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MONITORING OF BIRDS IN THE VICINITY OF THE SANGACHAL TERMINAL

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Abstract. Due to the reduction in the number of birds in Azerbaijan in recent years, environmental monitoring of each species is an extremely important and pressing issue. The study of birds in Gobustan encompasses the historical context, a description of the environment around the Sangachal Terminal, the impact of anthropogenic changes in biotopes and landscapes on birds and the long-term dynamics of both quantitative and qualitative changes in bird populations. Despite the diversity of biotopes in the area, modified halophytic semi-desert constitutes 63.1% of the main habitat, while anthropogenically transformed areas make up only 15%. Populations are categorized based on their dietary habits into three groups: phytophagous, zoophagous and polyphagous. This classification is based on the principle that objects constituting up to 75% of the population's annual diet indicate its dietary characteristics. The sources of food should encompass at least five indicators: from the ground, water, trees, shrubs and air. Based on settlement characteristics, populations include 21 resident species, 30 breeding visitors, 35 winter visitors, 25 foraging species and 59 migratory species. The predominance of migrants (37.4%) can be attributed to the Sangachal Terminal area's role as a corridor for breeding birds from the Palearctic zoogeographical province. The area around the terminal provides favorable conditions for preserving the populations of species such as the greater sandplover *Charadrius leschenaulti*, black-bellied sandgrouse *Pterocles orientalis* and *Hippolais caligata* at the national level in Azerbaijan. A multi-parameter bio-ecological assessment helps determine the viability of each population. Sangachal is a suitable place for studying bird migration in Azerbaijan. Tracking the migration of birds from Sangachal to Umbaki, as well as from Sangachal to Shamakhi road, reveals many secrets. The Sangachal Terminal is a corridor for migrating birds along the western coast of the Caspian Sea. While much of the area farther from the terminal consists of modified semi-desert and saline soils, the immediate vicinity of the terminal includes diverse habitats such as coastal areas, wetland floodplains, grassy zones and industrial biotopes, providing birds with opportunities for reproduction, overwintering, feeding, roosting, protection and migration.

Keywords: *Bird population, biotope, plant cover, reproduction, semi-desert, saline soils.*

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1. Introduction

Birds are among the most ubiquitous taxa in terrestrial ecosystems (Buenaño-Mariño *et al*., 2025). The territory of Azerbaijan is located in the south of the northern sphere of our planet. The rivers and lakes in this area never freeze. Because there are all types of climate here, from humid and dry subtropical climate to Mountain - tundra climate (Babayev, 2010). This study is dedicated to investigating the species composition,

distribution characteristics and breeding areas of resident and migratory birds in various biotopes around the Sangachal Terminal and nearby settlement. Power lines and tall poles, which pass through the area in the direction of Baku and Sumgayit, replace tall trees for these birds.

The area's topography, landscape, hydrology, soil and plant cover (biotope), along with natural and anthropogenic influences such as fog, strong winds, persistent snow cover and heavy rainfall, have been considered (Bijlsma, 2024; Dulisz *et al*., 2025). The dynamics of bird populations at each point were a key focus of this study. In areas where movement was restricted by dense vegetation, bird songs were relied upon for population estimates, while in autumn and winter, birds were startled with thrown objects to make them take flight and be counted (Glushakova *et al*., 2024; Flint, 2000). The environment surrounding the Sangachal Terminal is closely linked to the natural features of Gobustan, the Absheron Peninsula, the western coast of the Caspian Sea and the Kura-Araz lowland (Howe *et al*., 1977). The predominant landscape around the terminal is modified semi-desert. The northern, eastern and western parts of the area consist of semi-desert plains and low hills of volcanic origin, heavily affected by erosion. The plant cover is sparse and there are no natural trees (Jesús, 2024; Livinchuk *et al*., 2008).

