021	28.05.2021	Oven	9	4	0	0	9	4
135	Grassland	ST135	23.05.2021	28.05.2021	Oven	10	4	0	0	10	4
136	Grassland	ST136	23.05.2021	28.05.2021	Oven	damaged	3	0	0	0	3
137	Grassland	ST137	23.05.2021	28.05.2021	Oven	12	2	0	0	12	2
138	Grassland	ST138	23.05.2021	28.05.2021	Oven	7	2	0	0	7	2
139	Grassland	ST139	23.05.2021	28.05.2021	Oven	3	0	0	0	3	0
140	Grassland	ST140	23.05.2021	28.05.2021	Oven	3	0	0	0	3	0
141	Grassland	ST141	23.05.2021	28.05.2021	Oven	6	4	0	0	6	4
142	Grassland	ST142	23.05.2021	28.05.2021	Oven	2	0	0	0	2	0
143	Grassland	ST143	23.05.2021	28.05.2021	Oven	damaged	0	0	0	0	0
144	Grassland	ST144	23.05.2021	28.05.2021	Oven	damaged	3	0	0	0	3
145	Grassland	ST145	23.05.2021	28.05.2021	Oven	3	1	0	0	3	1
146	Grassland	ST146	23.05.2021	28.05.2021	Oven	4	0	0	0	4	0
147	Grassland	ST147	23.05.2021	28.05.2021	Oven	13	7	0	0	13	7
148	Shrubs	ST148	23.05.2021	28.05.2021	Oven	2	0	0	0	2	0
149	Grassland	ST149	29.05.2021	03.06.2021	Oven	14	8	0	0	14	8
150	Grassland	ST150	29.05.2021	03.06.2021	Oven	21	18	0	0	21	18
151	Grassland	ST151	29.05.2021	03.06.2021	Oven	20	5	0	0	20	5
152	Grassland	ST152	29.05.2021	03.06.2021	Oven	20	4	0	0	20	4
153	Grassland	ST153	29.05.2021	03.06.2021	Oven	16	4	0	0	16	4
154	Grassland	ST154	29.05.2021	03.06.2021	Oven	28	12	0	0	28	12
155	Grassland	ST155	29.05.2021	03.06.2021	Oven	43	5	0	0	43	5
156	Grassland	ST156	29.05.2021	03.06.2021	Oven	14	4	0	0	14	4

157	Grassland	ST157	29.05.2021	03.06.2021	Oven	15	9	0	0	15	9
158	Grassland	ST158	29.05.2021	03.06.2021	Oven	25	4	0	0	25	4
159	Grassland	ST159	29.05.2021	03.06.2021	Oven	46	15	0	0	46	15
160	Grassland	ST160	29.05.2021	03.06.2021	Oven	42	40	0	0	42	40
161	Grassland	ST161	29.05.2021	03.06.2021	Oven	41	4	0	0	41	4
162	Grassland	ST162	29.05.2021	03.06.2021	Oven	40	11	0	0	40	11
163	Grassland	ST163	29.05.2021	03.06.2021	Oven	51	48	0	0	51	48
164	Grassland	ST164	29.05.2021	03.06.2021	Oven	30	8	0	0	30	8
165	Grassland	ST165	29.05.2021	03.06.2021	Oven	14	14	0	0	14	14
166	Grassland	ST166	29.05.2021	03.06.2021	Oven	18	3	0	0	18	3
167	Grassland	ST167	29.05.2021	03.06.2021	Oven	20	3	0	0	20	3
168	Grassland	ST168	29.05.2021	03.06.2021	Oven	42	2	0	0	42	2
169	Grassland	ST169	29.05.2021	03.06.2021	Oven	27	4	0	0	27	4
170	Grassland	ST170	29.05.2021	03.06.2021	Oven	30	4	0	0	30	4
171	Grassland	ST171	29.05.2021	03.06.2021	Oven	31	3	0	0	31	3
172	Grassland	ST172	29.05.2021	03.06.2021	Oven	25	4	0	0	25	4
173	Grassland	ST173	29.05.2021	03.06.2021	Oven	28	16	0	0	28	16
