1915 Çanakkale Bridge
Bird survey study

Final Report

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BIRD SURVEY STUDIES

1 SURVEYS

1.1 Vantage Point Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

Although the risk of collision of the Yelkouan shearwater with the Canakkale bridge is considered very low, based in the reviewed bibliography, taking into account the uncertainty about their specific migration flight height in the future location of the bridge, a specific survey is proposed in order to gather accurate information to enhance the impact assessment included in the ESIA. This new baseline information would also enable to review the Critical Habitat assessment conducted for this species for the Criterion 3 of the IFC PS6[(1)].

No robust collision risk model for bridges has been developed therefore the data collection focused on the number of birds and amount of time spent at collision risk height. As this species moves largely in groups the minimum count unit will be a flock containing more than five birds.

1.1.1 Purpose

Literature, particularly from extensive wind farm research (e.g. Johnston et al. 2014) indicates that shearwaters are at little risk from elevated structures. The purpose of this survey is to test this hypothesis in relation to the bridge crossing.

1.1.2 Methodology

In the first day of surveys, Vantage Poinst (VP) were selected. The VP1 point is in Asian side and located just in the connection point of bridge (35 T 471042.00 E/ 4464462.00 N). The V2 point is in European side and located in about 600 meters south of the connection point of bridge (35 T 471042.00 E/4464462.00 N) (Figure 1). To reach the exact point of the bridge was impossible by car, so the nearest accesible point was chosen for observation.

Each survey visit lasteded at least three hours per vantage point. Sometimes visits were suspended and resumed to account for changes in weather/visibility. Surveys were performed during February (especially the first two weeks) as this is recognised as the peak passage period (2). Two survey visits per week per vantage point throughout February – minimum total of 24 hours of survey effort per vantage point. Vantage Poinst (VP) visits were performed as shown in Table 1.

Table 1. Vantage Poinst (VP) visit periods and times planned before the field surveys

Days	VP1 Asian bridge leg	VP2 European bridge leg
February 6	3 hours dawn	3 hours dusk
February 7	3 hours dawn	3 hours dusk
February 8	3 hours dusk	3 hours dawn
February 12	3 hours dusk	
February 13		3 hours dusk
February 14	3 hours dawn	3 hours dusk
February 23	3 hours dusk	
February 24		3 hours dawn
February 25	3 hours dusk	3 hours dawn
February 26	3 hours dawn	3 hours dusk
TOTAL	**24 hours for VP1**	**24 hours for VP2**

(1) Criterion 3 – habitats of important species for migratory and congregatory species. IFC (International Finance Corporation). Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources.
(2) https://www.birdguides.com/news/yelkouan-shearwater-in-the-bosphorus-the-coastal-count-marathon/

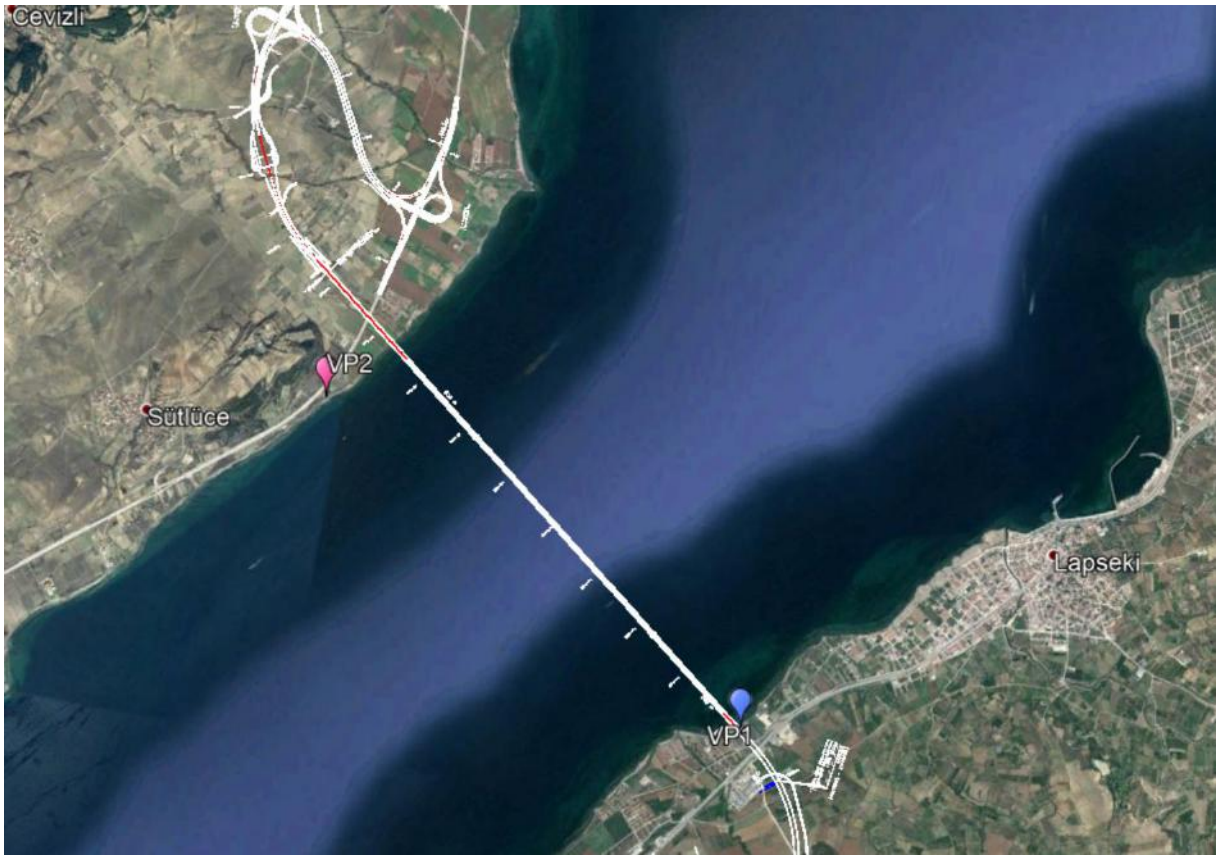

Figure 1. The location of VP1 and VP2 points.

Surveys were spreaded throughout the day between dawn and dusk, and should contain at least one session starting at dawn, and one session finishing at dusk. Dawn visits were started 30 minutes before sunrise and dusk visits were finished 30 minutes after sunset.

To observe Yelkouan shearwater that migrate tgrough the across the Canakkale strait a binocular (Nicon Aculon A211 16 x 50) and a Scope (Bushnell 20 60X80 Legend Ed) were used. Observed birds, flight direction, approximate distance from shore, flight hight and number of birds observed were recorded on survey recording sheets. To estimate approximate distance of the birds from shore, the paths of vessles that pass the Canakkale strait were used (Figure 2). Google earth images showed that vessles that travel from Canakkale directon toward Istanbul are sailing about 700 – 1200 meters distant from the shore, and from Istanbul directon toward Canakkale are sailing about 1400 – 1800 meters distant from the shore. To estimate flight hight of birds, the measure lines on vessels and birds that flighth close to these measure lines were used (Figure 3).

During the surveys, the following data was obtained:

1. Number of birds recorded
2. Height bands of each flocks flight over the survey area for duration of flight
3. Flight path of each flock recorded

Figure 2. The distance of vessels from the shore

Figure 3. Yelkouan shearwater flight and measure lines on a vessel that used to estimate flight height

1.2 Ferry Crossing Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

VP surveys will be supplemented each week by a survey from the Gallipoli-Lapseki ferry boat (Figure 4) during a return crossing at dawn and dusk on alternate weeks during February 2018; where observations of shearwater numbers, flight band and direction during each crossing will be undertaken. This would allow surveys to be conducted in a wider range of weather conditions and visibility constraints. The type of ferry and frequency of crossing needs to be established, but if suitable this is proposed as a complementary survey method.

1.2.1 Purpose

The purpose of this survey is to obtain complementary data in addition o VP surveys.

1.2.2 Methodology

In every 30 minutes one ferry navigates from Lapseki to Gelibolu and one another from Gelibolu to Lapseki. Sailing lasts about 35 minutes. During the sailing sailing direction was scnanned by a binocular. All Yelkouan shearwaters were recorded and counted. Additionally flight properties such as flight direction, approximate distance from shore, flight hight and number of birds observed were recorded on survey recording sheets. A total of thee ferry crossing were planned (Table 2).

Table 2. Ferry crossing dates and times planned before the field surveys

Date	Time
February 5	Ferry crossing (dusk)
February 13	Ferry crossing (dawn)
February 24	Ferry crossing (dusk)

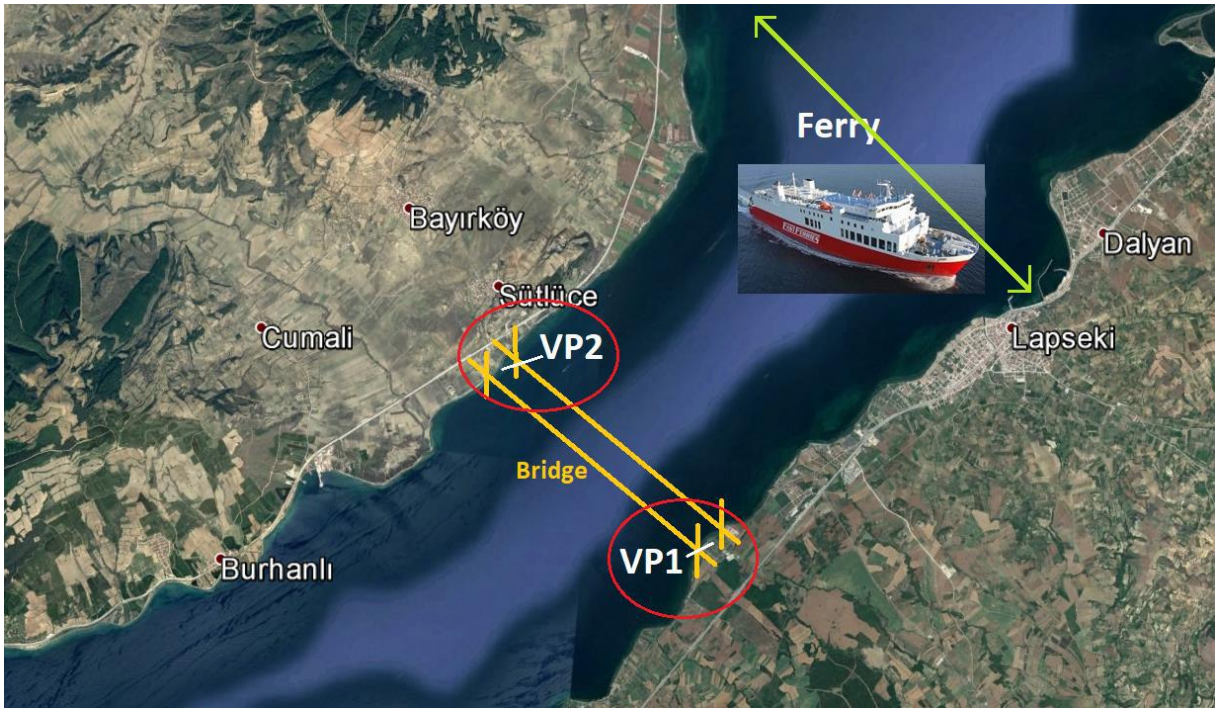

Figure 4. The locality of ferry travel in relation to the bridge

1.3 Roosting/Foraging Habitat Surveys for wintering geese, and breeding Habitat for Collared pratincole

Lesser white-fronted goose (*Anser erythropus*) and red-breasted goose (*Branta ruficollis*): in relation with their presence in the project footprint area that overlaps with the Saros Bay IBA (Important Bird Area – international designated area – for which both are triggering species).

None of these two species were identified during the field survey conducted in May 2017. However their presence cannot be excluded since they are wintering species in the area. The overlap area includes suitable habitats for these geese species. Therefore a specific survey is proposed to gather accurate information to enhance the impact assessment included in the ESIA.

This field survey shall also determine the presence of suitable areas for breeding of Collared pratincole (*Glareola pratincola*) within the overlap area, which is also a triggering species of the Saros Bay IBA.

1.3.1 Purpose

To collect data on lesser white-fronted goose and red-breasted goose that will enable estimates to be made of:

- Relative use of different parts of the survey area.
- Type of use of different parts of the survey area e.g. roost, foraging, commuting, etc.

1.3.2 Methodology

- Surveyor Dr Mustafa Sözen visited areas of suitable roosting and/or foraging habitat for target species within the project footprint plus ≥500 m buffer (up to 2 Km).
- Surveyor aimed to approach within 100m of each part of the site surveyed (NB: where access and H&S considerations allow).
- Surveyors periodically scaned the area using binocular and scope.
- Target species' locations were recorded upon detection, their behaviour/flight path and habitat use recorded e.g. returning to roost.
- Suitability of the survey area for collared pratincole was assessed in order to define if there would be a need of surveying the area between May-June 2018 to determine whether this species may breed within/adjacent to the construction area near Saros Bay IBA.

Saros Bay IBA observations were performed during February and March as shown in Table 3. Observation points and the location of these points in relation to Saros Bay IBA and motorway planned were shown in Figure 5. Totally 13 observation point were selected according to accessability and habitat properties of the point. Angle of sight was also important to select the point. The coordinates of observation points were listed in Table 4. In each observation point, the area was scanned by a binocular (Nicon Aculon A211 16 x 50) and/or a Scope (Bushnell 20 60X80 Legend Ed). To observe flying birds binocular was used and to scan the ground mostly scope was used.

Table 3. Saros Bay IBA visit periods and times planned before the field surveys

Date	Activity	Time
February 9	3 hours survey for Geese and Collared pratincole	Dawn survey
February 27	3 hours survey for Geese and Collared pratincole	Dawn survey
March 10	3 hours survey for Geese and Collared pratincole	Dusk survey
March 25	3 hours survey for Geese and Collared pratincole	Dusk survey

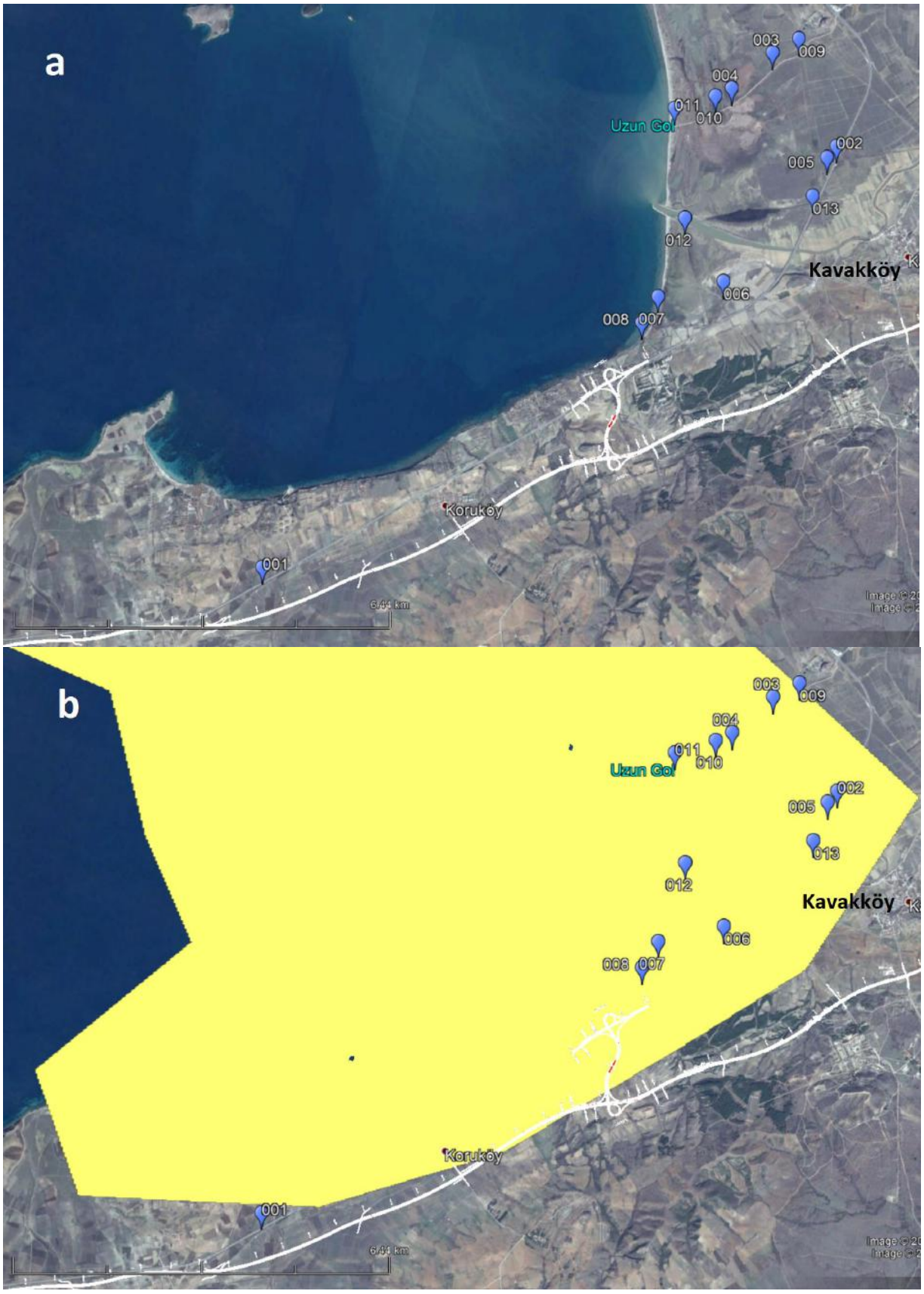

Figure 5. The observation points (blue dots) in and near Saros Bay IBA (yellow area in b) for wintering geese and Collared Pratincole. White line shows new motorway planned that connected to 1915 Çanakkale Bridge.