In valleys and depressions within the plain, drought-resistant shrubs grow, including *Tamarix aphylla, T. elongata*, *Paliurus spina-christi* Mill., *Rosa canina, Solanum seaforthianum, Solanum atropurpureum, Sorbus aucuparia, S. margittaiana, S. albovii, Punica granatum, Luniperus Communis*, *Hippophae rhamnoides* and *Alhagi maurorum* in more sunken areas. The main plant cover consists of *Salsola tragus* L., *Soda inermis, Salsola grandis* and *Artemisia cina*. Grasses and ephemeral plants among these shrubs dry out quickly. The widespread availability of satellite tracking devices has made it possible to track individual migratory birds throughout the full annual cycle, examining how distribution and habitat use change between seasons and regions while also describing the characteristics of migratory movements (Stanbury *et al*., 2021; Mammadov *et al*., 2010).

The information on bird life in this study is based on multi-parameter regional and population-level assessments. Animal behavior, ecology and physiology monitoring studies continually benefit from advances in biological logging techniques, including the collection of animal behavior and energy expenditure data (Yu *et al*., 2022; Mustafayev, 2003). Large flocks of *Corvus frugilegus* and *Corvus cornix* roost in Baku, flying early in the morning to the landfill near the Sangachal settlement (a distance of 50 km) to feed and returning to Baku by evening. This indicates that these birds do not expend much energy flying long distances (Mustafayev & Mammadov, 2010). Resident birds include species that never leave the vicinity of the Sangachal Terminal, such as *Columba livi*, *Athene noctua*, *Galerida cristata*, *Sturnus vulgaris*, *Corvus cornix* and *Passer domesticus*. Migratory species arrive in the spring, reproduce and leave in the autumn (Mustafayev, 2013). Examples include *Cuculus canorus*, *Apus apus*, *Merops apiaster*, *Upupa epops* and *Hirundo rustica*.

2. Materials and methods

To conduct population-level research on birds in open landscapes (semi-deserts, steppes and savannas) and open water areas, the “point monitoring” method was employed. This method involves delineating “points” measuring 250x250 m on land and 500x500 m in water (Owen, 2023). The counting was performed by three specialists: an

identifier, a recorder (coder) and an assistant (who located the point). In terrestrial landscapes, counts were conducted for 10 minutes at each point, while in water, the duration was 30 minutes (Reif *et al*., 2022). Typically, 5-6 minutes were allotted to travel from one point to a neighboring one. For aquatic monitoring, 30 minutes were spent at each point, with 10 minutes for movement between points (Salvia *et al*., 2021). Binoculars were used for observations on land, while telescopes were employed in water. Counts in shallow waters were conducted from the shore, while deeper aquatic areas were surveyed using a boat. The multiparametric regional assessment of populations was proposed by G.T. Mustafayev. The Sangachal Terminal area is connected to or completely surrounded by five aquatic habitats. Population density categories were based on the classifications by V.K. Ryabisev and G.T. Mustafayev: populations with 0.1-0.9 individuals per km^2 are considered rare, 1-10 individuals are classified as common and those with more than 10 individuals are deemed abundant.

3. Results and discussion

3.1. Tadorna ferruginea Pall., 1764 - Red-crested Pochard

This species is roughly the size of a chicken (920-1500 g) (Stirnemann *et al*., 2014). It features a distinctive white patch on its wings and its call is very characteristic, sounding like "aang-aang", which can be heard from a distance (Figure 1). It allows humans to approach within 30-40 meters. The red-crested pochard inhabits the confluence of various biotopes (water bodies, ravines, old forests).

Although there are no steep ravines near the terminal, numerous ravines exist farther away, serving as nesting sites. Only in certain ravines along the Jeyran River does water accumulate and the pochard breeds in old badger burrows among the crevices or walls of these ravines. Its primary challenge is transporting its young to a permanent water source.

Figure 1. *Tadorna ferruginea* in a disturbed state (40°10′00″N 49°27′46″E)

They can slide along the bottom of the ravine from one puddle to another, successfully transporting their young to the sea. In spring and autumn, individual red-crested pochards (*Tadorna ferruginea*) from migratory populations are observed in the nearby wetlands of the terminal; however, these are temporary individuals that come for feeding. Therefore, the area surrounding the terminal does not fully meet the bio-ecological requirements of the red-crested pochard. Subsequent table below showed populations (Table 1).