174	Grassland	ST174	29.05.2021	03.06.2021	Oven	29	6	0	0	29	6
175	Shrubs	ST175	29.05.2021	03.06.2021	Oven	damaged	33	0	0	0	33
176	Grassland	ST176	29.05.2021	03.06.2021	Oven	8	3	0	0	8	3
177	Grassland	ST177	29.05.2021	03.06.2021	Oven	18	2	0	0	18	2
178	Grassland	ST178	29.05.2021	03.06.2021	Oven	11	2	0	0	11	2
179	Grassland	ST179	29.05.2021	03.06.2021	Oven	20	3	0	0	20	3
180	Shrubs	ST180	29.05.2021	03.06.2021	Oven	27	2	0	0	27	2



### Annex 3 - Detailed information about enclosure cages

Number of cage	Rangeland vegetation type	Municipality name	Altitude (m)	Aspect	Slope	Size of cage (m2)	Geographic coordinates		Date of establishment	Date of measurement
							Latitude (N)	Longitude (E)		
ST1	Grassland	Gakh	1739	NW	6	4	41,45728	47,06578	19.08.2020	28.09.2020
ST2	Grassland	Gakh	1811	W-NW	9	4	41,45439	47,06467	19.08.2020	28.09.2020
ST3	Grassland	Gakh	1864	NW	14	4	41,45282	47,06433	19.08.2020	28.09.2020
ST4	Grassland	Gakh	1863	NW	10	4	41,45166	47,07399	19.08.2020	28.09.2020
ST5	Grassland	Gakh	2021	N-NE	22	4	41,45084	47,07917	19.08.2020	28.09.2020
ST6	Grassland	Gakh	2102	W-NW	15	4	41,4497	47,08104	19.08.2020	28.09.2020
ST7	Grassland	Gakh	2068	W-NW	4	4	41,45387	47,08231	19.08.2020	28.09.2020
ST8	Grassland	Gakh	2108	NW	5	4	41,45217	47,08357	19.08.2020	28.09.2020
ST9	Grassland	Gakh	2106	W-NW	11	4	41,45042	47,08302	19.08.2020	28.09.2020
ST10	Shrubs	Gakh	1664	NW	8	4	41,4598	47,06422	19.08.2020	28.09.2020
ST11	Shrubs	Gakh	1687	NW	21	4	41,46372	47,08931	20.08.2020	26.09.2020
ST12	Shrubs	Gakh	1757	NW-N	30	4	41,4627	47,09059	20.08.2020	26.09.2020
ST13	Grassland	Gakh	1812	NW	11	4	41,46187	47,09095	20.08.2020	26.09.2020
ST14	Grassland	Gakh	1861	W	19	4	41,46011	47,09108	20.08.2020	26.09.2020
ST15	Grassland	Gakh	1912	N-NE	28	4	41,45982	47,09312	20.08.2020	26.09.2020
ST16	Grassland	Gakh	2016	W-NW	21	4	41,45811	47,09335	20.08.2020	26.09.2020
ST17	Grassland	Gakh	2250	N	12	4	41,44896	47,09383	20.08.2020	26.09.2020
ST18	Grassland	Gakh	2133	E	3	4	41,45627	47,09497	20.08.2020	26.09.2020
ST19	Grassland	Gakh	2185	W-NW	10	4	41,45205	47,09509	20.08.2020	26.09.2020
ST20	Grassland	Gakh	2258	E	35	4	41,44804	47,09548	20.08.2020	26.09.2020
ST21	Shrubs	Gakh	1827	S	8	4	41,47779	47,10863	21.08.2020	27.09.2020
ST22	Grassland	Gakh	1903	SE-S	30	4	41,47891	47,11075	21.08.2020	27.09.2020
ST23	Grassland	Gakh	2111	n/a	n/a	4	41,48187	47,11002	21.08.2020	27.09.2020
ST24	Grassland	Gakh	2165	S	24	4	41,48302	47,11232	21.08.2020	27.09.2020