Table 4. Coordinates of observation points in and near Saros Bay IBA.

Observation point	Coordinates
001	35 T 480959.00 E / 4486948.00 m K
002	35 T 488747.00 E / 4496266.00 m K
003	35 T 487295.00 E / 4497550.00 m K
004	35 T 486764.00 E / 4496795.00 m K
005	35 T 488634.00 E / 4496042.00 m K
006	35 T 487428.00 E / 4493569.00 m K
007	35 T 486405.00 E / 4493047.00 m K
008	35 T 486243.00 E / 4492551.00 m K
009	35 T 487675.00 E / 4497887.00 m K
010	35 T 486526.00 E / 4496597.00 m K
011	35 T 485898.00 E / 4496225.00 m K
012	35 T 486526.00 E / 4494456.00 m K
013	35 T 488555.00 E / 4495348.00 m K

2 RESULS

2.1 Vantage Point Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

Vantage Point surveys for Yelkouan shearwater (*Puffinus yelkouan*) were performed from two points as show in Figure 1. Vantage Point surveys performed was listed in Table 5. All Yelkouan shearwater records were given in Tables 6-21.

Table 5. Vantage Poinst (VP) survey periods and times performed

Days	VP1 Asian bridge leg	VP2 European bridge leg
February 6	3 hours dawn	3 hours + 10 min. dusk
February 7	3 hours dawn	3 hours + 30 min. dusk
February 8	4 hours dusk	3 hours dawn
February 12	3 hours + 40 min. dusk	
February 13		3 hours + 40 min. dusk
February 14	3 hours + 20 min. dawn	3 hours + 45 min. dusk
February 23	3 hours + 15 min. dusk	
February 24		3 hours + 20 min. dawn
February 25	3 hours + 15 min. dusk	3 hours + 40 min. dawn
February 26	3 hours + 30 min. dawn	3 hours + 30 min. dusk
TOTAL	**26 hours for VP1**	**27 hours + 45 min. for VP2**

Table 6. Vantage Point survey records in VP1 point on 06/02/2018, Tuesday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
07:50	Observation started. The amount of light is not enough to see the birds			
08:00	800-1200	9	0-10 m	Çanakkale ← ← İstanbul
				Çanakkale → →→ İstanbul
08:10	1500	2	0-10 m	Çanakkale ← İstanbul
08:15	300	1	0-10 m	Çanakkale ← İstanbul
08:22	250	1	0-10 m	Çanakkale ← ← İstanbul
				Çanakkale → →→ İstanbul
Come from Istanbul side, flight around, landed on water, and then continue to fly toward Istanbul.				
80:30	1500	7	0-10 m	Çanakkale ← İstanbul
08:32	1500	18	0-10 m	Çanakkale ← İstanbul
08:35	300	1	0-10 m	Çanakkale → İstanbul
08:47	1500	15	0-10 m	Çanakkale ← İstanbul
08:50	1200	12	0-10 m	Çanakkale ← İstanbul
08:54	1100	8	0-10 m	Çanakkale → İstanbul
08:55	1000	6	0-10 m	Çanakkale → İstanbul
09:00	1500	20	0-10 m	Çanakkale ← İstanbul
09:05	500	7	0-10 m	Çanakkale → İstanbul
09:12	500	9	0-10 m	Çanakkale → İstanbul
09:15	1200	15	0-10 m	Çanakkale ← İstanbul
09:17	1200	5	0-10 m	Çanakkale ← İstanbul
09:20	1200	8	0-10 m	Çanakkale ← İstanbul
09:23	250	1	0-10 m	Çanakkale → İstanbul
09:25	1000-1200	4+8	0-10 m	Çanakkale ← İstanbul
09:30	1000-1200	5	0-10 m	Çanakkale ← İstanbul
09:32	800-1000	4	0-10 m	Çanakkale → İstanbul
09:40	600-800	3	0-10 m	Çanakkale ← İstanbul
09:41	1000-1200	30	0-10 m	Çanakkale ← İstanbul
09:41	800-1000	4	0-10 m	Çanakkale → İstanbul
09:50	200-400	3	0-10 m	Çanakkale → İstanbul
09:52	1000-1200	5	0-10 m	Çanakkale → İstanbul
09: 55	1200-1500	6	0-10 m	Çanakkale ← İstanbul
10:00	1000-1200	12	0-10 m	Çanakkale ← İstanbul
10:12	1000-1200	15	0-10 m	Çanakkale ← İstanbul
10:20	1200-1500	12	0-10 m	Çanakkale ← İstanbul
10:22	1200-1500	6	0-10 m	Çanakkale ← İstanbul
10:25	1200-1500	16	0-10 m	Çanakkale ← İstanbul
10:30	1200-1500	15	0-10 m	Çanakkale ← İstanbul
10:37	1200-1500	24	0-10 m	Çanakkale ← İstanbul
10:40	1000-1200	5	0-10 m	Çanakkale ← İstanbul
10:45	1000-1200	14	0-10 m	Çanakkale ← İstanbul
10:48	1000-1200	12	0-10 m	Çanakkale ← İstanbul
10:55	1000-1200	8	0-10 m	Çanakkale → İstanbul
10:56	1200-1500	25	0-10 m	Çanakkale ← İstanbul
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **66**				
Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **305**				

Table 7. Vantage Point survey records in **VP2** point on 06/02/2018, Tuesday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
15:30	Observation started			
15:35	600-800	40	0 – 10 m	Çanakkale ← İstanbul
15:37	600-800	12	0 – 10 m	Çanakkale ← İstanbul
15:42	600-800	8	0 – 10 m	Çanakkale ← İstanbul
15:50	600-800	25	0 – 10 m	Çanakkale ← İstanbul
15:55	500-700	30	0 – 10 m	Çanakkale ← İstanbul
15:58	600-800	26	0 – 10 m	Çanakkale ← İstanbul
15:59	600-800	50	0 – 10 m	Çanakkale ← İstanbul
15:59	600-800	40	0 – 10 m	Çanakkale ← İstanbul
16:00	600-800	80	0 – 10 m	Çanakkale ← İstanbul
16:04	600-800	25	0 – 10 m	Çanakkale ← İstanbul
16:05	600-800	40+30	0 – 10 m	Çanakkale ← İstanbul
16:08	600-800	50+50	0 – 10 m	Çanakkale ← İstanbul
16:10	600-800	40+20+25+50	0 – 10 m	Çanakkale ← İstanbul
16:12	600-800	40+30+50	0 – 10 m	Çanakkale ← İstanbul
16:15	600-800	40+70+20+100	0 – 10 m	Çanakkale ← İstanbul
16:17	600-800	20+40+50	0 – 10 m	Çanakkale ← İstanbul
16:18	400-600	20+35+60	0 – 10 m	Çanakkale ← İstanbul
16:21	400-600	100+40+60+5	0 – 10 m	Çanakkale ← İstanbul
16:23	400-600	35+30+15	0 – 10 m	Çanakkale ← İstanbul
16:25	400-600	120+40+30	0 – 10 m	Çanakkale ← İstanbul
16:28	400-600	5	0 – 10 m	Çanakkale → İstanbul
16:32	400-600	130+110	0 – 10 m	Çanakkale ← İstanbul
16:35	400-600	60+40+60	0 – 10 m	Çanakkale ← İstanbul
16:37	600-800	40+60+50	0 – 10 m	Çanakkale ← İstanbul
16:40	600-800	50+40+80	0 – 10 m	Çanakkale ← İstanbul
16:44	600-800	60+50	0 – 10 m	Çanakkale ← İstanbul
16:48	600-800	40+40+20	0 – 10 m	Çanakkale ← İstanbul
16:52	600-800	30+30+40+20	0 – 10 m	Çanakkale ← İstanbul
16:53	600-800	10+80+60	0 – 10 m	Çanakkale ← İstanbul
16:58	600-800	10+30+40+10	0 – 10 m	Çanakkale ← İstanbul
17:03	600-800	30+40+20+70+10	0 – 10 m	Çanakkale ← İstanbul
17:05	600-800	25+25	0 – 10 m	Çanakkale ← İstanbul
17:10	400-600	60+20+40+5	0 – 10 m	Çanakkale ← İstanbul
17:15	400-600	80+30+60+10	0 – 10 m	Çanakkale ← İstanbul
17:17	400-600	90+40+40	0 – 10 m	Çanakkale ← İstanbul
17:23	400-600	40+6+40+10	0 – 10 m	Çanakkale ← İstanbul
17:24	400-600	30+20+70+10	0 – 10 m	Çanakkale ← İstanbul
17:28	400-600	70+50+15+10	0 – 10 m	Çanakkale ← İstanbul
17:32	400-600	15+20+40+12	0 – 10 m	Çanakkale ← İstanbul
17:35	400-600	4+30+15+20	0 – 10 m	Çanakkale ← İstanbul
17:40	400-600	60+12+20+20+70	0 – 10 m	Çanakkale ← İstanbul
17:46	400-600	20+20+20+15+15	0 – 10 m	Çanakkale ← İstanbul
17:48	400-600	40+80+30	0 – 10 m	Çanakkale ← İstanbul
17:55	400-600	60+50+10+10+10+40	0 – 10 m	Çanakkale ← İstanbul
17:57	400-600	4+40+30	0 – 10 m	Çanakkale ← İstanbul
18:02	400-600	30+20+4	0 – 10 m	Çanakkale ← İstanbul
18:15	400-600	20+30+15+4+5	0 – 10 m	Çanakkale ← İstanbul
18:25	400-600	30+20+20+40	0 – 10 m	Çanakkale ← İstanbul
18:28	400-600	10+10+30+30+24	0 – 10 m	Çanakkale ← İstanbul
18:32	400-600	30+20+30	0 – 10 m	Çanakkale ← İstanbul
18:35	400-600	20+30+12+5	0 – 10 m	Çanakkale ← İstanbul
18:40	400-600	10+30+20	0 – 10 m	Çanakkale ← İstanbul
	Observation stopped because not enough light for observation.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **5**				
Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **5,428**				

Table 8. Vantage Point survey records in **VP1** point on 07/02/ 2018, Wednesday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
07:40	Observation started. Still dark, Slight mist. Partly cloudy Because of darkness some of the flocks may not be seen.			
08:15	1000-1200	9	0 – 10 m	Çanakkale → İstanbul
08:18	500-700	6	0 – 10 m	Çanakkale ← İstanbul
08:24	800-1000	12	0 – 10 m	Çanakkale ← İstanbul
08:30	800-1000	20	0 – 10 m	Çanakkale ← İstanbul
08:42	500-700	5	0 – 10 m	Çanakkale → İstanbul
08:45	800-1000	3	0 – 10 m	Çanakkale → İstanbul
08:45	800-1000	20	0 – 10 m	Çanakkale ← İstanbul
08:48	800-1000	30	0 – 10 m	Çanakkale ← İstanbul
08:54	300-500	4	0 – 10 m	Çanakkale → İstanbul
08:55	800-1000	20	0 – 10 m	Çanakkale ← İstanbul
09:00	800-1000	30	0 – 10 m	Çanakkale ← İstanbul
09:05	800-1000	10	0 – 10 m	Çanakkale ← İstanbul
09:05	300-500	4	0 – 10 m	Çanakkale → İstanbul
09:08	800-1000	10	0 – 10 m	Çanakkale ← İstanbul
09:10	800-1000	15	0 – 10 m	Çanakkale ← İstanbul
09:13	800-1000	10	0 – 10 m	Çanakkale ← İstanbul
09:18	300-500	4+3	0 – 10 m	Çanakkale → İstanbul
09:20	800-1000	10	0 – 10 m	Çanakkale ← İstanbul
09:22	300-500	4	0 – 10 m	Çanakkale → İstanbul
09:25	800-1000	8+12+10+30	0 – 10 m	Çanakkale ← İstanbul
09:27	300-500	3+3	0 – 10 m	Çanakkale → İstanbul
09:30	800-1000	30	0 – 10 m	Çanakkale ← İstanbul
09:31	300-500	3	0 – 10 m	Çanakkale → İstanbul
09:33	800-1000	40	0 – 10 m	Çanakkale ← İstanbul
09:35	300-500	3	0 – 10 m	Çanakkale → İstanbul
09:43	500-700	3	0 – 10 m	Çanakkale ← İstanbul
09:47	800-1000	15	0 – 10 m	Çanakkale ← İstanbul
09:50	800-1000	20+10	0 – 10 m	Çanakkale ← İstanbul
09:56	800-1000	15+30+10	0 – 10 m	Çanakkale ← İstanbul
10:05	500-700	3	0 – 10 m	Çanakkale ← İstanbul
10:08	800-1000	15+20	0 – 10 m	Çanakkale ← İstanbul
10:12	800-1000	20+20+10	0 – 10 m	Çanakkale ← İstanbul
10:16	800-1000	40+30+30	0 – 10 m	Çanakkale ← İstanbul
10:22	500-700	3	0 – 10 m	Çanakkale → İstanbul
10:25	800-1000	20+20	0 – 10 m	Çanakkale ← İstanbul
10:30	800-1000	40+40+10	0 – 10 m	Çanakkale ← İstanbul
10:34	500-700	4	0 – 10 m	Çanakkale → İstanbul
10:40	800-1000	30+50	0 – 10 m	Çanakkale ← İstanbul
10:43	500-700	3+4	0 – 10 m	Çanakkale → İstanbul
10:50	800-1000	20+20+30	0 – 10 m	Çanakkale ← İstanbul
10:55	800-1000	10+40	0 – 10 m	Çanakkale ← İstanbul
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **62**				
Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **944**				

Table 9. Vantage Point survey records in **VP2** point on 07/02/2018, Wednesday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
15:15	Start	Partly cloudy. Some mist on air.		
16:16	800-1000	30	0 – 10 m	Çanakkale ← İstanbul
15:20	200-300	1	0 – 10 m	Çanakkale → İstanbul
15:30	800-1200	40	0 – 10 m	Çanakkale ← İstanbul
15:33	800-1200	10+20	0 – 10 m	Çanakkale ← İstanbul
	Mist common and restrict vision.			
15:35	800-1200	40	0 – 10 m	Çanakkale ← İstanbul
	Dense bird flight, however, mist restrict vision			
15:38	800-1200	240	0 – 10 m	Çanakkale ← İstanbul
15:38	200-300	1	0 – 10 m	Çanakkale → İstanbul
15:42	800-1200	400	0 – 10 m	Çanakkale ← İstanbul
	Dense bird flight with few seconds as 5, 8, 10 etc. birds in flocks.			
15:46	800-1200	400	0 – 10 m	Çanakkale ← İstanbul
15:47	800-1200	100	0 – 10 m	Çanakkale ← İstanbul
15:48	800-1200	1	0 – 10 m	Çanakkale → İstanbul
15:49	800-1200	250	0 – 10 m	Çanakkale ← İstanbul
15:50	200-300	20	0 – 10 m	Çanakkale ← İstanbul
15:52	600-800	300	0 – 10 m	Çanakkale ← İstanbul
15:53	600-800	350	0 – 10 m	Çanakkale ← İstanbul
15:54	200-300	16	0 – 10 m	Çanakkale ← İstanbul
15:55	600-800	300	0 – 10 m	Çanakkale ← İstanbul
15:57	600-800	250	0 – 10 m	Çanakkale ← İstanbul
15:58	200-300	15	0 – 10 m	Çanakkale ← İstanbul
15:58	800-1200	200	0 – 10 m	Çanakkale ← İstanbul
16:02	800-1200	250	0 – 10 m	Çanakkale ← İstanbul
16:05	400-600	300	0 – 10 m	Çanakkale ← İstanbul
16:07	600-800	210	0 – 10 m	Çanakkale ← İstanbul
16:10	600-800	70	0 – 10 m	Çanakkale ← İstanbul
16:15	800-1200	350	0 – 10 m	Çanakkale ← İstanbul
16:20	600-800	150	0 – 10 m	Çanakkale ← İstanbul
16:26	600-800	350	0 – 10 m	Çanakkale ← İstanbul
	Bird flight so densely that looks like a river flow			
16:30	600-800	300	0 – 10 m	Çanakkale ← İstanbul
16:35	600-800	400	0 – 10 m	Çanakkale ← İstanbul
16:40	600-800	350	0 – 10 m	Çanakkale ← İstanbul
16:42	300-400	5	0 – 10 m	Çanakkale ← İstanbul
16:46	600-800	300	0 – 10 m	Çanakkale ← İstanbul
16:52	600-800	30+30	0 – 10 m	Çanakkale ← İstanbul
16:54	500-700	9+6+8+20	0 – 10 m	Çanakkale ← İstanbul
16:55	500-700	30+5+10+10+10+20	0 – 10 m	Çanakkale ← İstanbul
16:58	500-700	92	0 – 10 m	Çanakkale ← İstanbul
16:58	500-700	15	0 – 10 m	Çanakkale → İstanbul
17:02	500-700	7+5+5+5+10+40+5+1+1+40	0 – 10 m	Çanakkale ← İstanbul
17:02	500-700	3	0 – 10 m	Çanakkale ← İstanbul
17:05	500-700	40+70+10+1+1+15+20	0 – 10 m	Çanakkale ← İstanbul
17:06	500-700	70+90	0 – 10 m	Çanakkale ← İstanbul
17:08	500-700	2	0 – 10 m	Çanakkale → İstanbul
17:10	500-700	4	0 – 10 m	Çanakkale → İstanbul
17:12	500-700	4	0 – 10 m	Çanakkale → İstanbul
17:12	500-700	8+3+30+1+4+5	0 – 10 m	Çanakkale ← İstanbul
17:18	500-700	10+15+50+2+6+16+6+8+7+30+15	0 – 10 m	Çanakkale ← İstanbul
17:23	500-700	15+25+10+5+2+1+12+30+5+1+50	0 – 10 m	Çanakkale ← İstanbul