Table 1. *Tadorna ferruginea* multivariate indicators of the area

Parameters	Description
Genetic significance	One of two species in the area
Fauna type	MTEs fauna
Macrostructure of the species	Monotypic
Limiting factors for the population	Natural
Settlement characteristics	Resident (s), migrant (tr), foraging (tf)
Biotopes	Gullies near water in arid regions and rock fragments
Use of biotopes	Breeds among rock fragments and in gullies, feeds, and rests in the water
Quantitative status	Rare
Category	Vulnerable
Reproductive conditions	Presence of gullies near water
Sociology	Monogamous, in pairs
Daily activity	Primarily nocturnal, less active during the day
Annual activity	Reproduction, hibernation, migration
Feeding characteristics	Polyphagous
Source of food	Obtained from shallow water and land
Consumer level	I-III
Ecological significance	Reduces competition at the intersection of various biotopes
Importance for humans	May be a valuable hunting bird

Note: S - denotes sedentary populations, N - indicates breeding populations, H - signifies wintering populations, Tr - represents migrants and Tf - indicates populations that come for feeding; I - primary consumers and III - tertiary consumers; MTEs - Mediterranean type; Vulnerable - sensitive to negative impacts

3.2. Charadrius leschenaultii Less., 1826 - Thick-billed Plover

The bill is long and thick compared to other species in the genus. The underside of the wings is white, while the sides are a sandy gray. It allows humans to approach within 15-20 meters (FAO & UN, 2019). *Charadrius leschenaultii* breeds rarely in the weakly vegetated deserts and semi-deserts of Gobustan, including the area around the Sangachal Terminal. The instability of nesting sites may characterize the population dynamics of this bird.

Figure 2. *Charadrius leschenaultia* (40°10'07.9"N 49°28'24.1"E)

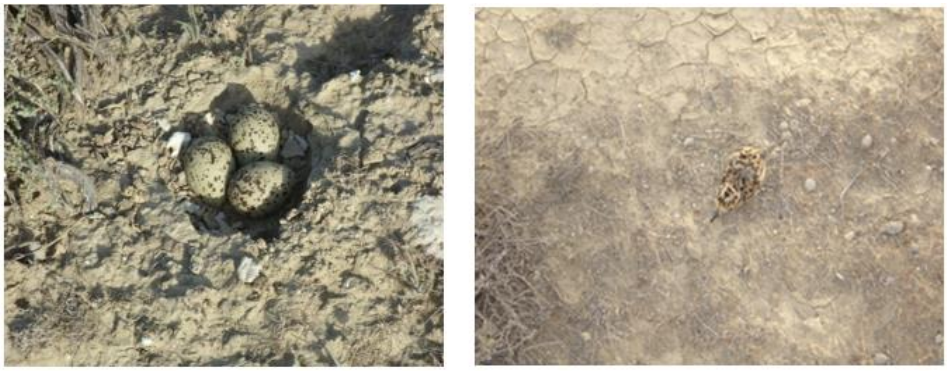

Figure 3. Egg of *Charadrius leschenaultii on* dug-up soil and chick of *Charadrius leschenaultia*

3.3. Columba livia feeding, living area parameters

Table 2. *Charadrius leschenaultia's* multiparametric indicators in the area (*Columba livia* Gm., 1789 - Wild Pigeon)

Parameters	Indicators
Genetic significance	It is one of the three reproductive types of the genus
The macrostructure of the species	PPT
The limiting factor of the population.	Natural and anthropogenic
Settlement characteristics	N, Tr
Biotopes	Desert and semi-desert plains
Quantitative status	Uncommon
Category	CR is in a critical condition
Reproductive conditions	It moves away from the transformation of the territory
Sociology	Monogamous, pairwise
Daily activity	Daytime
Annual activity	Reproduction, foraging, migration
Characteristics of food	Entomophagy
Conservation	Included in the Red Book, restricted area regime

Note: N - indicates breeding populations; Tr - represents migrants; Tf - indicates populations that come for feeding; CR - Critically Endangered; PPT - Polytypic species concept;
Entomophagy - technical term for eating insects