ST25	Grassland	Gakh	2204	NW-N	25	4	41,48368	47,11289	21.08.2020	27.09.2020

ST26	Grassland	Gakh	2291	S-SW	15	4	41,48565	47,11419	21.08.2020	27.09.2020
ST27	Grassland	Gakh	2406	S	15	4	41,48834	47,11601	21.08.2020	27.09.2020
ST28	Grassland	Gakh	2457	S-SW	20	4	41,48861	47,1171	21.08.2020	27.09.2020
ST29	Grassland	Gakh	2471	W	33	4	41,49019	47,11669	21.08.2020	27.09.2020
ST30	Grassland	Gakh	2473	S-SW	17	4	41,48885	47,12069	21.08.2020	27.09.2020
ST31	Grassland	Yardimli	1669	NW-N	8	4	38,85139	48,07626	22.08.2020	20.09.2020
ST32	Grassland	Yardimli	1825	SW-W	4	4	38,84332	48,10218	22.08.2020	20.09.2020
ST33	Grassland	Yardimli	1824	W	7	4	38,83309	48,10093	22.08.2020	20.09.2020
ST34	Grassland	Yardimli	1748	n/a	n/a	4	38,83001	48,09166	22.08.2020	20.09.2020
ST35	Grassland	Yardimli	1501	NW-N	5	4	38,85965	48,03802	22.08.2020	20.09.2020
ST36	Grassland	Yardimli	1581	NW-N	3	4	38,85526	48,05996	22.08.2020	20.09.2020
ST37	Grassland	Yardimli	1657	SW-W	4	4	38,84102	48,0725	22.08.2020	20.09.2020
ST38	Grassland	Yardimli	1675	n/a	n/a	4	38,83432	48,08231	22.08.2020	20.09.2020
ST39	Grassland	Yardimli	1782	S-SW	5	4	38,80983	48,09589	22.08.2020	20.09.2020
ST40	Grassland	Yardimli	1812	NW-N	5	4	38,80183	48,10135	22.08.2020	20.09.2020
ST41	Grassland	Yardimli	1856	SE	7	4	38,83284	48,18956	25.08.2020	19.09.2020
ST42	Grassland	Yardimli	1969	NW	8	4	38,82647	48,18391	25.08.2020	19.09.2020
ST43	Grassland	Yardimli	1909	N-NE	6	4	38,81455	48,17582	25.08.2020	19.09.2020
ST44	Grassland	Yardimli	2061	SE-S	10	4	38,80507	48,16881	25.08.2020	19.09.2020
ST45	Grassland	Yardimli	2123	N-NE	11	4	38,79673	48,16074	25.08.2020	19.09.2020
ST46	Grassland	Yardimli	2091	N-NE	8	4	38,79163	48,16285	25.08.2020	19.09.2020
ST47	Grassland	Yardimli	2213	NE-N	10	4	38,78669	48,15636	25.08.2020	19.09.2020
ST48	Grassland	Yardimli	2266	n/a	n/a	4	38,78511	48,15359	25.08.2020	19.09.2020
ST49	Grassland	Yardimli	2214	N-NE	6	4	38,79423	48,15557	25.08.2020	19.09.2020
ST50	Grassland	Yardimli	2021	n/a	n/a	4	38,80727	48,1757	25.08.2020	19.09.2020
ST51	Grassland	Yardimli	1857	NE-N	12	4	38,81165	48,18363	25.08.2020	19.09.2020
ST52	Grassland	Yardimli	1779	SW-W	9	4	38,81328	48,18997	25.08.2020	19.09.2020
ST53	Grassland	Yardimli	1945	N-NE	9	4	38,80435	48,19101	25.08.2020	19.09.2020
ST54	Grassland	Yardimli	2064	SE	9	4	38,8003	48,18642	25.08.2020	19.09.2020
ST55	Grassland	Yardimli	2098	W	4	4	38,79477	48,18505	25.08.2020	19.09.2020

ST56	Grassland	Yardimli	2169	N-NE	3	4	38,78654	48,1804	25.08.2020	19.09.2020