17:28	500-700	1+4+50+4+5+4	0 – 10 m	Çanakkale ← İstanbul
18:28	500-700	7	0 – 10 m	Çanakkale → İstanbul
17:34	500-700	50+6+1+2+2+10+12+40+10+14	0 – 10 m	Çanakkale ← İstanbul
17:35	500-700	10	0 – 10 m	Çanakkale → İstanbul
17:38	500-700	8	0 – 10 m	Çanakkale → İstanbul
17:40	500-700	2+30+3+2+1+8+40	0 – 10 m	Çanakkale ← İstanbul
17:47	500-700	4+8+8+2+3+1+11+12+1+25+6	0 – 10 m	Çanakkale ← İstanbul
17:47	500-700	12	0 – 10 m	Çanakkale ← İstanbul
17:52	500-700	25+20+15+6+20	0 – 10 m	Çanakkale ← İstanbul
17:52	500-700	20	0 – 10 m	Çanakkale ← İstanbul
17:55	500-700	3+10+90+25	0 – 10 m	Çanakkale ← İstanbul
17:55	700-900	30	0 – 10 m	Çanakkale ← İstanbul
18:02	700-900	12+15+12+40+1+3+30+20	0 – 10 m	Çanakkale ← İstanbul
18:03	500-700	20+15	0 – 10 m	Çanakkale → İstanbul
18:08	500-700	1	0 – 10 m	Çanakkale → İstanbul
18:09	500-700	12	0 – 10 m	Çanakkale → İstanbul
18:10	500-700	2+10+20+2+40+22	0 – 10 m	Çanakkale ← İstanbul
18:15	500-700	1+25+40+50+6	0 – 10 m	Çanakkale ← İstanbul
18:15	500-700	1+3	0 – 10 m	Çanakkale ← İstanbul
18:20	500-700	12+20+20	0 – 10 m	Çanakkale → İstanbul
18:30	500-700	20+30+4+20	0 – 10 m	Çanakkale ← İstanbul
18:40	500-700	40+12+20	0 – 10 m	Çanakkale ← İstanbul
18:45	500-700	4+10+40+12	0 – 10 m	Çanakkale ← İstanbul
	Not enough light for observation. Observation finished.			

Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **153**

Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **8,342**

Table 10. Vantage Point survey records in **VP1** point 08/02/ 2018, Thursday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
14:50	Observation started. A sunny day. Vision is good. Slight wind. Evaporation slightly disturb vision.			
14:53	800-1000	20+30+40	0 – 10 m	Çanakkale → İstanbul
14:58	1000-1200	20+40+40+2	0 – 10 m	Çanakkale ← İstanbul
15:03	600-800	10+30	0 – 10 m	Çanakkale → İstanbul
15:04	1000-1200	40+20	0 – 10 m	Çanakkale ← İstanbul
15:0-15:10	600-800	5+4+20+25+5	0 – 10 m	Çanakkale → İstanbul
15:06	1000-1200	20+25	0 – 10 m	Çanakkale ← İstanbul
15:10	1000-1200	40+60+60	0 – 10 m	Çanakkale ← İstanbul
15:10	800-1000	20+40+8	0 – 10 m	Çanakkale → İstanbul
15:16	1000-1200	90+40+30+30+50+10	0 – 10 m	Çanakkale ← İstanbul
15:20	800-1000	40	0 – 10 m	Çanakkale ← İstanbul
15:26	800-1000	1+40+40	0 – 10 m	Çanakkale ← İstanbul
15:27	600-800	15+2+20	0 – 10 m	Çanakkale → İstanbul
15:35	800-1000	30+70+60	0 – 10 m	Çanakkale ← İstanbul
15:38	600-800	20	0 – 10 m	Çanakkale → İstanbul
15:34	600-800	10	0 – 10 m	Çanakkale → İstanbul
	Following a fishing boat and flying among the gulls.			
15:35	600-800	20+50+6+4	0 – 10 m	Çanakkale → İstanbul
15:36	800-1000	40+40+20+110	0 – 10 m	Çanakkale ← İstanbul
15:44	800-1000	20+50	0 – 10 m	Çanakkale → İstanbul
15:52	800-1000	60+20	0 – 10 m	Çanakkale ← İstanbul
15:53	600-800	30	0 – 10 m	Çanakkale → İstanbul
15:57	600-800	15+20	0 – 10 m	Çanakkale → İstanbul
16:05	800-1000	20+60+20+20	0 – 10 m	Çanakkale ← İstanbul
16:10	800-1000	40+30+30+10	0 – 10 m	Çanakkale ← İstanbul
16:15	800-1000	30+30+20	0 – 10 m	Çanakkale ← İstanbul
16:18	800-1000	15+40	0 – 10 m	Çanakkale → İstanbul
16:20	800-1000	60+20+30+30	0 – 10 m	Çanakkale ← İstanbul
16:24	800-1000	40+40+10+60	0 – 10 m	Çanakkale ← İstanbul
16:30	800-1000	40+20	0 – 10 m	Çanakkale → İstanbul
16:35	800-1000	60+10+10+40	0 – 10 m	Çanakkale ← İstanbul
16:42	800-1000	80+90+20+60	0 – 10 m	Çanakkale ← İstanbul
16:44	800-1000	20+20+4	0 – 10 m	Çanakkale → İstanbul
16:48	800-1000	20+10+10+60	0 – 10 m	Çanakkale ← İstanbul
16:55	800-1000	40+40+10+10+2+40	0 – 10 m	Çanakkale ← İstanbul
17:00	800-1000	20+4	0 – 10 m	Çanakkale → İstanbul
17:03	800-1000	20+20+12+40	0 – 10 m	Çanakkale ← İstanbul
17:07	800-1000	8+40	0 – 10 m	Çanakkale → İstanbul
17:12	800-1000	40+40+20+12	0 – 10 m	Çanakkale ← İstanbul
17:15	800-1000	20+12+4+30	0 – 10 m	Çanakkale ← İstanbul
17:16	600-800	12+50	0 – 10 m	Çanakkale → İstanbul
17:20	1000-1200	30	0 – 10 m	Çanakkale ← İstanbul
17:23	1000-1200	40+10+20+20+50	0 – 10 m	Çanakkale ← İstanbul
17:28	600-800	20+30	0 – 10 m	Çanakkale ← İstanbul
17:33	1000-1200	50+40+40	0 – 10 m	Çanakkale ← İstanbul
17:45	1000-1200	20+20+60	0 – 10 m	Çanakkale ← İstanbul
17:40	1000-1200	60+20+10+30	0 – 10 m	Çanakkale ← İstanbul
17:50	1000-1200	30+30	0 – 10 m	Çanakkale → İstanbul
17:54	800-1000	50+40+20	0 – 10 m	Çanakkale → İstanbul
18:00	1000-1200	30+60+10+10	0 – 10 m	Çanakkale ← İstanbul
18:12	1000-1200	30	0 – 10 m	Çanakkale → İstanbul
18:15	1000-1200	40+50	0 – 10 m	Çanakkale ← İstanbul

18:16	800-1000		8+5+50	0 – 10 m	Çanakkale → İstanbul
18:25	800-1000		10	0 – 10 m	Çanakkale → İstanbul
18:30	1000-1200		30+10	0 – 10 m	Çanakkale → İstanbul
18:32	1000-1200	12		0 – 10 m	Çanakkale ← İstanbul
18:32	400-600		40+8	0 – 10 m	Çanakkale → İstanbul
18:34	1000-1200	20+30		0 – 10 m	Çanakkale ← İstanbul
18:37	1000-1200		15	0 – 10 m	Çanakkale → İstanbul
18:40	800-1000		2	0 – 10 m	Çanakkale → İstanbul
18:40	1000-1200	20+30		0 – 10 m	Çanakkale ← İstanbul
18:41	1000-1200		6	0 – 10 m	Çanakkale → İstanbul
18:45	1000-1200	30		0 – 10 m	Çanakkale ← İstanbul
18:48	1000-1200	30+15		0 – 10 m	Çanakkale ← İstanbul
18:49	800-1000		6	0 – 10 m	Çanakkale → İstanbul
18:50	1000-1200	30+30		0 – 10 m	Çanakkale ← İstanbul
18:50	800-1000		5+15	0 – 10 m	Çanakkale → İstanbul
18:52	1000-1200	15		0 – 10 m	Çanakkale ← İstanbul
18:55	1000-1200	20		0 – 10 m	Çanakkale ← İstanbul
19:00	Observation stopped because not enough light for observation.				

Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **1,198**

Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3,764**

Table 11. Vantage Point survey records in **VP2** point on 08/02/2018, Thursday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
08:00	Cloudy. Mist. Poor vision. To see distantly flying birds not easy.			
08.:13	600-800	5	0-10 m	Çanakkale ← İstanbul
08:17	600-800	10	0-10 m	Çanakkale ← İstanbul
08:20	600-800	15	0-10 m	Çanakkale ← İstanbul
08:23	600-800	20	0-10 m	Çanakkale ← İstanbul
08:28	600-800	10	0-10 m	Çanakkale ← İstanbul
08:31	600-800	10	0-10 m	Çanakkale ← İstanbul
08:37	600-800	10+20+20+1+10	0-10 m	Çanakkale ← İstanbul
08:47	600-800	20+20+10+5+8+20	0-10 m	Çanakkale ← İstanbul
09:02	600-800	20+15+10+1+10+15+6	0-10 m	Çanakkale ← İstanbul
09:08	600-800	20+5+4+8+30	0-10 m	Çanakkale ← İstanbul
09:08	600-800	20	0-10 m	Çanakkale → İstanbul
09:17	600-800	25+15+10+15+20+15+30	0-10 m	Çanakkale ← İstanbul
09:18	600-800	25+30	0-10 m	Çanakkale → İstanbul
09:23-09:28	600-800	30+15+20+3	0-10 m	Çanakkale ← İstanbul
09:28	800-1200	30	0-10 m	Çanakkale ← İstanbul
09:29	600-800	20+20	0-10 m	Çanakkale → İstanbul
09:30	600-800	12	0-10 m	Çanakkale → İstanbul
09:32	600-800	40	0-10 m	Çanakkale ← İstanbul
09:40	600-800	20+6	0-10 m	Çanakkale ← İstanbul
	Rain started. Vision poor.			
09:45	600-800	40+20	0-10 m	Çanakkale ← İstanbul
09:45	600-800	15	0-10 m	Çanakkale → İstanbul
09:50	600-800	50	0-10 m	Çanakkale → İstanbul
09:50	600-800	15+30+30	0-10 m	Çanakkale ← İstanbul
	Rain stopped. Vision better.			
10:07	600-800	20+20+15+12	0-10 m	Çanakkale ← İstanbul
10:10	600-800	10	0-10 m	Çanakkale → İstanbul
10:14	600-800	20+12+30	0-10 m	Çanakkale ← İstanbul
10:15	600-800	10	0-10 m	Çanakkale → İstanbul
10:20	600-800	30+10+20+30	0-10 m	Çanakkale ← İstanbul
10:25	600-800	12+40+10	0-10 m	Çanakkale ← İstanbul
	Rain started. Vision poor.			
10:35	600-800	40+20+20+30+12	0-10 m	Çanakkale ← İstanbul
10:40	400-600	20+12+30+90+40	0-10 m	Çanakkale ← İstanbul
10:43	600-800	90+3	0-10 m	Çanakkale ← İstanbul
10:44	600-800	20	0-10 m	Çanakkale → İstanbul
10:52	600-800	80+40+20+30+4	0-10 m	Çanakkale ← İstanbul
	Rain very densely continue. Vision very poor. Observation finished.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **232**				
Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **1,572**				

Table 12. Vantage Point survey records in **VP1** point 12/02/ 2018, Monday.

Time	Distance from shore	Number of Birds recorded	Heightbands of each flocks flight	Flight path of each flock Çanakkale ←→ İstanbul
15:10	Observation started. Partly cloudy, vision good			
15:21	1000-1200	9	0-10	Çanakkale ← İstanbul
15:23	1000-1200	48	0-10	Çanakkale → İstanbul
15:24	1000-1200	32	0-10	Çanakkale → İstanbul
15:25	1000-1200	25+4	0-10	Çanakkale ← İstanbul
15:27	800-1000	24	0-10	Çanakkale ← İstanbul
15:30	1000-1200	40+3	0-10	Çanakkale → İstanbul
15:32	600-800	8	0-10	Çanakkale ← İstanbul
15:35	1200-1500	14	0-10	Çanakkale ← İstanbul
15:37	1800-1200	34	0-10	Çanakkale ← İstanbul
15:38	1000-1200	12	0-10	Çanakkale → İstanbul
15:40	1000-1200	15	0-10	Çanakkale → İstanbul
15:41	1000-1200	8	0-10	Çanakkale ← İstanbul
15:44	1200-1500	35+11	0-10	Çanakkale → İstanbul
15:47	1200-1500	7	0-10	Çanakkale ← İstanbul
15:49	1200-1500	34	0-10	Çanakkale → İstanbul
15:53	1200-1500	42	0-10	Çanakkale → İstanbul
15:54	600-800	8	0-10	Çanakkale → İstanbul
15:58	1200-1500	25+2	0-10	Çanakkale → İstanbul
16:00	1200-1500	22	0-10	Çanakkale → İstanbul
16:02	1200-1500	27	0-10	Çanakkale → İstanbul
16:03	1000-1200	18	0-10	Çanakkale → İstanbul
16:04	800-1000	60+50	0-10	Çanakkale → İstanbul
16:05	1000-1200	40	0-10	Çanakkale → İstanbul
16:07	1000-1500	55+60	0-10	Çanakkale → İstanbul
16:10	1200-1500	14	0-10	Çanakkale → İstanbul
16:11	1200-1500	25	0-10	Çanakkale → İstanbul
16:12	1200-1500	30+12	0-10	Çanakkale → İstanbul
16:16	1200-1500	40	0-10	Çanakkale → İstanbul
16:18	1000-1200	27+20	0-10	Çanakkale → İstanbul
16:20	600-800	20	0-10	Çanakkale → İstanbul
16:22	800-1000	40	0-10	Çanakkale → İstanbul
16:23	600-800	14	0-10	Çanakkale → İstanbul
16:26	1000-1200	9	0-10	Çanakkale → İstanbul
16:28	600-800	12	0-10	Çanakkale → İstanbul
16:30	1200-1500	20	0-10	Çanakkale → İstanbul
16:32	1200-1500	18+28	0-10	Çanakkale → İstanbul
16:37	600-800	17+7+6	0-10	Çanakkale → İstanbul
16:39	1000-1200	25	0-10	Çanakkale → İstanbul
16:42	1200-1500	11	0-10	Çanakkale ← İstanbul
16:43	800-1000	40	0-10	Çanakkale → İstanbul
16:44	1000-1200	30	0-10	Çanakkale → İstanbul
16:45	1000-1200	13+8+10	0-10	Çanakkale → İstanbul
16:51	1000-1200	25	0-10	Çanakkale → İstanbul
16:52	1000-1200	18	0-10	Çanakkale → İstanbul
16:56	1000-1200	40	0-10	Çanakkale → İstanbul
16:58	1200-1500	30	0-10	Çanakkale → İstanbul
17:01	800-1000	34	0-10	Çanakkale → İstanbul
17:05	1200-1500	7	0-10	Çanakkale ← İstanbul
17:08	1200-1500	20+40	0-10	Çanakkale → İstanbul
17:11	1200-1500	27	0-10	Çanakkale → İstanbul

17:13	800-1000	10	0-10	Çanakkale ← İstanbul
17:14	800-1000	50	0-10	Çanakkale → İstanbul
17:14	800-1000	26	0-10	Çanakkale ← İstanbul
17:19	800-1000	15+5	0-10	Çanakkale ← İstanbul
17:26	800-1000	16+4+60+30+40	0-10	Çanakkale → İstanbul
17:29	1000-1200	40+15	0-10	Çanakkale → İstanbul
17:36	1200-1500	40	0-10	Çanakkale → İstanbul
17:40	1200-1500	40	0-10	Çanakkale → İstanbul
17:45	800-1000	80+40+30	0-10	Çanakkale → İstanbul
17:48	800-1000	10+25	0-10	Çanakkale → İstanbul
17:54	600-800	18	0-10	Çanakkale ← İstanbul
17:57	600-800	30+27	0-10	Çanakkale → İstanbul
17:59	600-800	30+20	0-10	Çanakkale → İstanbul
18:02	600-800	22+20+10+20	0-10	Çanakkale → İstanbul
18:07	600-800	18	0-10	Çanakkale → İstanbul
18:08	600-800	14	0-10	Çanakkale → İstanbul
18:10	600-800	30	0-10	Çanakkale → İstanbul
18:12	1200-1500	50	0-10	Çanakkale → İstanbul
18:14	1200-1500	40	0-10	Çanakkale → İstanbul
18:17	600-800	6	0-10	Çanakkale → İstanbul
18:18	600-800	8+8	0-10	Çanakkale → İstanbul
18:21	800-1000	40	0-10	Çanakkale → İstanbul
18:24	800-1000	21	0-10	Çanakkale → İstanbul
18:26	600-800	30	0-10	Çanakkale → İstanbul
18:29	600-800	30+30	0-10	Çanakkale → İstanbul
18:33	600-800	28+15	0-10	Çanakkale → İstanbul
18:37	800-1000	20+15	0-10	Çanakkale → İstanbul
18:39	800-1000	20	0-10	Çanakkale → İstanbul
18:45	800-1000	40+20	0-10	Çanakkale → İstanbul
18:50	Not enough light for observation. Observation finished.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **2,550** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **225**				

Table 13. Vantage Point survey records in **VP2** point 13/02/ 2018, Tuesday.