Table 3. *Columba livia's* multiparametric indicators in the area

Parameters	Indicators
Gene Pool Significance	Species in the region represent a single reproductive type
Fauna Type	MTEs
Species Macrostructure	Polytypic
Population Limiting Factor	Natural and anthropogenic
Mating Characteristics	S - type
Biotopes	Rocky areas, ravines, and structures with roofs
Biotope Usage	Reproduction, feeding, resting and nesting.
Reproduction Requirements	Protection of eggs and offspring from disturbance
Sociology	Monogamous, colonial
Daily Activity	Diurnal
Feeding Characteristics	Phytophagous
Food Source	From open and grassy areas
Consumer Level	I

Note: I - primary consumers; S - possibly indicates a social structure or mating behavior classification; MTEs - Mediterranean type; Phytophagous - plant-eating

Table 4. Multi-annual population dynamics of *Columba livia* near the terminal

Years	Spring-Summer (May-July)			Autumn (September-November)			Winter (December-February)			Totally
	a	b	c	a	b	c	a	b	c	
2017	4	6	1.5	6	41	6.8	8	29	3.6	76
2018	5	7	1.4	6	47	9.4	4	21	5.3	75
2019	4	9	2.2	8	17	2.1	3	18	6.6	44
2020	7	18	2.6	8	31	3.9	11	37	3.4	86
2021	9	36	4.0	15	60	4.0	11	41	3.7	37
2022	8	26	3.3	10	45	4.5	9	34	2.8	105
Totally	37	102	15	53	241	4.6	46	190	4.1	523

Note: *a - number of points; b - number of individuals; c - average count*

Table 5. Multi-annual population dynamics of *Columba livia* nesting and roosting in the wetland section of the terminal

Years	Spring-summer (May-July)			Autumn (September- November)			Winter (December-February)		
	a	b	c	a	b	c	a	b	c
2017	4	4	1.0	5	27	5.4	4	22	5.5
2018	4	9	2.2	5	32	6.4	5	19	3.8
2019	3	6	2.0	4	23	5.7	4	14	3.5
2020	4	12	3.0	5	19	3.2	5	14	2.8
2021	5	22	4.4	6	15	2.5	6	23	3.8
2022	5	11	3.2	7	18	2.6	6	28	4.7
Totally	25	69	2.6	32	134	4.2	30	120	4.0

Note: *a - number of points; b - number of individuals; c - average count*
Source: By authors in 2017-2022

Table 6. Multi-annual population dynamics of *Columba livia* in the overall monitoring area

Years	Spring-summer (May-July)			Autumn (September- November)			Winter (DecemberFebruary)			Total
	a	b	c	a	b	c	a	b	c	
2017	16	34	2.1	24	124	5.2	12	116	9.6	274
2018	20	58	2.9	14	188	7.8	10	84	8.4	330
2019	16	36	2.2	20	68	3.4	12	72	6.0	176
2020	56	144	2.6	64	248	3.9	36	296	8.2	688
2021	72	288	4.0	90	440	4.8	46	324	7.0	1052
2022	64	208	3.2	82	360	4.4	54	272	5.1	840
Total	244	768	2.7	304	1428	5.1	170	1164	5.1	3360

Note: *a - number of points; b - number of individuals; c - average count*

The general color is bluish-gray. It allows a person to approach within 10 meters. Our observations have shown that it is easy to drive wild birds away from agricultural areas, but it is difficult to remove them from covered environments. *Columba livia* breeds in vacant spaces under the coverings of buildings in the terminal silty areas, where it also roosts and rests. The unexpected proliferation of this bird in some building eaves occurs due to individuals coming to rest. In autumn and winter, the increase in the pigeon population in the wetlands may be due to the arrival of birds that nested in rocky areas.

The average annual number of rock pigeons utilizing the monitoring area is 560 (totaling 3360). In autumn, the families of these birds partially merge into flocks. The number of their feeding and roosting sites decreases, leading to an increase in population density, which enhances supplementary feeding and the vigilance of the birds.

3.4. Cuculus canorus Linn., 1758 - Common Cuckoo

It is significantly smaller than a pigeon and resembles a small hawk in flight. The male frequently repeats the call “cu-cu”, while the female makes a “kli-kli-kli” sound. It allows humans to approach within 40-50 meters (Xie & Zhu, 2023).