ST57	Grassland	Yardimli	2286	NW-N	10	4	38,77978	48,17992	25.08.2020	19.09.2020
ST58	Grassland	Yardimli	2368	E-SE	12	4	38,77078	48,18339	25.08.2020	19.09.2020
ST59	Grassland	Yardimli	2030	E	12	4	38,79523	48,19393	25.08.2020	19.09.2020
ST60	Grassland	Yardimli	1878	NE-N	13	4	38,79535	48,20822	25.08.2020	19.09.2020
ST61	Grassland	Salyan	-25	n/a	n/a	4	39.52935	48.81188	25.03.2021	22.05.2021
ST62	Grassland	Salyan	-36	n/a	n/a	4	39.52860	48.80888	25.03.2021	22.05.2021
ST63	Grassland	Salyan	-37	n/a	n/a	4	39.52824	48.80536	25.03.2021	22.05.2021
ST64	Grassland	Salyan	-34	n/a	n/a	4	39.53395	48.79899	25.03.2021	22.05.2021
ST65	Grassland	Salyan	-30	n/a	n/a	4	39.53889	48.78631	25.03.2021	22.05.2021
ST66	Grassland	Salyan	-24	n/a	n/a	4	39.53950	48.78192	25.03.2021	22.05.2021
ST67	Grassland	Salyan	-25	n/a	n/a	4	39.54045	48.77663	25.03.2021	22.05.2021
ST68	Grassland	Salyan	-30	n/a	n/a	4	39.54108	48.76775	25.03.2021	22.05.2021
ST69	Grassland	Salyan	-32	n/a	n/a	4	39.54409	48.75903	25.03.2021	22.05.2021
ST70	Grassland	Salyan	-42	n/a	n/a	4	39.54076	48.75050	25.03.2021	22.05.2021
ST71	Grassland	Salyan	-40	n/a	n/a	4	39.53693	48.74647	25.03.2021	22.05.2021
ST72	Grassland	Salyan	-37	n/a	n/a	4	39.53195	48.75282	25.03.2021	22.05.2021
ST73	Grassland	Salyan	-36	n/a	n/a	4	39.54681	48.75509	25.03.2021	22.05.2021
ST74	Grassland	Salyan	-31	n/a	n/a	4	39.55585	48.76340	25.03.2021	22.05.2021
ST75	Grassland	Salyan	-33	n/a	n/a	4	39.55990	48.75784	25.03.2021	22.05.2021
ST76	Grassland	Salyan	-36	n/a	n/a	4	39.55487	48.74921	25.03.2021	22.05.2021
ST77	Grassland	Salyan	-37	n/a	n/a	4	39.55832	48.74715	25.03.2021	22.05.2021
ST78	Grassland	Bilasuvar	-45	n/a	n/a	4	39.56500	48.74421	25.03.2021	22.05.2021
ST79	Grassland	Bilasuvar	-38	n/a	n/a	4	39.57082	48.75067	25.03.2021	22.05.2021
ST80	Grassland	Salyan	-36	n/a	n/a	4	39.56490	48.75559	25.03.2021	22.05.2021
ST81	Shrubs	Bilasuvar	-36	n/a	n/a	4	39.58254	48.74475	26.03.2021	22.05.2021
ST82	Shrubs	Bilasuvar	-34	n/a	n/a	4	39.58819	48.73909	26.03.2021	22.05.2021
ST83	Shrubs	Bilasuvar	-34	n/a	n/a	4	39.58399	48.73946	26.03.2021	22.05.2021
ST84	Shrubs	Bilasuvar	-32	n/a	n/a	4	39.57912	48.73776	26.03.2021	22.05.2021
ST85	Shrubs	Bilasuvar	-28	n/a	n/a	4	39.57193	48.73320	26.03.2021	22.05.2021

ST86	Grassland	Bilasuvar	-26	n/a	n/a	4	39.55842	48.72688	26.03.2021	22.05.2021
ST87	Grassland	Bilasuvar	-29	n/a	n/a	4	39.56555	48.72892	26.03.2021	22.05.2021
ST88	Grassland	Bilasuvar	-29	n/a	n/a	4	39.55777	48.73371	26.03.2021	22.05.2021