Time	Distance froms hore	Number of Birds recorded	Height bands of each flocks flight	Flight path of eachflock Çanakkale ←→ İstanbul
15:15	Observation started. Mostly cloudy, vision normal.			
15:20	Gözleme başlandı.			
15:20	600-800	8	0-10	Çanakkale ← İstanbul
15:21	600-800	60+23+8	0-10	Çanakkale ← İstanbul
15:21	1000-1200	30	0-10	Çanakkale → İstanbul
15:22	1000-1200	50	0-10	Çanakkale ← İstanbul
15:23	600-800	16	0-10	Çanakkale ← İstanbul
15:23	1000-1200	25	0-10	Çanakkale → İstanbul
15:24	600-800	20+20+15+5+30	0-10	Çanakkale ← İstanbul
15:25	600-800	22+15+20+10	0-10	Çanakkale ← İstanbul
15:26	800-1000	30	0-10	Çanakkale → İstanbul
15:26	600-800	10+30	0-10	Çanakkale ← İstanbul
15:27	600-800	30+20+13+5+3	0-10	Çanakkale ← İstanbul
15:27	800-1000	30+11	0-10	Çanakkale → İstanbul
15:28	800-1000	3+29+15	0-10	Çanakkale ← İstanbul
15:30	1000-1200	40	0-10	Çanakkale → İstanbul
15:30	600-800	10	0-10	Çanakkale ← İstanbul
15:31	1000-1200	10	0-10	Çanakkale ← İstanbul
15:32	600-800	16+29+16+9+37	0-10	Çanakkale ← İstanbul
15:32	1000-1200	25	0-10	Çanakkale → İstanbul
15:33	600-800	16+9+7	0-10	Çanakkale ← İstanbul
15:33	1000-1200	25+40	0-10	Çanakkale → İstanbul
15:34	600-800	53+16+44+18	0-10	Çanakkale ← İstanbul
15:35	1000-1200	20+25	0-10	Çanakkale → İstanbul
15:36	600-800	18+28+56+18	0-10	Çanakkale ← İstanbul
15:36	1000-1200	30	0-10	Çanakkale → İstanbul
15:37	1000-1200	40	0-10	Çanakkale → İstanbul
15:38	600-800	23+46+4	0-10	Çanakkale ← İstanbul
15:39	600-800	51	0-10	Çanakkale ← İstanbul
15:40	1000-1200	16	0-10	Çanakkale → İstanbul
15:40	600-800	32+4	0-10	Çanakkale ← İstanbul
15:42	600-800	76	0-10	Çanakkale ← İstanbul
15:43	1000-1200	50	0-10	Çanakkale → İstanbul
15:44	600-800	57	0-10	Çanakkale ← İstanbul
15:44	1000-1200	16+25	0-10	Çanakkale → İstanbul
15:45	600-800	27	0-10	Çanakkale ← İstanbul
15:47	600-800	73	0-10	Çanakkale ← İstanbul
15:47	1000-1200	14	0-10	Çanakkale → İstanbul
15:48	1000-1200	41	0-10	Çanakkale → İstanbul
15:48	600-800	28+47+36	0-10	Çanakkale ← İstanbul
15:50	600-800	18+25	0-10	Çanakkale ← İstanbul
15:50	1000-1200	22	0-10	Çanakkale → İstanbul
15:51	600-800	8+45+17	0-10	Çanakkale ← İstanbul
15:52	600-800	24	0-10	Çanakkale ← İstanbul
15:53	1000-1200	38	0-10	Çanakkale → İstanbul
15:54	600-800	29+48	0-10	Çanakkale ← İstanbul
15:55	600-800	40	0-10	Çanakkale ← İstanbul
15:55	1000-1200	37	0-10	Çanakkale → İstanbul
15:56	600-800	19+29	0-10	Çanakkale ← İstanbul
15:57	600-800	20	0-10	Çanakkale → İstanbul
15:58	600-800	8+36+5	0-10	Çanakkale ← İstanbul

15:58	1000-1200	27	0-10	Çanakkale → İstanbul
15:59	600-800	16	0-10	Çanakkale ← İstanbul
16:01	1000-1200	44	0-10	Çanakkale → İstanbul
16:02	600-800	96	0-10	Çanakkale ← İstanbul
16:04	600-800	37+25+5	0-10	Çanakkale ← İstanbul
16:04	1000-1200	34	0-10	Çanakkale → İstanbul
16:05	1000-1200	18+17+5+15	0-10	Çanakkale → İstanbul
16:06	600-800	11+10	0-10	Çanakkale ← İstanbul
16:08	600-800	10+14+21	0-10	Çanakkale ← İstanbul
16:08	1000-1200	5	0-10	Çanakkale → İstanbul
16:09	1000-1200	52	0-10	Çanakkale ← İstanbul
16:10	1000-1200	19+32	0-10	Çanakkale → İstanbul
16:11	600-800	25+13	0-10	Çanakkale ← İstanbul
16:13	600-800	18+12+14	0-10	Çanakkale ← İstanbul
16:14	1000-1200	28	0-10	Çanakkale → İstanbul
16:14	600-800	22	0-10	Çanakkale ← İstanbul
16:16	800-1000	14+33+15+7	0-10	Çanakkale ← İstanbul
16:17	800-1000	25+26+10	0-10	Çanakkale ← İstanbul
16:18	1000-1200	32	0-10	Çanakkale → İstanbul
16:21	600-800	25+40+36+35	0-10	Çanakkale ← İstanbul
16:23	1000-1200	20+35+50+30+30+2	0-10	Çanakkale → İstanbul
16:25	1000-1200	26+5+20+24	0-10	Çanakkale ← İstanbul
16:26	1000-1200	44	0-10	Çanakkale → İstanbul
16:27	800-1000	35	0-10	Çanakkale ← İstanbul
16:28	800-1000	13	0-10	Çanakkale → İstanbul
16:29	1000-1200	20+16+15	0-10	Çanakkale ← İstanbul
16:30	1000-1200	45	0-10	Çanakkale → İstanbul
16:32	800-1000	57	0-10	Çanakkale → İstanbul
16:33	800-1000	44+27	0-10	Çanakkale → İstanbul
16:37	1000-1200	12	0-10	Çanakkale ← İstanbul
16:37	1000-1200	35	0-10	Çanakkale → İstanbul
16:39	800-1000	24+16	0-10	Çanakkale ← İstanbul
16:40	800-1000	13	0-10	Çanakkale ← İstanbul
16:42	800-1000	17+24	0-10	Çanakkale ← İstanbul
16:42	1000-1200	10+17	0-10	Çanakkale → İstanbul
16:43	1000-1200	55	0-10	Çanakkale → İstanbul
16:47	1000-1200	30+15	0-10	Çanakkale → İstanbul
16:48	1000-1200	21	0-10	Çanakkale ← İstanbul
16:50	1000-1200	25	0-10	Çanakkale → İstanbul
16:52	1000-1200	18+30+12	0-10	Çanakkale → İstanbul
16:55	1000-1200	17+66+23	0-10	Çanakkale → İstanbul
16:57	1000-1200	18	0-10	Çanakkale → İstanbul
17:02	1000-1200	28	0-10	Çanakkale → İstanbul
17:07	800-1000	16+4	0-10	Çanakkale ← İstanbul
17:08	1000-1200	32+2+20	0-10	Çanakkale → İstanbul
17:08	1000-1200	12	0-10	Çanakkale ← İstanbul
17:09	1000-1200	16+14	0-10	Çanakkale → İstanbul
17:09	1000-1200	22	0-10	Çanakkale ← İstanbul
17:10	1000-1200	54	0-10	Çanakkale → İstanbul
17:11	1000-1200	11+25	0-10	Çanakkale → İstanbul
17:11	1000-1200	30	0-10	Çanakkale ← İstanbul
17:13	1000-1200	30	0-10	Çanakkale → İstanbul
17:13	1000-1200	5+20	0-10	Çanakkale ← İstanbul
17:16	1000-1200	47	0-10	Çanakkale → İstanbul
17:16	1000-1200	23	0-10	Çanakkale ← İstanbul

17:18	1000-1200	24+6+5	0-10	Çanakkale ← İstanbul
17:18	600-800	11	0-10	Çanakkale → İstanbul
17:21	1000-1200	4	0-10	Çanakkale ← İstanbul
17:21	1000-1200	18+10+12	0-10	Çanakkale → İstanbul
17:22	1000-1200	30	0-10	Çanakkale → İstanbul
17:25	600-800	42	0-10	Çanakkale ← İstanbul
17:25	1000-1200	8	0-10	Çanakkale → İstanbul
17:27	1000-1200	21	0-10	Çanakkale ← İstanbul
17:27	1000-1200	16+30	0-10	Çanakkale → İstanbul
17:28	1000-1200	30	0-10	Çanakkale ← İstanbul
17:28	1000-1200	14	0-10	Çanakkale → İstanbul
17:31	300-500	44	0-10	Çanakkale → İstanbul
17:32	1000-1200	4	0-10	Çanakkale ← İstanbul
17:37	1000-1200	6	0-10	Çanakkale → İstanbul
17:37	1000-1200	21	0-10	Çanakkale ← İstanbul
17:38	600-800	6+25	0-10	Çanakkale → İstanbul
17:40	600-800	17	0-10	Çanakkale ← İstanbul
17:41	1000-1200	14	0-10	Çanakkale ← İstanbul
17:41	1000-1200	26+11	0-10	Çanakkale → İstanbul
17:43	1000-1200	14	0-10	Çanakkale ← İstanbul
17:43	600-800	20+30+1	0-10	Çanakkale → İstanbul
17:45	1000-1200	8+22+38	0-10	Çanakkale → İstanbul
17:45	1000-1200	20	0-10	Çanakkale ← İstanbul
17:51	600-800	20	0-10	Çanakkale → İstanbul
17:52	600-800	47	0-10	Çanakkale → İstanbul
17:55	1000-1200	23+12	0-10	Çanakkale ← İstanbul
17:56	600-800	34+50	0-10	Çanakkale → İstanbul
17:59	600-800	41	0-10	Çanakkale → İstanbul
18:02	300-500	3	0-10	Çanakkale ← İstanbul
18:02	600-800	54	0-10	Çanakkale → İstanbul
18:04	1000-1200	17	0-10	Çanakkale ← İstanbul
18:05	300-500	18	0-10	Çanakkale → İstanbul
18:08	300-500	33	0-10	Çanakkale → İstanbul
18:10	600-800	41	0-10	Çanakkale → İstanbul
18:14	600-800	22	0-10	Çanakkale → İstanbul
18:17	1000-1200	36	0-10	Çanakkale ← İstanbul
18:17	1000-1200	24+14+8	0-10	Çanakkale → İstanbul
18:22	1000-1200	37	0-10	Çanakkale ← İstanbul
18:25	1000-1200	43	0-10	Çanakkale → İstanbul
18:26	1000-1200	38	0-10	Çanakkale → İstanbul
18:30	800-1000	25	0-10	Çanakkale → İstanbul
18:33	1000-1200	22	0-10	Çanakkale → İstanbul
18:40	600-800	12+4	0-10	Çanakkale → İstanbul
18:47	800-1000	3	0-10	Çanakkale → İstanbul
18:55	Not enough light for observation. Observation finished.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **2,888** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3,153**				

Table 14. Vantage Point survey records in **VP1** point 14/02/ 2018, Wednesday.

Time	Distancefromshore	Number of birdsrecorded	Heightbands of eachflocksflight	Flight path of eachflock Çanakkale ←→ İstanbul
08:00	Observaton started			
08:15	Not enough vision, rainy			
08:25	Rain stopped, lingt better, cloudy			
08:45	600-800	7	0-10	Çanakkale → İstanbul
08:46	800-1000	17	0-10	Çanakkale → İstanbul
08:48	600-800	2+3+4	0-10	Çanakkale → İstanbul
08:50	800-1000	27+4	0-10	Çanakkale → İstanbul
08:52	600-800	15	0-10	Çanakkale → İstanbul
08:55	800-1000	5	0-10	Çanakkale → İstanbul
08:59	800-1000	13	0-10	Çanakkale → İstanbul
09:01	1000-1200	7+5	0-10	Çanakkale → İstanbul
09:03	800-1000	27	0-10	Çanakkale → İstanbul
09:05	800-1000	11+5	0-10	Çanakkale → İstanbul
09:05	800-1000	4	0-10	Çanakkale ← İstanbul
09:07	800-1000	12+1+18+13	0-10	Çanakkale → İstanbul
09:09	800-1000	28+30	0-10	Çanakkale → İstanbul
09:12	800-1000	16+3	0-10	Çanakkale → İstanbul
09:13	800-1000	13	0-10	Çanakkale ← İstanbul
09:13	800-1000	50	0-10	Çanakkale → İstanbul
09:14	800-1000	25+26+13	0-10	Çanakkale → İstanbul
09:17	800-1000	45	0-10	Çanakkale → İstanbul
09:22	800-1000	33	0-10	Çanakkale → İstanbul
09:25	800-1000	35	0-10	Çanakkale → İstanbul
09:27	800-1000	28+16+20	0-10	Çanakkale → İstanbul
09:29	1000-1200	15	0-10	Çanakkale ← İstanbul
09:29	800-1000	18	0-10	Çanakkale → İstanbul
09:30	800-1000	60+10+25	0-10	Çanakkale → İstanbul
09:33	800-1000	35+15+16	0-10	Çanakkale → İstanbul
09:36	600-800	30+5	0-10	Çanakkale → İstanbul
09:37	600-800	8+30	0-10	Çanakkale → İstanbul
09:39	600-800	25	0-10	Çanakkale → İstanbul
09:42	600-800	37	0-10	Çanakkale → İstanbul
09:44	800-1000	12+50+10	0-10	Çanakkale → İstanbul
09:47	600-800	31+25	0-10	Çanakkale → İstanbul
09:49	800-1000	15+20	0-10	Çanakkale → İstanbul
09:50	800-1000	5+4	0-10	Çanakkale → İstanbul
09:53	800-1000	16+38+6+24	0-10	Çanakkale → İstanbul
09:56	800-1000	40	0-10	Çanakkale → İstanbul
09:57	600-800	10+5+38+26+43+20	0-10	Çanakkale → İstanbul
09:59	800-1000	23	0-10	Çanakkale → İstanbul
10:00	1000-1200	15	0-10	Çanakkale → İstanbul
10:00	800-1000	20	0-10	Çanakkale ← İstanbul
10:01	800-1000	28+37+12+18	0-10	Çanakkale → İstanbul
10:02	600-800	11	0-10	Çanakkale → İstanbul
10:03	1000-1200	35	0-10	Çanakkale ← İstanbul
10:04	800-1000	8	0-10	Çanakkale → İstanbul
10:05	1000-1200	45	0-10	Çanakkale ← İstanbul
10:06	800-1000	18+20+38+35+25+5	0-10	Çanakkale → İstanbul
10:09	800-1000	35+6+25+35	0-10	Çanakkale → İstanbul
10:10	800-1000	25+15+20	0-10	Çanakkale → İstanbul
10:10	1000-1200	15+25	0-10	Çanakkale ← İstanbul

10:11	800-1000	20+37	0-10	Çanakkale → İstanbul
10:11	1000-1200	10	0-10	Çanakkale ← İstanbul
10:12	800-1000	5+5+30	0-10	Çanakkale → İstanbul
10:13	800-1000	20+20+48+30+22+50	0-10	Çanakkale → İstanbul
10:15	1000-1200	30	0-10	Çanakkale ← İstanbul
10:16	800-1000	10	0-10	Çanakkale → İstanbul
10:17	800-1000	55+10+35+50	0-10	Çanakkale → İstanbul
10:18	800-1000	25+30	0-10	Çanakkale → İstanbul
10:19	1000-1200	30	0-10	Çanakkale ← İstanbul
10:20	800-1000	10+52+45+50	0-10	Çanakkale → İstanbul
10:22	1000-1200	15	0-10	Çanakkale ← İstanbul
10:22	800-1000	15+15+20+20	0-10	Çanakkale → İstanbul
10:24	1000-1200	20+15	0-10	Çanakkale ← İstanbul
10:25	800-1000	45+15+30	0-10	Çanakkale → İstanbul
10:25	1000-1200	20+20	0-10	Çanakkale ← İstanbul
10:26	800-1000	15+20	0-10	Çanakkale → İstanbul
10:28	800-1000	20+19	0-10	Çanakkale → İstanbul
10:34	800-1000	16	0-10	Çanakkale → İstanbul
10:38	1000-1200	12+27+33+24+14+10	0-10	Çanakkale → İstanbul
10:43	1000-1200	35+15	0-10	Çanakkale → İstanbul
10:44	1000-1200	15+10+20+30+25+20	0-10	Çanakkale → İstanbul
10:47	800-1000	25+15+27+18+5	0-10	Çanakkale → İstanbul
10:40	1000-1200	35+20+18	0-10	Çanakkale → İstanbul
10:51	800-1000	25	0-10	Çanakkale → İstanbul
10:53	800-1000	30	0-10	Çanakkale → İstanbul
10:55	1000-1200	16	0-10	Çanakkale ← İstanbul
10:56	800-1000	32	0-10	Çanakkale → İstanbul
10:59	800-1000	20+5	0-10	Çanakkale → İstanbul
11:02	800-1000	15+10+20	0-10	Çanakkale → İstanbul
11:03	1000-1200	20	0-10	Çanakkale ← İstanbul
11:04	800-1000	15+10	0-10	Çanakkale → İstanbul
11:05	800-1000	25+15	0-10	Çanakkale → İstanbul
11:07	1000-1200	30+20	0-10	Çanakkale ← İstanbul
11:09	800-1000	20	0-10	Çanakkale → İstanbul
11:11	1000-1200	35+12	0-10	Çanakkale → İstanbul
11:12	800-1000	21+13+22+6	0-10	Çanakkale → İstanbul
11:14	800-1000	15+10	0-10	Çanakkale → İstanbul
11:16	800-1000	7	0-10	Çanakkale → İstanbul
11:16	1000-1200	45	0-10	Çanakkale ← İstanbul
11:18	800-1000	24+18	0-10	Çanakkale → İstanbul
11:20	800-1000	14+12	0-10	Çanakkale → İstanbul
11:20	Observation finished			

Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **3,666**

Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **421**

Table 15. Vantage Point survey records in **VP2** point 14/02/ 2018, Wednesday.