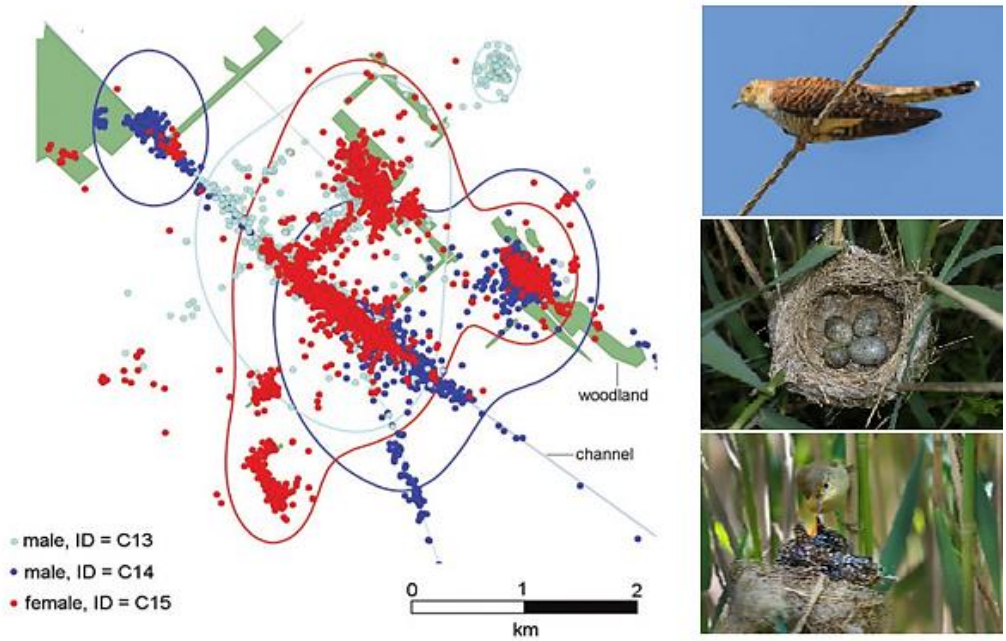

Figure 7. *Cuculus canorus* perched and *male-female distance data’s*

Table 7. *Cuculus canorus’s* multiparametric indicators in the area

Parameters	Indicators
Gene Pool Significance	Represents the sole species of its family within the region
Fauna Type	Siberia
Species Macrostructure	Polytypic
Population Limiting Factor	Natural and anthropogenic
Settlement Characteristics	N and Tr
Biotopes	Trees and Shrubs
Biotope Utilization	Reproduction, Feeding, and Self-Protection
Reproductive conditions	It is a brood parasite that adds its eggs to the nests of small birds
Sociology	Polygamy
Daily activity	During the day
Feed characteristics	Entomophagy
Food Source	Primarily from the stream, and partly from the ground
Level of consumption	II-III
Bioindicators	The presence of small shrub birds
Importance in nature	Participants in biodiversity in semi-arid regions
Importance for the population	the consumption of chickpeas
Artificial Cultivation	Not required

Note: I - primary consumers and III - tertiary consumers; S - possibly indicates a social structure or mating behavior classification; MTEs - Mediterranean type; Phytophagous - plant-eating; N - Nomadic; Tr - Transient

The common cuckoo breeds in the reed and tamarisk wetlands in the southern and western areas near the terminal, engaging in brood parasitism with small birds. It is not observed in wide open spaces, as it is a dendrophilic species. It arrives in May and migrates away in September. At the end of May and the beginning of June, the male intensely vocalizes while following the females and even attempts to mate in the air. We observed its activity in thickets near the villages of Umid and Azimkand. The *Cuculus canorus* is less frequently seen in September and migrates individually.

The number of birds observed at each point does not vary significantly. However, the number of birds recorded in the autumn has decreased. This is a natural phenomenon, as the migration of these birds to their wintering grounds begins at the end of august.