ST89	Grassland	Bilasuvar	-34	n/a	n/a	4	39.55035	48.73219	26.03.2021	22.05.2021
ST90	Grassland	Bilasuvar	-32	n/a	n/a	4	39.54290	48.73010	26.03.2021	22.05.2021
ST91	Grassland	Bilasuvar	-33	n/a	n/a	4	39.53760	48.72581	26.03.2021	22.05.2021
ST92	Grassland	Bilasuvar	-32	n/a	n/a	4	39.53277	48.72522	26.03.2021	22.05.2021
ST93	Grassland	Bilasuvar	-31	n/a	n/a	4	39.52378	48.71846	26.03.2021	22.05.2021
ST94	Grassland	Bilasuvar	-34	n/a	n/a	4	39.52157	48.71514	26.03.2021	22.05.2021
ST95	Grassland	Bilasuvar	-31	n/a	n/a	4	39.53023	48.70766	26.03.2021	22.05.2021
ST96	Grassland	Bilasuvar	-35	n/a	n/a	4	39.53807	48.70109	26.03.2021	22.05.2021
ST97	Grassland	Bilasuvar	-31	n/a	n/a	4	39.53843	48.69403	26.03.2021	22.05.2021
ST98	Grassland	Bilasuvar	-34	n/a	n/a	4	39.53873	48.68146	26.03.2021	22.05.2021
ST99	Grassland	Bilasuvar	-33	n/a	n/a	4	39.53800	48.66869	26.03.2021	22.05.2021
ST100	Grassland	Bilasuvar	-38	n/a	n/a	4	39.53322	48.66152	26.03.2021	22.05.2021
ST101	Shrubs	Bilasuvar	-38	n/a	n/a	4	39.52752	48.66774	26.03.2021	22.05.2021
ST102	Grassland	Bilasuvar	-33	n/a	n/a	4	39.51831	48.68029	26.03.2021	22.05.2021
ST103	Grassland	Bilasuvar	-30	n/a	n/a	4	39.52251	48.67834	26.03.2021	22.05.2021
ST104	Grassland	Bilasuvar	-32	n/a	n/a	4	39.51692	48.67279	26.03.2021	22.05.2021
ST105	Grassland	Bilasuvar	-29	n/a	n/a	4	39.50866	48.67018	26.03.2021	22.05.2021
ST106	Grassland	Bilasuvar	-35	n/a	n/a	4	39.59325	48.73647	05.04.2021	23.05.2021
ST107	Grassland	Bilasuvar	-34	n/a	n/a	4	39.59956	48.72807	05.04.2021	23.05.2021
ST108	Shrubs	Bilasuvar	-32	n/a	n/a	4	39.59163	48.72105	05.04.2021	23.05.2021
ST109	Grassland	Bilasuvar	-32	n/a	n/a	4	39.58388	48.71621	05.04.2021	23.05.2021
ST110	Grassland	Bilasuvar	-30	n/a	n/a	4	39.58612	48.70662	05.04.2021	23.05.2021
ST111	Grassland	Bilasuvar	-30	n/a	n/a	4	39.59509	48.70191	05.04.2021	23.05.2021
ST112	Grassland	Bilasuvar	-32	n/a	n/a	4	39.60152	48.69365	05.04.2021	23.05.2021
ST113	Grassland	Bilasuvar	-34	n/a	n/a	4	39.60059	48.68585	05.04.2021	23.05.2021
ST114	Grassland	Bilasuvar	-39	n/a	n/a	4	39.59807	48.67899	05.04.2021	23.05.2021
ST115	Grassland	Bilasuvar	-32	n/a	n/a	4	39.60751	48.67521	05.04.2021	23.05.2021

ST116	Grassland	Bilasuvar	-35	n/a	n/a	4	39.61886	48.67104	05.04.2021	23.05.2021
ST117	Grassland	Saatli	-32	n/a	n/a	4	39.62801	48.66651	05.04.2021	23.05.2021
ST118	Shrubs	Saatli	-37	n/a	n/a	4	39.63677	48.66430	05.04.2021	23.05.2021