Time	Distance from shore	Number of Birds recorded	Height bands of each flocks flight	Flight path of eachflock Çanakkale ←→ İstanbul
15:30	Observation started. Sunny day / Windy / Choppy sea			
15:34	1000-1200	12	0-10	Çanakkale ← İstanbul
15:35	1000-1200	10+19	0-10	Çanakkale → İstanbul
15:36	1000-1200	19	0-10	Çanakkale ← İstanbul
15:37	1000-1200	23	0-10	Çanakkale ← İstanbul
15:38	1000-1200	32+18	0-10	Çanakkale → İstanbul
15:40	1000-1200	32	0-10	Çanakkale → İstanbul
15:40	1000-1200	5+7	0-10	Çanakkale ← İstanbul
15:41	1000-1200	29+5+38	0-10	Çanakkale → İstanbul
15:43	1000-1200	18+24	0-10	Çanakkale → İstanbul
15:44	1000-1200	8	0-10	Çanakkale ← İstanbul
15:45	1000-1200	10+31+15	0-10	Çanakkale → İstanbul
15:47	1000-1200	8	0-10	Çanakkale → İstanbul
15:47	1000-1200	16	0-10	Çanakkale ← İstanbul
15:48	1000-1200	34+9+2	0-10	Çanakkale → İstanbul
15:49	1000-1200	15	0-10	Çanakkale → İstanbul
15:50	1000-1200	30	0-10	Çanakkale ← İstanbul
15:51	1000-1200	42+22	0-10	Çanakkale → İstanbul
15:52	1000-1200	30	0-10	Çanakkale ← İstanbul
15:52	1000-1200	20+30	0-10	Çanakkale → İstanbul
15:53	1000-1200	39	0-10	Çanakkale ← İstanbul
15:55	1000-1200	36	0-10	Çanakkale → İstanbul
15:56	1000-1200	11+15	0-10	Çanakkale → İstanbul
15:56	1000-1200	26+5+25	0-10	Çanakkale ← İstanbul
15:58	1000-1200	22	0-10	Çanakkale → İstanbul
15:59	1000-1200	18	0-10	Çanakkale ← İstanbul
15:59	1000-1200	28+5	0-10	Çanakkale → İstanbul
16:01	1000-1200	29+9	0-10	Çanakkale → İstanbul
16:02	1000-1200	20+11	0-10	Çanakkale → İstanbul
16:04	1000-1200	20	0-10	Çanakkale ← İstanbul
16:05	1000-1200	29	0-10	Çanakkale ← İstanbul
16:06	1000-1200	12+3	0-10	Çanakkale → İstanbul
16:07	1000-1200	15	0-10	Çanakkale → İstanbul
16:07	800-1000	33+10	0-10	Çanakkale ← İstanbul
16:10	800-1000	10	0-10	Çanakkale → İstanbul
16:10	800-1000	8+5	0-10	Çanakkale ← İstanbul
16:12	800-1000	65	0-10	Çanakkale → İstanbul
16:12	1000-1200	20	0-10	Çanakkale ← İstanbul
16:13	1000-1200	26+21	0-10	Çanakkale → İstanbul
16:15	800-1000	15	0-10	Çanakkale ← İstanbul
16:15	800-1000	15	0-10	Çanakkale → İstanbul
16:17	1000-1200	12+8	0-10	Çanakkale → İstanbul
16:18	1000-1200	9	0-10	Çanakkale → İstanbul
16:19	800-1000	14	0-10	Çanakkale ← İstanbul
16:20	1000-1200	6+24	0-10	Çanakkale → İstanbul
16:21	800-1000	32	0-10	Çanakkale → İstanbul
16:23	1000-1200	14	0-10	Çanakkale → İstanbul
16:23	1000-1200	12	0-10	Çanakkale ← İstanbul
16:24	1000-1200	9+6	0-10	Çanakkale → İstanbul
16:25	1000-1200	6	0-10	Çanakkale → İstanbul
16:26	1000-1200	20	0-10	Çanakkale ← İstanbul

16:27	1000-1200	15	0-10	Çanakkale → İstanbul
16:27	1000-1200	26	0-10	Çanakkale ← İstanbul
16:28	800-1000	3+28	0-10	Çanakkale → İstanbul
16:29	1000-1200	18+6+14	0-10	Çanakkale → İstanbul
16:31	800-1000	20+5	0-10	Çanakkale → İstanbul
16:31	1000-1200	15	0-10	Çanakkale ← İstanbul
16:32	800-1000	13+55	0-10	Çanakkale → İstanbul
16:33	1000-1200	5	0-10	Çanakkale ← İstanbul
16:34	1000-1200	13+4	0-10	Çanakkale → İstanbul
16:35	1000-1200	33+10	0-10	Çanakkale → İstanbul
16:37	800-1000	18	0-10	Çanakkale → İstanbul
16:37	1000-1200	20	0-10	Çanakkale → İstanbul
16:38	1000-1200	5+7+6+25	0-10	Çanakkale → İstanbul
16:40	1000-1200	7	0-10	Çanakkale → İstanbul
16:42	1000-1200	45+10	0-10	Çanakkale → İstanbul
16:43	800-1000	11	0-10	Çanakkale → İstanbul
16:43	800-1000	13	0-10	Çanakkale ← İstanbul
16:44	1000-1200	53	0-10	Çanakkale → İstanbul
16:45	1000-1200	8+1	0-10	Çanakkale ← İstanbul
16:46	1000-1200	22+56+30	0-10	Çanakkale → İstanbul
16:48	1000-1200	11	0-10	Çanakkale ← İstanbul
16:48	1000-1200	18	0-10	Çanakkale → İstanbul
16:49	800-1000	25	0-10	Çanakkale → İstanbul
16:53	1000-1200	25+35+40+50+10	0-10	Çanakkale → İstanbul
16:55	1000-1200	35+10	0-10	Çanakkale → İstanbul
16:57	800-1000	48	0-10	Çanakkale ← İstanbul
16:58	1000-1200	31+15	0-10	Çanakkale → İstanbul
16:59	1000-1200	4	0-10	Çanakkale ← İstanbul
17:01	1000-1200	18+57	0-10	Çanakkale → İstanbul
17:02	1000-1200	13	0-10	Çanakkale → İstanbul
17:03	1000-1200	40+12	0-10	Çanakkale → İstanbul
17:05	1000-1200	15+15	0-10	Çanakkale → İstanbul
17:06	1000-1200	39	0-10	Çanakkale → İstanbul
17:09	800-1000	48+13	0-10	Çanakkale → İstanbul
17:09	1000-1200	32	0-10	Çanakkale ← İstanbul
17:11	1000-1200	12	0-10	Çanakkale → İstanbul
17:13	800-1000	13+11	0-10	Çanakkale → İstanbul
17:16	800-1000	35	0-10	Çanakkale → İstanbul
17:17	1000-1200	6	0-10	Çanakkale → İstanbul
17:17	1000-1200	32	0-10	Çanakkale ← İstanbul
17:18	1000-1200	20+16+14	0-10	Çanakkale → İstanbul
17:20	800-1000	14	0-10	Çanakkale → İstanbul
17:20	1000-1200	7	0-10	Çanakkale ← İstanbul
17:23	1200-1500	22+10	0-10	Çanakkale → İstanbul
17:24	1000-1200	13+7	0-10	Çanakkale → İstanbul
17:25	1200-1500	25	0-10	Çanakkale → İstanbul
17:27	800-1000	10+13	0-10	Çanakkale → İstanbul
17:28	1000-1200	14+11	0-10	Çanakkale → İstanbul
17:30	800-1000	15+10	0-10	Çanakkale ← İstanbul
17:33	1000-1200	5+38	0-10	Çanakkale → İstanbul
17:36	1000-1200	15	0-10	Çanakkale → İstanbul
17:41	800-1000	4	0-10	Çanakkale ← İstanbul
17:41	1200-1500	18	0-10	Çanakkale → İstanbul
17:44	1200-1500	24	0-10	Çanakkale → İstanbul
17:46	1200-1500	17	0-10	Çanakkale → İstanbul

17:48	1000-1200	6	0-10	Çanakkale ← İstanbul
17:49	1200-1500	20	0-10	Çanakkale → İstanbul
17:51	800-1000	18	0-10	Çanakkale ← İstanbul
17:52	800-1000	17	0-10	Çanakkale ← İstanbul
17:57	800-1000	13	0-10	Çanakkale ← İstanbul
17:58	1000-1200	5	0-10	Çanakkale → İstanbul
17:59	800-1000	22	0-10	Çanakkale → İstanbul
18:02	800-1000	11	0-10	Çanakkale ← İstanbul
18:03	1200-1500	13	0-10	Çanakkale → İstanbul
18:05	1200-1500	4+7	0-10	Çanakkale → İstanbul
18:07	800-1000	6+7	0-10	Çanakkale ← İstanbul
18:08	1000-1200	12+3	0-10	Çanakkale ← İstanbul
18:10	1000-1200	20	0-10	Çanakkale → İstanbul
18:12	1200-1500	20	0-10	Çanakkale → İstanbul
18:13	1200-1500	20	0-10	Çanakkale ← İstanbul
18:14	800-1000	5	0-10	Çanakkale → İstanbul
18:16	1200-1500	21+3	0-10	Çanakkale ← İstanbul
18:18	1200-1500	9+4	0-10	Çanakkale ← İstanbul
18:20	1200-1500	18	0-10	Çanakkale → İstanbul
18:21	1200-1500	9+10	0-10	Çanakkale ← İstanbul
18:21	800-1000	8	0-10	Çanakkale → İstanbul
18:24	1200-1500	15	0-10	Çanakkale → İstanbul
18:28	800-1000	8	0-10	Çanakkale → İstanbul
18:29	800-1000	6	0-10	Çanakkale ← İstanbul
18:30	1200-1500	25	0-10	Çanakkale → İstanbul
18:30	800-1000	8	0-10	Çanakkale ← İstanbul
18:33	800-1000	4+6	0-10	Çanakkale ← İstanbul
18:33	1200-1500	10	0-10	Çanakkale → İstanbul
18:34	800-1000	6+7+9	0-10	Çanakkale ← İstanbul
18:25	1200-1500	5+5	0-10	Çanakkale ← İstanbul
18:37	1200-1500	6+5	0-10	Çanakkale ← İstanbul
18:39	1000-1200	13+20+3	0-10	Çanakkale → İstanbul
18:40	1000-1200	4	0-10	Çanakkale ← İstanbul
18:44	1000-1200	4+9	0-10	Çanakkale ← İstanbul
18:45	1000-1200	16	0-10	Çanakkale → İstanbul
18:47	800-1000	7	0-10	Çanakkale ← İstanbul
18:49	1000-1200	5	0-10	Çanakkale ← İstanbul
18:49	1200-1500	15	0-10	Çanakkale → İstanbul
18:50	1000-1200	7+6	0-10	Çanakkale ← İstanbul
18:52	800-1000	6	0-10	Çanakkale ← İstanbul
18:56	800-1000	4	0-10	Çanakkale ← İstanbul
19:00	Not enough light. Birds could not be seen. Observation finished			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **2,708** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **968**				

Table 16. Vantage Point survey records in **VP1** point 23/02/ 2018, Friday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
	Windy, cloudy and cold. Choppy sea, Yelkouan shearwater flying in higher level not to hit waves			
15:45	600 - 1300	200+120	0 – 20 m	Çanakkale ← İstanbul
15:50	600 - 1300	180	0 – 20 m	Çanakkale ← İstanbul
15:55	600 - 1300	200	0 – 20 m	Çanakkale ← İstanbul
15:56	600 - 1300	6	0 – 20 m	Çanakkale → İstanbul
15:59	600 - 1300	120+200	0 – 20 m	Çanakkale ← İstanbul
16:05	600 - 1300	40+80+80	0 – 20 m	Çanakkale ← İstanbul
16:06	600 - 1300	4	0 – 20 m	Çanakkale → İstanbul
16:10	600 - 1300	60+40+40	0 – 20 m	Çanakkale ← İstanbul
	Yelkouan shearwater crossing very dense like a water flow			
16:15	600 - 1300	2+60+40+40	0 – 20 m	Çanakkale ← İstanbul
16:17	600 - 1300	40+30+40	0 – 20 m	Çanakkale ← İstanbul
16:17	600 - 1300	20+2+4+10	0 – 20 m	Çanakkale → İstanbul
16:20	600 - 1300	80+120+60+50	0 – 20 m	Çanakkale ← İstanbul
16:30	600 - 1300	120+160+30+20+20+40	0 – 20 m	Çanakkale ← İstanbul
16:35	600 - 1300	70+50+60	0 – 20 m	Çanakkale ← İstanbul
16:37	600 - 1300	20+20+15	0 – 20 m	Çanakkale → İstanbul
16:40	600 - 1300	30+60+100+80	0 – 20 m	Çanakkale ← İstanbul
16:43	600 - 1300	4+20+20+15	0 – 20 m	Çanakkale → İstanbul
16:47	600 - 1300	120+40+70+90+40+40+50	0 – 20 m	Çanakkale ← İstanbul
17:00	600 - 1300	40+30+60+60+80+80	0 – 20 m	Çanakkale ← İstanbul
17:02	600 - 1300	6+8+30+1	0 – 20 m	Çanakkale → İstanbul
17:10	600 - 1300	80+60+120+20	0 – 20 m	Çanakkale ← İstanbul
17:15	600 - 1300	80+70+30+15+80	0 – 20 m	Çanakkale ← İstanbul
17:19	600 - 1300	10+1+20+20	0 – 20 m	Çanakkale → İstanbul
17:22	600 - 1300	50+40+40+60	0 – 20 m	Çanakkale ← İstanbul
17:30	600 - 1300	80+40+80+60+80	0 – 20 m	Çanakkale ← İstanbul
17:34	600 - 1300	20+50+15	0 – 20 m	Çanakkale → İstanbul
17:35	600 - 1300	60+80+40+20+60	0 – 20 m	Çanakkale ← İstanbul
17:42	600 - 1300	40+25+15+40+15+40+10+30	0 – 20 m	Çanakkale ← İstanbul
17:47	600 - 1300	60+60+40+20	0 – 20 m	Çanakkale ← İstanbul
17:50	600 - 1300	15+10+30+5+5+40+10+1	0 – 20 m	Çanakkale → İstanbul
17:54	600 - 1300	50+70+50+60+20+20+40	0 – 20 m	Çanakkale ← İstanbul
18:00	600 - 1300	40+40+20+20+10+30	0 – 20 m	Çanakkale → İstanbul
18:02	600 - 1300	60+30+60+20+70	0 – 20 m	Çanakkale ← İstanbul
18:06	600 - 1300	1+30+15	0 – 20 m	Çanakkale → İstanbul
18:07	600 - 1300	10+40+20+50+60	0 – 20 m	Çanakkale ← İstanbul
18:13	600 - 1300	20+20+10+10+10+20+35+10	0 – 20 m	Çanakkale → İstanbul
18:16	600 - 1300	20+40+40+40	0 – 20 m	Çanakkale ← İstanbul
18:18	600 - 1300	40+15+30+50	0 – 20 m	Çanakkale → İstanbul
18:20	600 - 1300	20+50	0 – 20 m	Çanakkale ← İstanbul
18:25	600 - 1300	20+10+40	0 – 20 m	Çanakkale ← İstanbul
18:30	600 - 1300	40+20+20+1	0 – 20 m	Çanakkale → İstanbul
18:35	600 - 1300	10+3+10+20	0 – 20 m	Çanakkale ← İstanbul
18:40	600 - 1300	10+20	0 – 20 m	Çanakkale → İstanbul
18:43	600 - 1300	50+35+20+30+30	0 – 20 m	Çanakkale ← İstanbul
18:47	600 - 1300	5+30+15	0 – 20 m	Çanakkale → İstanbul
18:50	600 - 1300	40+30+40	0 – 20 m	Çanakkale ← İstanbul
18:55	600 - 1300	50+30	0 – 20 m	Çanakkale ← İstanbul
18:57	600 - 1300	40	0 – 20 m	Çanakkale → İstanbul
19:00	Noot enough light. Observation finished.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **1,439** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **6,425**				