Table 8. Long-term population dynamics of *Cuculus canorus* near the terminal

Years	Spring-summer (April-August)			Autumn (September-November)			Totally
	a	b	c	a	b	c	
2017	3	5	1.7	1	1	1.0	6
2018	2	4	2.0	-	-	-	4
2019	1	2	2.0	2	2	1.0	4
2020	2	3	1.5	1	1	1.0	4
2021	2	4	2.0	-	-	-	4
2022	2	3	1.5	1	1	1.0	4
Totally	12	21	1.8	5	5	1	26

Note: *a - number of points; b - number of individuals; c - average count*

Table 9. Long-term population dynamics of *Cuculus canorus* in the general monitoring area

Years	Spring-summer (April-August)			Autumn (September-November)			Totally
	a	b	c	a	b	c	
2017	12	17	1.7	6	8	1.4	25
2018	14	19	1.4	11	11	1.0	30
2019	11	18	1.6	15	16	1.1	34
2020	16	23	1.4	14	17	1.2	40
2021	20	25	1.2	18	18	1.0	43
2022	19	27	1.4	12	14	1.2	41
Total	92	129	1.4	76	84	1.1	213

3.5. Galerida cristata Linn., 1758 - Crested lark

The Crested Lark is smaller than a sparrow, weighing between 30-45 grams. It has a distinctive tuft on its head. The back is broad with a patterned brown-grey coloration, while the underside is a dirty white. Its call is pleasant, characterized by a repetitive “tri-tri-tri-triii”. Young birds appear colorful and allow humans to approach within 5-10 meters.

The Crested Lark is commonly found along roadsides. The creation of asphalt areas in place of weedy vegetation and unsanitary conditions reduces the population of seed- and waste-eating birds. In the silty section of the terminal, it breeds in only 2-4 locations (southwest). The remaining populations have been recorded in the nearby semi-desert plains. It is evident that a solid surface is less favorable than grass.