ST119	Grassland	Saatli	-34	n/a	n/a	4	39.64653	48.66288	05.04.2021	23.05.2021
ST120	Grassland	Saatli	-32	n/a	n/a	4	39.65987	48.66446	05.04.2021	23.05.2021
ST121	Grassland	Saatli	-39	n/a	n/a	4	39.66315	48.66225	05.04.2021	23.05.2021
ST122	Grassland	Saatli	-36	n/a	n/a	4	39.66051	48.65112	05.04.2021	23.05.2021
ST123	Shrubs	Saatli	-37	n/a	n/a	4	39.65963	48.64282	05.04.2021	23.05.2021
ST124	Grassland	Saatli	-37	n/a	n/a	4	39.65957	48.62510	05.04.2021	23.05.2021
ST125	Grassland	Saatli	-34	n/a	n/a	4	39.65383	48.60639	05.04.2021	23.05.2021
ST126	Grassland	Saatli	-29	n/a	n/a	4	39.66151	48.60820	05.04.2021	23.05.2021
ST127	Grassland	Saatli	-31	n/a	n/a	4	39.67358	48.60495	05.04.2021	23.05.2021
ST128	Grassland	Saatli	-30	n/a	n/a	4	39.68297	48.60510	05.04.2021	23.05.2021
ST129	Grassland	Saatli	-30	n/a	n/a	4	39.69026	48.59855	05.04.2021	23.05.2021
ST130	Grassland	Saatli	-28	n/a	n/a	4	39.69507	48.61419	05.04.2021	23.05.2021
ST131	Grassland	Saatli	-26	n/a	n/a	4	39.70031	48.59465	06.04.2021	23.05.2021
ST132	Grassland	Saatli	-22	n/a	n/a	4	39.69640	48.57864	06.04.2021	23.05.2021
ST133	Grassland	Saatli	-23	n/a	n/a	4	39.68979	48.58335	06.04.2021	23.05.2021
ST134	Grassland	Saatli	-24	n/a	n/a	4	39.67914	48.57183	06.04.2021	23.05.2021
ST135	Grassland	Saatli	-34	n/a	n/a	4	39.67526	48.58407	06.04.2021	23.05.2021
ST136	Grassland	Saatli	-33	n/a	n/a	4	39.66811	48.57841	06.04.2021	23.05.2021
ST137	Grassland	Saatli	-33	n/a	n/a	4	39.66225	48.57896	06.04.2021	23.05.2021
ST138	Grassland	Saatli	-27	n/a	n/a	4	39.65320	48.58068	06.04.2021	23.05.2021
ST139	Grassland	Saatli	-32	n/a	n/a	4	39.65082	48.59520	06.04.2021	23.05.2021
ST140	Grassland	Bilasuvar	-32	n/a	n/a	4	39.63501	48.60154	06.04.2021	23.05.2021
ST141	Grassland	Bilasuvar	-27	n/a	n/a	4	39.62753	48.60820	06.04.2021	23.05.2021
ST142	Grassland	Bilasuvar	-26	n/a	n/a	4	39.62146	48.61211	06.04.2021	23.05.2021
ST143	Grassland	Bilasuvar	-28	n/a	n/a	4	39.61688	48.60194	06.04.2021	23.05.2021
ST144	Grassland	Bilasuvar	-28	n/a	n/a	4	39.60827	48.60687	06.04.2021	23.05.2021
ST145	Grassland	Bilasuvar	-38	n/a	n/a	4	39.60469	48.62086	06.04.2021	23.05.2021

ST146	Grassland	Bilasuvar	-33	n/a	n/a	4	39.60087	48.63349	06.04.2021	23.05.2021
ST147	Grassland	Bilasuvar	-37	n/a	n/a	4	39.60616	48.64471	06.04.2021	23.05.2021
ST148	Shrubs	Bilasuvar	-34	n/a	n/a	4	39.62441	48.65421	06.04.2021	23.05.2021
ST149	Grassland	Gakh	271	S-SW	6	4	41.15344	46.77784	10.04.2021	29.05.2021
ST150	Grassland	Gakh	263	S	3	4	41.15100	46.78878	10.04.2021	29.05.2021