Table 17. Vantage Point survey records in **VP2** point 24/02/ 2018, Saturday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
07:30	Windy, cloudy and cold. Choppy sea, Yelkouan shearwater flying in higher level not to hit waves. Most the bird crossing happened between the corridors of big transport vessels sailing toward Istanbul and Çanakkale. Closer crossing maybe only about 15-20% of bird crossing.			
07:57	900-1400	10+10+50+60	0 – 20 m	Çanakkale ← İstanbul
08:05	900-1400	10+40+30+10+40+20	0 – 20 m	Çanakkale ← İstanbul
08:10	900-1400	60+40	0 – 20 m	Çanakkale ← İstanbul
08:12	900-1400	1	0 – 20 m	Çanakkale → İstanbul
08:15	900-1400	20+30+20+50	0 – 20 m	Çanakkale ← İstanbul
08:20	900-1400	50+50+20+10+10+10	0 – 20 m	Çanakkale ← İstanbul
08:25	900-1400	25+30+20+15	0 – 20 m	Çanakkale ← İstanbul
08:32	900-1400	10+40	0 – 20 m	Çanakkale ← İstanbul
08:32	900-1400	4+4	0 – 20 m	Çanakkale → İstanbul
08:40	900-1400	20+30+15+40	0 – 20 m	Çanakkale ← İstanbul
08:45	900-1400	15+20+10+30	0 – 20 m	Çanakkale ← İstanbul
08:45	900-1400	10+4+10	0 – 20 m	Çanakkale → İstanbul
08:50	900-1400	15+6+20+40	0 – 20 m	Çanakkale ← İstanbul
08:55	900-1400	20+40+30	0 – 20 m	Çanakkale ← İstanbul
08:57	900-1400	15	0 – 20 m	Çanakkale → İstanbul
09:00	900-1400	10+30+10+100+20+10	0 – 20 m	Çanakkale ← İstanbul
09:05	900-1400	5	0 – 20 m	Çanakkale → İstanbul
09:10	900-1400	45+12+20+20+25+5+16+15	0 – 20 m	Çanakkale ← İstanbul
09:15	900-1400	5+10+5	0 – 20 m	Çanakkale → İstanbul
09:20	900-1400	25+20+30+50+20+20+10	0 – 20 m	Çanakkale ← İstanbul
09:25	900-1400	20+20+20+30	0 – 20 m	Çanakkale ← İstanbul
09:30	900-1400	10	0 – 20 m	Çanakkale → İstanbul
09:35	900-1400	40+30+30+20	0 – 20 m	Çanakkale ← İstanbul
09:40	900-1400	20+10	0 – 20 m	Çanakkale → İstanbul
09:45	900-1400	60+40+20+20+30+20	0 – 20 m	Çanakkale ← İstanbul
09:50	900-1400	40+20+20+30+50+10	0 – 20 m	Çanakkale ← İstanbul
09:55	900-1400	20+60+40+10+30+30	0 – 20 m	Çanakkale ← İstanbul
09:57	900-1400	10+5+5	0 – 20 m	Çanakkale → İstanbul
10:00	900-1400	20+10+10+50+30+20+20	0 – 20 m	Çanakkale ← İstanbul
10:05	900-1400	40+40+20+20+30	0 – 20 m	Çanakkale ← İstanbul
10:10	900-1400	30+10+40+20	0 – 20 m	Çanakkale ← İstanbul
10:15	900-1400	15+10+20	0 – 20 m	Çanakkale ← İstanbul
10:20	900-1400	20+15+10+25	0 – 20 m	Çanakkale → İstanbul
10:25	900-1400	10+20+8+5+8+20+10+20+1	0 – 20 m	Çanakkale ← İstanbul
10:30	900-1400	4+4+1+2+7+25+15+30	0 – 20 m	Çanakkale ← İstanbul
10:32	900-1400	30+40+20+6+12	0 – 20 m	Çanakkale → İstanbul
10:35	900-1400	5+10+3+5+20+15+6+1	0 – 20 m	Çanakkale ← İstanbul
10:40	900-1400	4+10+25+2+18+16+30+30+9	0 – 20 m	Çanakkale ← İstanbul
10:41	900-1400	10+25+20+16	0 – 20 m	Çanakkale ← İstanbul
10:45	900-1400	3+1+1+1+15+15+15+8+3+2+15+10	0 – 20 m	Çanakkale ← İstanbul
10:47	900-1400	2+6+70+10	0 – 20 m	Çanakkale → İstanbul
10:55	900-1400	10+4+5+1+1+1+15+12+15+15+15+1	0 – 20 m	Çanakkale ← İstanbul
10:57	900-1400	40+60+40+15+20+20	0 – 20 m	Çanakkale → İstanbul
11:08	900-1400	17+5+10+20+10+2+2+20+25	0 – 20 m	Çanakkale ← İstanbul
11:10	900-1400	5+3+10+20+2+4+1+10+2	0 – 20 m	Çanakkale ← İstanbul
11:13	900-1400	40+1+1+40+20+15+1+1	0 – 20 m	Çanakkale → İstanbul
11:20	900-1400	10+8+2+20	0 – 20 m	Çanakkale ← İstanbul
11:20	Observation finished			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **713** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3,741**				

Table 18. Vantage Point survey records in **VP1** point 25/02/ 2018, Sunday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
	Windy, cloudy and cold. Choppy sea, Yelkouan shearwater flying in higher level not to hit waves.			
15:45	600 - 1300	60+20+20+40	0 – 20 m	Çanakkale ← İstanbul
15:50	600 - 1300	15+15+40+50+10	0 – 20 m	Çanakkale ← İstanbul
15:52	900 - 1200	30+12	0 – 20 m	Çanakkale → İstanbul
15:55	600 - 1300	40+40+10+30+30	0 – 20 m	Çanakkale ← İstanbul
16:00	600 - 1300	80+120+100	0 – 20 m	Çanakkale ← İstanbul
16:05	600 - 1300	20+20+80+30+30	0 – 20 m	Çanakkale ← İstanbul
16:07	900 - 1200	20+20	0 – 20 m	Çanakkale → İstanbul
16:10	600 - 1300	30+20+50+40+10	0 – 20 m	Çanakkale ← İstanbul
16:15	600 - 1300	2+60+40+40	0 – 20 m	Çanakkale ← İstanbul
16:18	600 - 1000	30+30+10	0 – 20 m	Çanakkale → İstanbul
16:20	600 - 1300	80+120+60+50	0 – 20 m	Çanakkale ← İstanbul
16:25	800 - 1200	40+40+10+60	0 – 20 m	Çanakkale ← İstanbul
16:30	600 - 1300	15+40+40+60+20+10+10	0 – 20 m	Çanakkale ← İstanbul
16:35	600 - 1300	70+50+60	0 – 20 m	Çanakkale ← İstanbul
16:40	600 - 1300	30+60+100+80	0 – 20 m	Çanakkale ← İstanbul
16:32	600 - 1300	30+30	0 – 20 m	Çanakkale → İstanbul
16:46	600 - 1300	15+10+10+35	0 – 20 m	Çanakkale → İstanbul
16:50	600 - 1300	80+80+110+30+30+60+50	0 – 20 m	Çanakkale ← İstanbul
17:00	600 - 1300	20+60+60+80+20+20+40	0 – 20 m	Çanakkale ← İstanbul
17:05	600 - 1300	100+40+40+80+80	0 – 20 m	Çanakkale ← İstanbul
17:08	800 - 1500	30+30+20+10	0 – 20 m	Çanakkale → İstanbul
17:13	600 - 1300	10+40+30+20+10	0 – 20 m	Çanakkale → İstanbul
17:15	600 - 1300	110+80+40+25+50+50+30	0 – 20 m	Çanakkale ← İstanbul
17:20	600 - 1300	60+60+40+30+30+40	0 – 20 m	Çanakkale ← İstanbul
17:24	600 - 1300	30+10+20+40+10	0 – 20 m	Çanakkale → İstanbul
17:30	600 - 1300	100+60+60+30+80+80+40	0 – 20 m	Çanakkale ← İstanbul
17:32	600 - 1300	30+10+10	0 – 20 m	Çanakkale → İstanbul
17:35	600 - 1300	90+60+60+30+60+20	0 – 20 m	Çanakkale ← İstanbul
17:40	600 - 1300	40+40+25+40+30+40+60	0 – 20 m	Çanakkale ← İstanbul
17:45	600 - 1300	30+40+60+40+30	0 – 20 m	Çanakkale ← İstanbul
17:50	600 - 1300	40+30+40+20+20+40	0 – 20 m	Çanakkale ← İstanbul
17:52	600 - 1300	30+30+15+20+4+15	0 – 20 m	Çanakkale → İstanbul
17:55	600 - 1300	80+110+50+40+30+30+20	0 – 20 m	Çanakkale ← İstanbul
18:00	600 - 1300	40+40+20+20+10+30	0 – 20 m	Çanakkale → İstanbul
18:02	600 - 1300	60+80+60+20+40	0 – 20 m	Çanakkale ← İstanbul
18:05	600 - 1300	40+40+20+60+15	0 – 20 m	Çanakkale ← İstanbul
18:07	600 - 1300	30+30+40	0 – 20 m	Çanakkale → İstanbul
18:10	600 - 1300	60+10+40+20+50+30	0 – 20 m	Çanakkale ← İstanbul
18:14	600 - 1300	30+20+20+10+20+40	0 – 20 m	Çanakkale → İstanbul
18:15	600 - 1300	60+40+20+40+40	0 – 20 m	Çanakkale ← İstanbul
18:18	600 - 1300	40+15+30+50	0 – 20 m	Çanakkale → İstanbul
18:20	600 - 1300	20+50+30+30	0 – 20 m	Çanakkale ← İstanbul
18:25	600 - 1300	30+20+10+40+20	0 – 20 m	Çanakkale ← İstanbul
18:30	600 - 1300	40+20+20+110	0 – 20 m	Çanakkale ← İstanbul
18:35	600 - 1300	10+30+10+20	0 – 20 m	Çanakkale ← İstanbul
18:40	600 - 1300	10+20+30+30	0 – 20 m	Çanakkale → İstanbul
18:45	600 - 1300	40+50+60+20+30+30	0 – 20 m	Çanakkale ← İstanbul
18:48	600 - 1300	15+20+30+15	0 – 20 m	Çanakkale → İstanbul
18:50	600 - 1300	40+30+40	0 – 20 m	Çanakkale ← İstanbul
18:55	600 - 1300	50+30	0 – 20 m	Çanakkale ← İstanbul
18:57	600 - 1300	40+20+20	0 – 20 m	Çanakkale → İstanbul
19:00	Not enough light. Birds could not be seen. Observation finished			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **1,501** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **7,672**				

Table 19. Vantage Point survey records in **VP2** point 25/02/ 2018, Sunday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
07:30		Still dark. Windy, acloudy, cold. Sea waves low.		
07:55	1000-1200	5+3+4+1+1	0 – 10 m	Çanakkale → İstanbul
08:02	1000-1500	30+40	0 – 10 m	Çanakkale ← İstanbul
08:05	1000-1500	5+10+5+1+3	0 – 10 m	Çanakkale → İstanbul
08:10	1000-1500	50+40+1	0 – 10 m	Çanakkale ← İstanbul
08:15	1000-1500	1+10	0 – 10 m	Çanakkale → İstanbul
08:25	1000-1500	15+6+5+1+3+3	0 – 10 m	Çanakkale → İstanbul
08:35	1000-1500	5+10+5	0 – 10 m	Çanakkale → İstanbul
08:40	1000-1500	20+40	0 – 10 m	Çanakkale ← İstanbul
08:45	1000-1500	2+60+50+50+70	0 – 10 m	Çanakkale ← İstanbul
08:45	1000-1500	10+30+10+10+4	0 – 10 m	Çanakkale → İstanbul
08:50	1000-1500	60+60+40+40+50	0 – 10 m	Çanakkale ← İstanbul
08:55	1000-1500	10+10+1+10+6+20	0 – 10 m	Çanakkale → İstanbul
08:55	1000-1500	50+20+40+40+10+3+70	0 – 10 m	Çanakkale ← İstanbul
09:00	1000-1500	60+10+15+30+20+15	0 – 10 m	Çanakkale ← İstanbul
09:00	1000-1500	30+3+15++6+6+5	0 – 10 m	Çanakkale → İstanbul
09:06	1000-1500	20+20+40+5+40	0 – 10 m	Çanakkale ← İstanbul
06:07	1000-1500	8+6+50+25+15	0 – 10 m	Çanakkale → İstanbul
09:15	1000-1500	20+10+20+10+25+50+30+30	0 – 10 m	Çanakkale ← İstanbul
09:17	1000-1500	15+10+10+10+30	0 – 10 m	Çanakkale → İstanbul
09:25	1000-1500	10+60+20+15+10	0 – 10 m	Çanakkale ← İstanbul
09:27	1000-1500	5+15+15+20+10+10	0 – 10 m	Çanakkale → İstanbul
09:35	1000-1500	20+25+10+30+20+20+30	0 – 10 m	Çanakkale ← İstanbul
09:36	1000-1500	20+15+5+30+30	0 – 10 m	Çanakkale → İstanbul
09:40	1000-1500	20+1+1+30+10	0 – 10 m	Çanakkale ← İstanbul
09:42	1000-1500	4+25+30+15+4+25	0 – 10 m	Çanakkale → İstanbul
09:50	1000-1500	10+30+20+30+5+15+20	0 – 10 m	Çanakkale ← İstanbul
09:52	1000-1500	6+12+10+5+5+70	0 – 10 m	Çanakkale → İstanbul
10:00	1000-1500	25+20+60+25+10	0 – 10 m	Çanakkale ← İstanbul
10:02	1000-1500	30+5+50+60+25	0 – 10 m	Çanakkale → İstanbul
10:10	1000-1500	20+15+70+20+30+20+20	0 – 10 m	Çanakkale ← İstanbul
10:12	1000-1500	30+40+30	0 – 10 m	Çanakkale → İstanbul
10:20	1000-1500	10+40+10+25+20+15	0 – 10 m	Çanakkale ← İstanbul
10:22	1000-1500	8+15+80+15+80+6+20	0 – 10 m	Çanakkale ← İstanbul
10:32	1000-1500	30+15+20+2+2	0 – 10 m	Çanakkale → İstanbul
10:35	1000-1500	30+30+20+60+20	0 – 10 m	Çanakkale ← İstanbul
10:40	1000-1500	20+20+15	0 – 10 m	Çanakkale → İstanbul
10:45	1000-1500	10+10+50+25+15	0 – 10 m	Çanakkale ← İstanbul
10:47	1000-1500	30+60+20+20+20	0 – 10 m	Çanakkale ← İstanbul
10:55	1000-1500	25+25+15+40+15+10	0 – 10 m	Çanakkale ← İstanbul
11:00	1000-1500	50+20+20	0 – 10 m	Çanakkale → İstanbul
11:05	1000-1500	30+20+25+25+4+60	0 – 10 m	Çanakkale ← İstanbul
11:10	1000-1500	25+6+20+12+30	0 – 10 m	Çanakkale ← İstanbul
11:13	1000-1500	30+20+40+10	0 – 10 m	Çanakkale → İstanbul
11:20	1000-1500	30+30+20+60+15	0 – 10 m	Çanakkale ← İstanbul
11:22	1000-1500	40+20+50+10+20	0 – 10 m	Çanakkale → İstanbul
11:25	1000-1500	30+12+20+20+15+30	0 – 10 m	Çanakkale ← İstanbul
11:30	1000-1500	20+20+60+40+30	0 – 10 m	Çanakkale ← İstanbul
11.30	Gözlem sonlandırıldı			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **1,622** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3.796**				