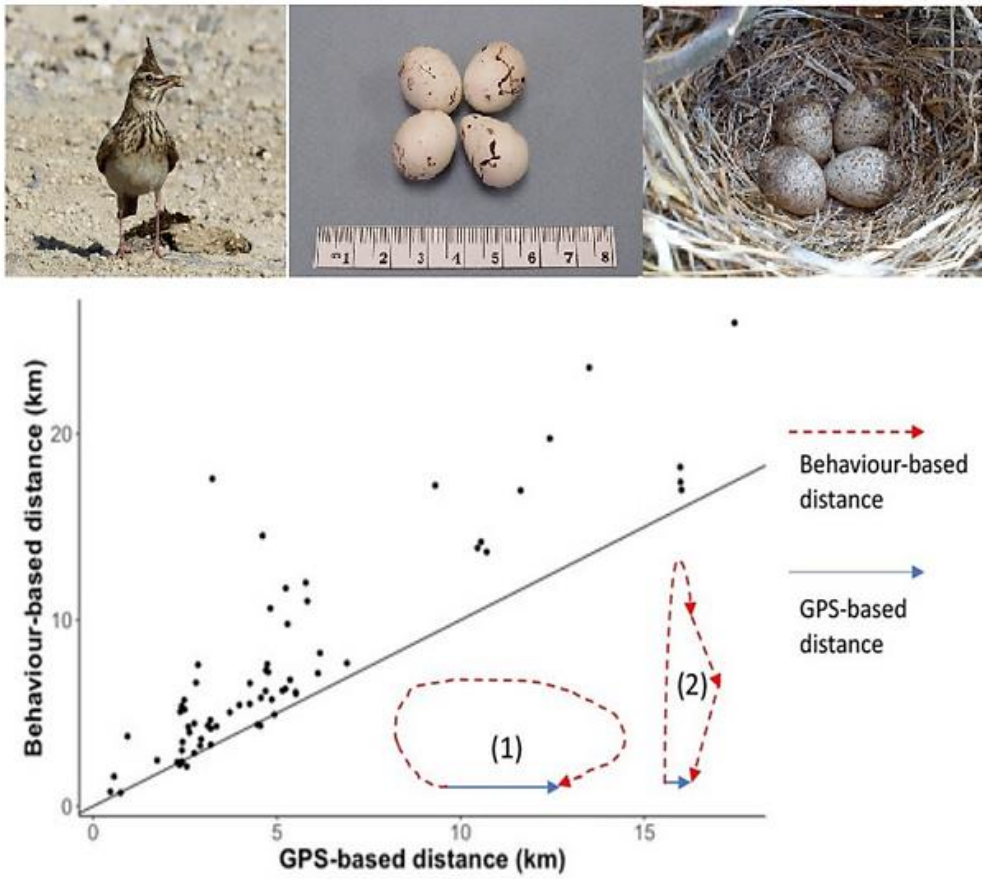

Figure 8. *Galerida cristata* - Perceived Threat and behavior-based dintance data's

Table 10. *Galerida cristata's* multiparametric indicators in the area

Parameters	Indicators
Genetic significance	The only species within the area
Fauna type	MTEs
The macrostructure of the species	Polytypic
The limiting factor of the population.	Natural and anthropogenic
Settlement characteristics	S
Biotopes	Open areas, sparse shrub land
Utilization of Biotope	All-encompassing
Reproductive conditions	Dry land without forested areas
Sociology	Monogamous, paired
Daily activity	Diurnal
Annual activity	Reproduction, hibernation, and food foraging
Characteristics of food	Polyphagous
Source of food	Ground foraging
Bioindicator	High presence of anthropogenic factors
Importance to nature	Involvement in biodiversity in semi-desert regions
Significance for the community	Feeding on seeds and weeds
Artificial Breeding	No specific needs
Conservation	Restricted area regime

Note: Diurnal - active during the day; Polyphagous - varied diet; S - Sedentary;
MTEs - Mediterranean type; Phytophagous - plant-eating

Table 11. Long-term population dynamics of *Galerida cristata* near the terminal

Years	Spring-summer (April-August)			Autumn (September-November)			Winter (December-February)			Total
	a	b	c	a	b	c	a	b	c	
2017	27	52	1.0	20	46	2.3	19	33	1.7	131
2018	26	30	1.5	17	33	1.9	15	35	2.3	98
2019	23	36	1.6	19	49	2.6	15	34	2.3	120
2020	20	34	1.7	13	42	3.2	13	25	1.9	101
2021	18	31	1.9	12	23	1.9	13	18	1.4	72
2022	16	25	1.7	15	28	1,8	14	22	1.7	75
Total	110	208	1.9	98	221	2,3	89	167	1.9	596

Table 12. Long-term population dynamics of *Galerida cristata* around the terminal

Years	Spring-summer (April-August)			Autumn (September-November)			Winter (December-February)			Total
	a	b	c	a	b	c	a	b	c	
2017	81	156	1.9	60	348	5.8	57	109	1.9	613
2018	78	120	1.5	51	278	5.4	45	105	2.3	503
2019	71	112	1.6	59	296	5.0	47	112	2.4	520
2020	121	204	1.7	78	504	6.4	78	150	1.9	850
2021	108	186	1.7	74	460	6.2	70	118	1.7	764
2022	96	150	1.7	76	408	5.4	72	132	1.8	486
Total	555	928	1.7	398	2294	5.8	369	726	2.0	3948

Note: a - number of points; b - number of individuals; c - average count

Since 2020, the increase in the number of monitoring points and birds has been associated with the expansion of the terminal's area. In autumn, the increase in population density is attributed to the arrival of a new generation. During winter, the reduction in the number of recorded Crested Larks and the simultaneous decline in population density is due to food scarcity and the challenging natural conditions leading to elimination. When the ground is covered with snow and the soil freezes, it becomes difficult to find seeds and insects in open plains (desert and semi-desert). However, the population remains numerous.

3.6. Sturnus vulgaris Linn., 1758 - Common Starling

The Common Starling weighs between 60-90 grams. Its primary coloration is a metallic glossy black, with a dark brown tail and wings. In autumn and winter, the presence of white spots increases, giving it a speckled appearance. Its call is characterized by sharp chattering and its song mimics other birds. It allows humans to approach within 5-10 meters.