ST151	Grassland	Gakh	267	S-SW	6	4	41.15017	46.79813	10.04.2021	29.05.2021
ST152	Grassland	Gakh	258	SW-W	5	4	41.14639	46.80829	10.04.2021	29.05.2021
ST153	Grassland	Gakh	252	S-SW	5	4	41.14429	46.81672	10.04.2021	29.05.2021
ST154	Grassland	Gakh	272	N-NE	12	4	41.14647	46.82164	10.04.2021	29.05.2021
ST155	Grassland	Gakh	285	E-SE	9	4	41.15010	46.82355	10.04.2021	29.05.2021
ST156	Grassland	Gakh	311	E-SE	7	4	41.15372	46.81960	10.04.2021	29.05.2021
ST157	Grassland	Gakh	319	S	8	4	41.15946	46.81857	10.04.2021	29.05.2021
ST158	Grassland	Gakh	330	S-SW	5	4	41.16244	46.82322	10.04.2021	29.05.2021
ST159	Grassland	Gakh	347	E	4	4	41.16656	46.81889	10.04.2021	29.05.2021
ST160	Grassland	Gakh	366	E-SE	16	4	41.17166	46.81618	10.04.2021	29.05.2021
ST161	Grassland	Gakh	352	SW-W	11	4	41.16513	46.82359	10.04.2021	29.05.2021
ST162	Grassland	Gakh	317	W	16	4	41.15676	46.82344	10.04.2021	29.05.2021
ST163	Grassland	Gakh	240	n/a	n/a	4	41.13804	46.81647	11.04.2021	29.05.2021
ST164	Grassland	Gakh	249	n/a	n/a	4	41.13747	46.82335	11.04.2021	29.05.2021
ST165	Grassland	Gakh	303	SE-S	12	4	41.15512	46.82586	11.04.2021	29.05.2021
ST166	Grassland	Gakh	314	E-SE	4	4	41.15889	46.82865	11.04.2021	29.05.2021
ST167	Grassland	Gakh	335	SW-W	2	4	41.16519	46.83427	11.04.2021	29.05.2021
ST168	Grassland	Gakh	358	W-NW	3	4	41.16835	46.83773	11.04.2021	29.05.2021
ST169	Grassland	Gakh	347	NW-N	10	4	41.16582	46.83874	11.04.2021	29.05.2021
ST170	Grassland	Gakh	369	SW-S	5	4	41.16758	46.84283	11.04.2021	29.05.2021
ST171	Grassland	Gakh	387	N-NE	14	4	41.16680	46.84670	11.04.2021	29.05.2021
ST172	Grassland	Gakh	375	S-SW	7	4	41.16629	46.85095	11.04.2021	29.05.2021
ST173	Grassland	Gakh	386	S-SW	16	4	41.16788	46.85416	11.04.2021	29.05.2021
ST174	Grassland	Gakh	408	SE	6	4	41.17178	46.85770	11.04.2021	29.05.2021
ST175	Shrubs	Gakh	422	SE-S	10	4	41.17497	46.86064	11.04.2021	29.05.2021

ST176	Grassland	Gakh	329	SE-S	15	4	41.15521	46.84386	11.04.2021	29.05.2021
ST177	Grassland	Gakh	314	S-SW	9	4	41.15482	46.84596	11.04.2021	29.05.2021
ST178	Grassland	Gakh	344	S-SW	12	4	41.15740	46.84668	11.04.2021	29.05.2021
ST179	Grassland	Gakh	319	SE-S	5	4	41.15441	46.84882	11.04.2021	29.05.2021
ST180	Shrubs	Gakh	326	S-SW	3	4	41.15634	46.85076	11.04.2021	29.05.2021



ENVIRONMENT, CLIMATE,  
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Management of natural resources and safeguarding of ecosystem services  
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