Table 20. Vantage Point survey records in **VP1** point 26/02/ 2018, Monday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
07:30	Still dark. Windy, mostly cloudy, cold. High waves. Yelkouan shearwaters flying high not to hit waves.			
08:00	900-1400	10+10+50+60	0 – 20 m	Çanakkale → İstanbul
08:05	900-1400	10+40+30+10+40+20	0 – 20 m	Çanakkale ← İstanbul
08:08	900-1400	60+40	0 – 20 m	Çanakkale → İstanbul
08:12	900-1400	30+10+20+50+50+20+30	0 – 20 m	Çanakkale ← İstanbul
08:14	900-1400	30+20+50	0 – 20 m	Çanakkale → İstanbul
08:15	900-1400	50+50+40	0 – 20 m	Çanakkale ← İstanbul
08:20	900-1400	40+30+20+10+30+20	0 – 20 m	Çanakkale ← İstanbul
08:25	900-1400	10+25+30+20+15	0 – 20 m	Çanakkale ← İstanbul
08:30	900-1400	30+20+20	0 – 20 m	Çanakkale ← İstanbul
08:33	900-1400	20+20+30	0 – 20 m	Çanakkale → İstanbul
08:40	900-1400	30+20+30+15+40	0 – 20 m	Çanakkale ← İstanbul
08:45	900-1400	15+20+10+30	0 – 20 m	Çanakkale ← İstanbul
08:46	900-1400	10+20+10	0 – 20 m	Çanakkale → İstanbul
08:50	900-1400	15+12+20+40+10	0 – 20 m	Çanakkale ← İstanbul
08:55	900-1400	20+40+30+20	0 – 20 m	Çanakkale → İstanbul
09:00	900-1400	20+30+20+60+20+10	0 – 20 m	Çanakkale → İstanbul
09:05	900-1400	25+20+20+40	0 – 20 m	Çanakkale ← İstanbul
09:10	900-1400	45+20+20+25+20+15+15	0 – 20 m	Çanakkale → İstanbul
09:15	900-1400	25+10+15+20	0 – 20 m	Çanakkale ← İstanbul
09:20	900-1400	35+20+30+50+20+20	0 – 20 m	Çanakkale → İstanbul
09:25	900-1400	20+20+20+30	0 – 20 m	Çanakkale → İstanbul
09:30	900-1400	10+20+20+30	0 – 20 m	Çanakkale ← İstanbul
09:35	900-1400	40+30+30+20	0 – 20 m	Çanakkale ← İstanbul
09:40	900-1400	30+20+10+12	0 – 20 m	Çanakkale ← İstanbul
09:45	900-1400	30+40+20+20+30+20+4	0 – 20 m	Çanakkale → İstanbul
09:50	900-1400	40+30+20+30+50+10	0 – 20 m	Çanakkale ← İstanbul
09:55	900-1400	20+60+40+10+30+30	0 – 20 m	Çanakkale ← İstanbul
09:58	900-1400	10+5+15	0 – 20 m	Çanakkale → İstanbul
10:00	900-1400	20+40+10+50+30+20	0 – 20 m	Çanakkale ← İstanbul
10:05	900-1400	40+40+20+20+30+15	0 – 20 m	Çanakkale ← İstanbul
10:10	900-1400	30+10+10+20+30	0 – 20 m	Çanakkale → İstanbul
10:15	900-1400	15+10+20+20	0 – 20 m	Çanakkale ← İstanbul
10:20	900-1400	25+15+10+25	0 – 20 m	Çanakkale ← İstanbul
10:25	900-1400	10+20+15+8+20+10+20+10	0 – 20 m	Çanakkale → İstanbul
10:30	900-1400	4+6+20+7+25+15+30	0 – 20 m	Çanakkale ← İstanbul
10:34	900-1400	30+40+20+6+12+10	0 – 20 m	Çanakkale → İstanbul
10:35	900-1400	5+10+15+20+15+6+10	0 – 20 m	Çanakkale ← İstanbul
10:40	900-1400	4+10+25+25+16+30+30+10	0 – 20 m	Çanakkale ← İstanbul
10:41	900-1400	10+25+20+16	0 – 20 m	Çanakkale → İstanbul
10:45	900-1400	3+5+15+15+15+8+10+15+10	0 – 20 m	Çanakkale ← İstanbul
10:47	900-1400	10+70+10	0 – 20 m	Çanakkale ← İstanbul
10:55	900-1400	10+4+5+6+15+12+15+15+20	0 – 20 m	Çanakkale ← İstanbul
10:57	900-1400	40+60+40+15+20+20	0 – 20 m	Çanakkale ← İstanbul
11:08	900-1400	17+5+10+20+10+2+2+20+25	0 – 20 m	Çanakkale ← İstanbul
11:10	900-1400	10+10+20+8+10+2	0 – 20 m	Çanakkale ← İstanbul
11:13	900-1400	40+2+40+20+15+4+10	0 – 20 m	Çanakkale → İstanbul
11:20	900-1400	10+15+20	0 – 20 m	Çanakkale → İstanbul
11:30	Gözlem sonlandırıldı			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **1,907** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3,441**				

Table 21. Vantage Point survey records in **VP2** point 26/02/ 2018, Monday.

Time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
	Hava rüzgarlı, bulutlu, soğuk. Deniz dalgalı. Kuşlar yüksek uçuyor.			
15:30	900-1400	20+10+30	0 – 20 m	Çanakkale ← İstanbul
15:35	900-1400	40+40+20+30	0 – 20 m	Çanakkale ← İstanbul
13:38	900-1400	30+6	0 – 20 m	Çanakkale → İstanbul
15.40	900-1400	60+20+20+10+50+10	0 – 20 m	Çanakkale ← İstanbul
15:45	900-1400	30+40+30+10+20	0 – 20 m	Çanakkale ← İstanbul
15:50	900-1400	60+40+20	0 – 20 m	Çanakkale ← İstanbul
15:52	900-1400	50+50+20+10+10+10	0 – 20 m	Çanakkale ← İstanbul
15:55	900-1400	20+30+20+50	0 – 20 m	Çanakkale ← İstanbul
16:00	900-1400	10+4+20+40+30	0 – 20 m	Çanakkale ← İstanbul
16:05	900-1400	10+40	0 – 20 m	Çanakkale → İstanbul
16:07	900-1400	25+30+20+15	0 – 20 m	Çanakkale ← İstanbul
16:10	900-1400	4+20+30+20+20+10	0 – 20 m	Çanakkale ← İstanbul
16:15	900-1400	20+30+15+40	0 – 20 m	Çanakkale ← İstanbul
16:18	900-1400	20+15+20+10+30	0 – 20 m	Çanakkale ← İstanbul
16:20	900-1400	20+15+30+20	0 – 20 m	Çanakkale ← İstanbul
16:25	900-1400	20+40+30	0 – 20 m	Çanakkale ← İstanbul
16:30	900-1400	15+20	0 – 20 m	Çanakkale → İstanbul
16:35	900-1400	60+4+20+20+30	0 – 20 m	Çanakkale ← İstanbul
16:40	900-1400	10+30+10+100+20+10	0 – 20 m	Çanakkale ← İstanbul
16:32	900-1400	50+10+20+20+25+10+15	0 – 20 m	Çanakkale ← İstanbul
16:46	900-1400	15+10	0 – 20 m	Çanakkale → İstanbul
16:50	900-1400	25+20+30+50+20+20+10	0 – 20 m	Çanakkale ← İstanbul
17:00	900-1400	20+20+20+30	0 – 20 m	Çanakkale ← İstanbul
17:05	900-1400	10+40+20+20+5	0 – 20 m	Çanakkale ← İstanbul
17:08	900-1400	40+30+30+20	0 – 20 m	Çanakkale ← İstanbul
17:13	900-1400	20+10+20+20+30	0 – 20 m	Çanakkale ← İstanbul
17:15	900-1400	60+40+20+20+30+20	0 – 20 m	Çanakkale ← İstanbul
17:20	900-1400	40+20+20+30+50+10	0 – 20 m	Çanakkale ← İstanbul
17:24	900-1400	20+60+40+10+30+30	0 – 20 m	Çanakkale ← İstanbul
17:30	900-1400	20+10+10+50+30+20+20	0 – 20 m	Çanakkale ← İstanbul
17:32	900-1400	40+40+20+20+30	0 – 20 m	Çanakkale ← İstanbul
17:35	900-1400	4+10+20+2	0 – 20 m	Çanakkale → İstanbul
17:40	900-1400	30+10+40+20	0 – 20 m	Çanakkale ← İstanbul
17:45	900-1400	15+10+20	0 – 20 m	Çanakkale ← İstanbul
17:50	900-1400	20+15+10+25	0 – 20 m	Çanakkale ← İstanbul
17:52	900-1400	10+20+30+5+8+20+10+20	0 – 20 m	Çanakkale ← İstanbul
17:55	900-1400	20+10+8+25+15+30+10	0 – 20 m	Çanakkale ← İstanbul
18:00	900-1400	30+40+20+6+12	0 – 20 m	Çanakkale → İstanbul
18:02	900-1400	12+10+15+20+15+6	0 – 20 m	Çanakkale → İstanbul
18:05	900-1400	6+10+25+18+20+30+30+8	0 – 20 m	Çanakkale → İstanbul
18:07	900-1400	10+25+20+16	0 – 20 m	Çanakkale ← İstanbul
18:10	900-1400	20+12+15+15+15+15+10	0 – 20 m	Çanakkale ← İstanbul
18:14	900-1400	10+20+60+20	0 – 20 m	Çanakkale ← İstanbul
18:15	900-1400	10+8+15+12+15+15+15+10	0 – 20 m	Çanakkale ← İstanbul
18:18	900-1400	30+60+40+15	0 – 20 m	Çanakkale → İstanbul
18:20	900-1400	17+5+10+20+10+2+2+20+25	0 – 20 m	Çanakkale ← İstanbul
18:25	900-1400	40+10+4+6	0 – 20 m	Çanakkale → İstanbul
18:30	900-1400	60+20+20+15+2+30	0 – 20 m	Çanakkale ← İstanbul
18:35	900-1400	20+14+15	0 – 20 m	Çanakkale → İstanbul
18:40	900-1400	30+20+20+10+30+5+5	0 – 20 m	Çanakkale ← İstanbul

18:45	900-1400	4+4+10	0 – 20 m	Çanakkale → İstanbul
18:48	900-1400	30+40+15+60+10+20	0 – 20 m	Çanakkale ← İstanbul
18:50	900-1400	20+20+40+30+10+4+30	0 – 20 m	Çanakkale ← İstanbul
18:55	900-1400	25+25+20+30	0 – 20 m	Çanakkale ← İstanbul
18:57	900-1400	10+12	0 – 20 m	Çanakkale → İstanbul
19:00		Gözlem sonlandırıldı		
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **807** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **5,200**				

Table 22. Vantage Point (VP) survey records summary

Days	VP1 Asian bridge leg	Bird numbers counted	VP2 European bridge leg	Bird numbers counted
February 6	3 hours dawn	C → I. 66 C ← I: 305	3 hours + 10 min. **dusk**	C → I: 5 C ← I: 5,428
February 7	3 hours dawn	C → I: 62 C ← I: 944	3 hours + 30 min. **dusk**	C → I: 153 C ← I: 8,342
February 8	4 hours **dusk**	C → I: 1,198 C ← I: 3,763	3 hours dawn	C → I: 232 C ← I: 1,572
February 12	3 hours + 40 min. **dusk**	C → I: 2,550 C ← I: 255		
February 13			3 hours + 40 min. **dusk**	C → I: 2,888 C ← I: 3,153
February 14	3 hours + 20 min. dawn	C → I: 3,666 C ← I: 421	3 hours + 45 min. **dusk**	C → I: 2,708 C ← I: 968
February 23	3 hours + 15 min. **dusk**	C → I: 1,439 C ← I: 6,425		
February 24			3 hours + 20 min. dawn	C → I: 713 C ← I: 3,741
February 25	3 hours + 15 min. **dusk**	C → I: 1,501 C ← I: 7,672	3 hours + 40 min. dawn	C → I: 1,622 C ← I: 3,796
February 26	3 hours + 30 min. dawn	C → I: 1,907 C ← I: 3,441	3 hours + 30 min. **dusk**	C → I: 807 C ← I: 5,200
TOTAL	**27 hours for VP1**	**C → I: 12,389** **C ← I: 23,226**	**27 hours + 45 min. for VP2**	**C → I: 9,128** **C ← I: 32,200**
Dawn total	**12 hours + 50 min.**	**C → I: 5,701** **C ← I: 5,111**	**10 hours**	**C → I: 2,567** **C ← I: 9,109**
Dusk total	**14 hours + 20 min**	**C → I: 6,688** **C ← I: 18,115**	**17 hours + 45 min**	**C → I: 6,561** **C ← I: 23,091**
Bird crossing per hour (dawn)		**C → I: 444** **C ← I: 398**		**C → I: 257** **C ← I: 911**
Bird crossing per hour (dusk)		**C → I: 466** **C ← I: 1,264**		**C → I: 370** **C ← I: 1,301**

2.2 Ferry Crossing Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

Ferry crossing surveys for Yelkouan shearwater (*Puffinus yelkouan*) were performed by ferries (Figure 6) sailing between Gelibolu and Lapseki towns as shown in Figure 4. Ferry crossing surveys performed was listed in Table 23. All Yelkouan shearwater records were given in Tables 24-31.

Table 23. Ferry crossing dates and times performed

Date	Time
February 5	Ferry crossing (dusk) (18:30 – 19:30)
February 6	Ferry crossing (extra) (12:00 – 12:30)
February 9	Ferry crossing (extra) (13:30 – 14:00)
February 13	Ferry crossing (dawn) (07:55 – 08:40)
February 13	Ferry crossing (extra) (08:45 – 09:40)
February 23	Ferry crossing (extra) (14:00 – 14:40)
February 24	Ferry crossing (dusk) (18:00 – 18:40)

Table 24. Ferry crossing survey records (Gelibolu → Lapseki Ferry), 05/02/ 2018, Monday.

Ferry time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
18:30 – 19:00		No birds	-	-
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **0** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **0**				

Table 25. Ferry crossing survey records (Lapseki → Gelibolu Ferry), 06/02/ 2018, Tuesday.

Ferry time 12:00 – 12:30	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
12:05	1200-1500 m	15	0-10 m	İstanbul → Çanakkale
	1200-1500 m	40	0-10 m	İstanbul → Çanakkale
	1200-1500 m	25	0-10 m	İstanbul → Çanakkale
12:30	Finished			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **0** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **80**				

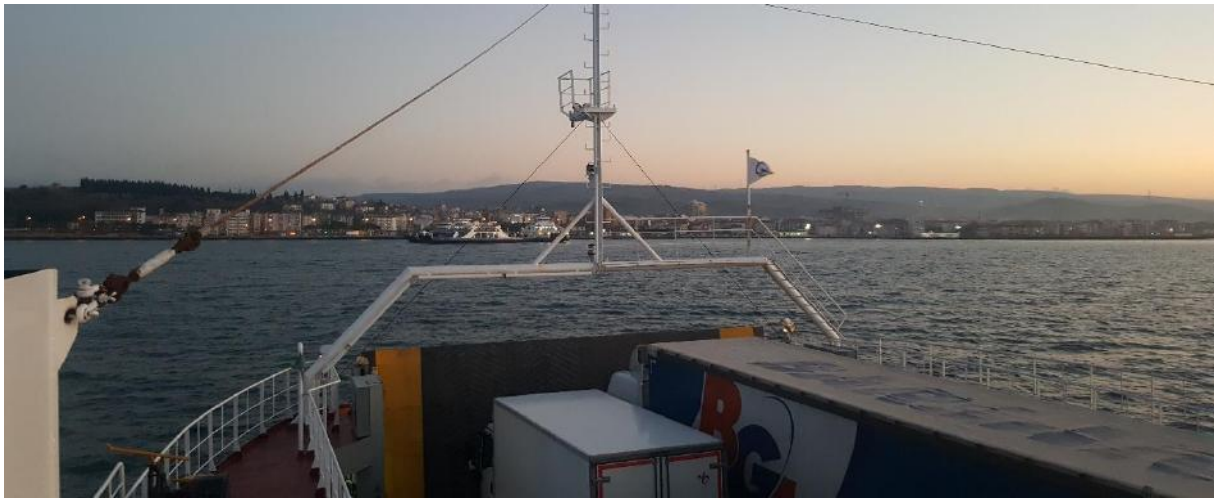

Figure 6. A ferry that sailing between Gelibolu and Lapseki.

Table 26. Ferry crossing survey records (Gelibolu → Lapseki Ferry), 09/02/ 2018, Friday.