Figure 9. *Sturnus vulgaris* - Perching on the wire

Table 13. *Sturnus vulgaris's* multiparametric indicators in the area

Parameters	Indicators
Genetic Importance	Only representative species of its genus in the area
Type of Fauna	European
Species Macrostructure	Polytypic
Population Limiting Factor	Natural and anthropogenic
Settlement Characteristics	S, N, H, Tr
Biotopes	Ravines, anthropogenic structures
Biotope Utilization	Primarily for reproduction
Category	Dominant
Sociology	Monogamous, colonial, paired
Daily Activity	Diurnal (active during the day)
Annual Activity	Reproduction, hibernation, migration
Type of Feeding	Entomophage
Food Source	From the ground
Trophic level	I-IV
Bioindicator Status	Arid regions
Importance for Nature	Participates in various biosenoses
Importance for Population	Insect-eating

Note: Entomophage - insect-eater, polyphagous; S - Sedentary; N - Nomadic; Tr - Transient; H - human settlements

Table 14. Long-term population dynamics of *Sturnus vulgaris* near the terminal

Years	Spring-summer (April-August)			Autumn (October-November)			Winter (December-February)			Total
	a	b	c	a	b	c	a	b	c	
2017	12	42	3.5	11	80	7.3	14	85	6.1	207
2018	15	52	3.5	16	99	6.1	12	68	5.7	219
2019	13	52	4.0	13	78	6.0	15	146	5.7	276
2020	17	65	3.8	21	75	3.6	13	50	3.8	190
2021	20	70	3.5	26	86	3.3	14	60	4.3	216
2022	18	72	4.0	22	80	3.6	16	68	4.3	220
Total	95	353	3.7	109	498	5.0	84	447	5.0	1328

Note: *a - number of points; b - number of individuals; c - average count*

The expansion of the silty landscape facilitates the breeding of the Starling, increasing the size of its colonies, although they must fly further for food. We do not dismiss the possibility that some flocks arriving for winter may intermingle with the local population.

Table 15. Long-term population dynamics of *Sturnus vulgaris* in the monitoring area

Years	Spring- summer (April-August)			Autumn (October-November)			Winter (December-February)			Total
	a	b	c	a	b	c	a	b	c	
2017	36	120	3.3	40	240	4.0	30	210	7.0	570
2018	45	156	3.5	36	220	6.1	26	200	7.7	576
2019	48	165	3.4	39	230	5.8	32	220	6.8	615
2020	82	328	4.0	102	395	3.9	45	250	5.6	973
2021	94	350	3.7	110	530	4.8	52	300	5.8	1180
2022	90	346	3.8	106	490	4.6	60	360	6.0	1196
Total	395	1465	3.6	433	2105	4.2	445	1540	6.5	5110

Note: *a - number of points; b - number of individuals; c - average count*

4. Conclusion

Between living nature and human populations on a regional scale and at the population level. Identifying the main factors shaping populations in an area makes predictions easier. The presence of 1-4 populations of the same species within the same territory necessitates studying their structure and dynamics. The primary goal of this research is to examine the impact of the Sangachal Terminal on local bird populations. The information provided about the lives of birds is based on multi-parameter assessments at regional and population levels. The habitat conditions for birds in the monitored areas varied. In this regard, the study area is divided into five groups. Despite the diversity of biotopes in the area, modified halophytic semi-desert constitutes 63.1% of the main habitat, while anthropogenically transformed areas make up only 15%. Populations are categorized based on their dietary habits into three groups: phytophagous, zoophagous and polyphagous. This classification is based on the principle that objects constituting up to 75% of the population's annual diet indicate its dietary characteristics. The sources of food should encompass at least five indicators: from the ground, water, trees, shrubs and air. Based on settlement characteristics, populations include 21 resident species, 30 breeding visitors, 35 winter visitors, 25 foraging species and 59 migratory species. The predominance of migrants (37.4%) can be attributed to the Sangachal Terminal area's role as a corridor for breeding birds from the Palearctic zoogeographical province. The area around the terminal provides favorable conditions for preserving the populations of species such as the greater sandplover *Charadrius leschenaulti*, black-bellied sandgrouse *Pterocles orientalis* and *Hippolais caligata* at the national level in Azerbaijan.

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