Ferry time 13:30 – 14:00	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
	Before sailing started, observarion was starterd on ferry at 13:15.			
13:15	1200-1500 m	30	0-10 m	İstanbul → Çanakkale
13:17	1200-1500 m	60+5+30	0-10 m	İstanbul → Çanakkale
13:18	1200-1500 m	40+50+20+20	0-10 m	İstanbul → Çanakkale
13:19	1200-1500 m	50+30+10+20+10	0-10 m	İstanbul → Çanakkale
13:20	1200-1500 m	20+20+5+15	0-10 m	İstanbul → Çanakkale
13:21	1200-1500 m	20+30+20+10	0-10 m	İstanbul → Çanakkale
13:23	1200-1500 m	20+20+50+20	0-10 m	İstanbul → Çanakkale
13:25	1200-1500 m	60+10+20+10+50	0-10 m	İstanbul → Çanakkale
13:27	1200-1500 m	40+30+30+20+40	0-10 m	İstanbul → Çanakkale
13:28	1200-1500 m	30+20+5+10	0-10 m	İstanbul → Çanakkale
13:28	1200-1500 m	20	0-10 m	Çanakkale → İstanbul
13:29	1200-1500 m	20+40+30+30+5	0-10 m	İstanbul → Çanakkale
13:30	1200-1500 m	20+30+15+50+40	0-10 m	İstanbul → Çanakkale
13:30	Ferry start sailing			
13:31	1200-1500 m	5+20+30+20+50	0-10 m	İstanbul → Çanakkale
13:32	1200-1500 m	20+10+20+10+30+10	0-10 m	İstanbul → Çanakkale
13:33	1200-1500 m	15+20+15+5	0-10 m	İstanbul → Çanakkale
13:34	1200-1500 m	20+5+20+100+10	0-10 m	İstanbul → Çanakkale
13:35	1200-1500 m	10+10+50+15+10	0-10 m	İstanbul → Çanakkale
13:36	1200-1500 m	10+60+20+10+5	0-10 m	İstanbul → Çanakkale
13:37	1200-1500 m	20	0-10 m	Çanakkale → İstanbul
13:37	1200-1500 m	40+30+20+20	0-10 m	İstanbul → Çanakkale
13:38	1200-1500 m	160+45+10+10	0-10 m	İstanbul → Çanakkale
13:40	1200-1500 m	20	0-10 m	İstanbul → Çanakkale
13:41	1200-1500 m	40+20+20	0-10 m	Çanakkale → İstanbul
13:41-13:47	1200-1500 m	About 700	0-10 m	İstanbul → Çanakkale
13:47	1200-1500 m	30	0-10 m	Çanakkale → İstanbul
14:00	Sailing finished			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **90** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **3,060**				

After 13:48 any bird did not crossed toward the movement direction of the ferry. The 3/3 of the way allrady sailed. Most of crossings were in the miidle part of the way.

Table 27. Ferry crossing survey records (Lapseki → Gelibolu Ferry), 13/02/ 2018, Tuesday.

Ferry time	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock Çanakkale← → İstanbul
07:55	Observation started. Foggy weather. Sailing started at 08:05.			
08:11	600-800	22	0-10	Çanakkale → İstanbul
08:13	800-1000	10	0-10	Çanakkale → İstanbul
08:18	1000-1200	4	0-10	İstanbul → Çanakkale
08:20	1000-1200	4	0-10	İstanbul → Çanakkale
08:21	Sunrise time			
08:24	1000-1200	16	0-10	İstanbul → Çanakkale
08:30	1000-1200	14	0-10	İstanbul → Çanakkale
08:34	1000-1200	12	0-10	İstanbul → Çanakkale
08:36	1000-1200	20+10	0-10	İstanbul → Çanakkale
08:37	1000-1200	40	0-10	İstanbul → Çanakkale
08:40	İskeleye varış			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **32** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **120**				

Table 28. Ferry crossing survey records (Gelibolu → Lapseki Ferry), 13/02/ 2018, Tuesday.

Ferry time 09:00 – 09:40	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
08:45	Gözlem başladı.			
09:02	Hareket			
09:04	1200-1500	30	0-10	İstanbul → Çanakkale
09:10	1200-1500	34+6	0-10	İstanbul → Çanakkale
09:15	800-1000	20	0-10	Çanakkale → İstanbul
09:16	1000-1200	16	0-10	Çanakkale → İstanbul
09:17	800-1000	40+4	0-10	Çanakkale → İstanbul
09:19	800-1000	34+60	0-10	Çanakkale → İstanbul
09:21	800-1000	10	0-10	Çanakkale → İstanbul
09:23	800-1000	8	0-10	Çanakkale → İstanbul
09:24	800-1000	6	0-10	Çanakkale → İstanbul
09:25	800-1000	30	0-10	Çanakkale → İstanbul
09:34	800-1000	12	0-10	Çanakkale → İstanbul
09:38	İskele yevarış			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **240** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **70**				

Table 29. Ferry crossing survey records (Gelibolu → Lapseki Ferry), 23/02/ 2018, Friday.

Ferry time 14.00-14:40	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
14.00		Sailing started. Cloudy, windy, cold. Choppy sea. Yelkouan shearwaters flying high not to hit waves.		
14:20	1200-1500	5	0-20 m	İstanbul → Çanakkale
14:21	1200-1500	40	0-20 m	İstanbul ← Çanakkale
14:23	1200-1500	15	0-20 m	İstanbul → Çanakkale
14:26	1200-1500	About 200	0-20 m	İstanbul → Çanakkale
14:40		Sailing finished		
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **40** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **220**				

Table 30. Ferry crossing survey records (Gelibolu → Lapseki Ferry), 24/02/ 2018, Saturday.

Ferry time 18:00 – 18:40	Distance from shore	Number of birds recorded	Height bands of each flocks flight	Flight path of each flock İstanbul ←→ Çanakkale
18:00	Rainy, light foggy weather, vision is not good.			
18:22	1000-1200	4+8		İstanbul ← Çanakkale
18:25	1000-1200	20		İstanbul → Çanakkale
18:40	Sailing finished. Because of unsuitable wheather conditions (rain and mist) most of the flocks could not be seen.			
Total Yelkouan shearwater fly from Çanakkale side toward Istanbul: **12** Total Yelkouan shearwater fly from Istanbul side toward Çanakkale: **20**				

Table 31. Ferry crossing dates and times performed, and the number of birds counted.

Date	Time	The number of birds counted	
		Çanakkale → Istanbul	Çanakkale ← Istanbul
February 5	Ferry crossing (dusk) (18:30 – 19:30)	0	0
February 6	Ferry crossing (extra) (12:00 – 12:30)	0	80
February 9	Ferry crossing (extra) (13:30 – 14:00)	90	3,060
February 13	Ferry crossing (dawn) (07:55 – 08:40)	32	120
February 13	Ferry crossing (extra) (08:45 – 09:40)	240	70
February 23	Ferry crossing (extra) (14:00 – 14:40)	40	220
February 24	Ferry crossing (dusk) (18:00 – 18:40)	12	20
	TOTAL	**414**	**3,570**

2.3 Roosting/Foraging Habitat Surveys for wintering geese, and breeding Habitat for Collared pratincole

The observation points in and near Saros Bay IBA for wintering geese and Collared Pratincole were shown in Figure 5, and coordinates of observation points were given in Table 4. The area has suitable bahitats for geese species, however, any geese sample could not be observed during surveys.

Figure 7. Observation point 2 in Saros Bay IBA.

Figure 8. Observation point 3 in Saros Bay IBA.

During the field tips in winter conditions, most parts of the survey area in and arount Saros Bay IBA were flooded (Figures 6-15), that is why all observations was performed along the roads in the area. Since flooding prevent birds from burrowing in the area, any breeding Collared pratincole could not be determined.

Figure 9. Observation point 5 in Saros Bay IBA.

Figure 10. Observation point 6 in Saros Bay IBA.

Figure 11. Observation point 7 in Saros Bay IBA.

Figure 12. Observation point 8 in Saros Bay IBA.

Figure 13. Observation point 9 in Saros Bay IBA.

Figure 14. Observation point 10 in Saros Bay IBA.

Figure 15. Observation point 11 in Saros Bay IBA.

Figure 16. Observation point 12 in Saros Bay IBA.

2.4 Constrains

Wheather conditions such as heavy rain and fog were the main constrains for suitable observations to records all Yelkouan shearwaters. Additionally before sunrise and after sunset light was not enough for observatios because of cloudy sky for most times (Figures 17-20).

Figure 17. Yelkouan shearwaters that hardly seen in fog. Fog was denser in some times and birds could not be seen.

Figure 18. Taken time of the photo was 07:30 am. About 20 minutes before sunrise. The hweather was cloudy and the light was not enough for observation.

Figure 19. Heavy rain that make observation very hard.

Figure 20. Flooded ground in Saros Bay area after rainy days that make impossible to reach most part of the area very hard by car or by walking.

3 DISCUSSION

3.1 Vantage Point Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

Observations has shown that most of the Yelkouan shearwaters prefer middle corridor of Canakkale strait to fly from Istanbul side toward Çanakkale and vice versa. Middle part was aceepted as distance over 1000 meters from shore. The proportion of the birds that prefer middle corridor was about 20-25%. The width of the strait in Çanakkale bridge point is about 3,800 meters. Height bands of each flock flight was mostly lower than 5 meters (Figure 21), especially the first two meters. On the other hand in windy days, when seam waves were high, height bands were higher and some birds reached sometimes about 20 meters high (Figure 22). Anyway, both flight height bands do not offer any risk related the height of the bridge.

Figure 21. Yelkouan shearwater flock flying in very low height in a mer plate.

Figure 22. Yelkouan shearwater flock flying higher in a choppy sea.

Canakkale strait has a very dense sea traffic with a lot of different speed and sized vessels. Yelkouan shearwaters are flying close to these objects witouth displaying any disturbance (Figure 23). That is why Yelkouan shearwaters are familiar with objects on the sea. This situation easlily imply that bridge legs that be placed in the sea will not cause any big problems for Yelkouan shearwaters.

Figure 23. Yelkouan shearwater flock flying very close to a vessel in the Çanakkale strait.

3.2 Ferry Crossing Surveys for Yelkouan shearwater (*Puffinus yelkouan*)

During the study seven ferry crossing survey were performed. A total of 3.984 Yelkouan shearwater were counted. Of them 141 were flying from Çanakkale side toward Istanbul, and 3.570 from Istanul side toward Çanakkale (Table 31). The siling of the ferries was lasting about 30 minutes. Most of the crossings were in the midle part of the distance between two sides. Counting was performed in front of the ferry and only Yelkouan shearwaters that can be seen toward movement direction were counted. That is why, counting period was lasted about 10 minutes only during sailing. On the other hand, most times, observation was started before sailing when observer reached ferry. Guring some ferry crossings, because of bad wheather conditions such as heavy rain and/or fog, a proper observation could not be performed.

3.3 Roosting/Foraging Habitat Surveys for wintering geese, and breeding Habitat for Collared pratincole

Roosting/Foraging Habitat Surveys for wintering geese: During the observations listed in Table 3, though the area contains suitable habitats, any geese sample could not be observed in and around Saros Bay IBA.

Breeding Habitat for Collared pratincole: During the observations listed in Table 3, any Collared pratincole could not be determined in the area. In fact, survey period was not a correct time to see the bired. Because the arriving tme of Collared pratincole to breeding aareas in Turkey is mostly April. On the other hand, the area contain suitable habitats for Collared pratincole breeding (See Figures 6-15). During the study, such suitable habitats were mostly flooded because of rainy winter conditions. No doubt that after winter rains, water level

will reduce and suitable areas for nesting of Collared pratincole to breed will be available. New field trips after April would be necessary these arguments.

According to the book The Birds of Turkey (Kirwan et al. 2008):

> **Status and distribution in Turkey.** National conservation status: Vulnerable (population apparently decreasing). Fairly common summer visitor, breeding in comparatively small numbers in parts of Marmara (including Thrace), principally coastal Aegean, Mediterranean (principally in the Göksu and Çukurova deltas) and Inner Anatolia (where most widespread). The most important breeding localities are as follows:
>
> - Meriç Delta (Marmara), 200 pairs;
> - Kocaçay Delta (Marmara), 80 pairs;
> - Büyük Menderes Delta (Aegean), 85 pairs;
> - Kızılırmak Delta (Black Sea Coastlands), up to 115 pairs;
> - Hotamış marshes (Inner Anatolia), 100 pairs;
> - Tuz Gölü (Inner Anatolia), 200 pairs;
> - Göksu Delta, 300 pairs;
> - Tuzla Gölü, Çukurova, 150 pairs (Magnin et al. in Heath & Evans 2000).
>
> Formerly bred in considerable numbers at Amik Gölü (Mediterranean) prior to drainage. Kasparek (1992) reported that it bred throughout the country, being particularly local in Southeast Anatolia, East Anatolia and the Black Sea Coastlands; there is very little proof of breeding in either of the two first-named regions, with Kumerloeve's (1970) claim that the species had nested at Van Gölü being based solely on an observation of two pairs present in suitable breeding habitat in late May. However, the species was observed during the second half of June of 1999 in the Murat Valley (East Anatolia), from where several previous records of Black-winged Pratincole G. nordmanni are available (perhaps casting doubt on some of these). For Southeast Anatolia, there is only a June observation at Cizre (Martins 1989) and another from near Akçakale, in May 2001 (HW et al.), to suggest breeding, whilst Kızılırmak Delta appears to be the only nesting site in the Black Sea region.
>
> **Breeding.** Colonies, on open flat ground, typically drying out edges of lakes and marshes, with bare ground and low scattered shrubs, often at the transition between marsh and grassland; also on dry saltmarshes with Salicornia; in damp cultivation, including ploughed fields; on low flat coastal sand dunes; and occasionally on bare flat islands in inland lakes. Usually in small colonies, 10–30 pairs, occasionally solitary pairs, but 100 pairs at Kavak (Marmara) on 24.6.73. Nest a shallow scrape in bare ground, unlined or with a few small pieces of plant material. Eggs: C/3 (13), C/2 (5), C/1 (5), but only 1 of the latter was definitely a complete clutch (adult incubating), and the others were probably incomplete. Young: B/2 (4), B/1 (1).
>
> **Breeding in Marmara Region:** In Kocaçay Delta (Marmara), 3 colonies, totalling 80–100 pairs, bred in 1993, and the earliest arrival was mid April (Ertan 1996). A small colony at Uluabat Gölü (Marmara) was displaced on 11.6.98, when the breeding area was re-ploughed, but the birds joined another small colony nearby (Welch & Welch 1998). At Kavak, 2 young, just able to fly, were present on 24.6.73 (R. F. Porter).

According to the text given in "The Birds of Turkey", there is not any breeding record of Collared pratincole in Saros Bay. On the other hand, according to greeding habitat properties, some very suitable habitats (especially locality 7, 10 and 12 areas) present in Saros Bay IBA area. Additionally, Google earth image showed that some other suitable habitats that we could not reach by car in winter season also present in the area. New survesy to chech the area during May – July would be better to clarify breeding status and presence of Collared pratincole in Saros Bay IBA.

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Breeding areas study for Collared pratincole (*Glareola pratincola*) in Saros Bay IBA

FINAL REPORT

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August, 2018

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BREEDING SURVEY STUDIES

1 SURVEYS

1.1 Field Surveys for Collared pratincole (*Glareola pratincola*)

This field survey shall also determine the presence of breeding areas of Collared pratincole (*Glareola pratincola*) within the overlap area, which is also a triggering species of the Saros Bay IBA.

1.1.1 Purpose

To collect data on Collared pratincole (*Glareola pratincola*) that will enable estimates to be made of:

- Relative use of different parts of the survey area.
- Type of use of different parts of the survey area e.g. breeding, roost, foraging, commuting, etc.

1.1.2 Methodology

- Surveyor Dr Mustafa Sözen visited areas of suitable breeding habitats for target species within the project footprint plus ≥500 m buffer (up to 5 Km).
- Surveyor aimed to approach within 100 m of each part of the site surveyed (NB: where access and H&S considerations allow).
- Surveyors periodically scaned the area using binocular and scope.
- Target species' locations were recorded upon detection, their behaviour and habitat use recorded e.g. returning to roost.

Saros Bay IBA observations were performed during three periods in June and Juley as shown in Table 1. Observation points and the location of these points in relation to Saros Bay IBA and motorway planned were shown in Figure 1 and 2. During three survey period, totally 41 observation points were selected according to accessability and habitat properties of the point (Figure 1 and 2). Angle of sight was also important to select the point. The coordinates of observation points were listed in Table 2. In each observation point, the area was scanned by a binocular (Nicon Aculon A211 16 x 50) and/or a Scope (Bushnell 20 60X80 Legend Ed). To observe flying birds binocular was used and to scan the ground mostly scope was used.

Surveys were spreaded throughout the day between dawn and dusk, and should contain at least one session starting at dawn, and one session finishing at dusk. Dawn visits were started about sunrise time and dusk visits were finished about 30 minutes after sunset.

When target species determined, the photos of the species were taken by a Canon 7D Canema and Canon 400 mm tele lens attached to it.

Table 1. Saros Bay IBA visit periods and times

Date	Activity	Time
June 30	6 hours survey for Collared pratincole	Dawn and dusk survey
July 14	6 hours survey for Collared pratincole	Dawn and dusk survey
July 28	6 hours survey for Collared pratincole	Dawwn and dusk survey

Figure 1. The location of observation points. Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge. Pink dots indicate non breeding areas, green dots indicate breeding areas.

Figure 2. The location of observation points and Saros Bay IBA area (yellow dashed area). Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge. Pink dots indicate non breeding areas, green dots indicate breeding areas of Collared pratincole.

Table 2. Coordinates of observation points that studied during three onservation periods in and near Saros Bay IBA.

Observation points	Coordinates
01	35 T 479443.00 d D / 4487257.00 m K
02	35 T 482810.00 d D / 4488370.00 m K
03	35 T 483041.00 d D / 4489096.00 m K
04	35 T 484440.00 d D / 4490212.00 m K
05	35 T 484438.00 d D / 4490703.00 m K
06	35 T 486372.00 d D / 4492453.00 m K
07	35 T 486462.00 d D / 4493040.00 m K
08	35 T 486428.00 d D / 4493056.00 m K
09	35 T 487349.00 d D / 4493579.00 m K
10	35 T 487259.00 d D / 4493602.00 m K
11	35 T 486758.00 d D / 4493521.00 m K
12	35 T 486524.00 d D / 4493739.00 m K
13	35 T 486603.00 d D / 4494259.00 m K
14	35 T 486295.00 d D / 4494652.00 m K
15	35 T 486491.00 d D / 4494636.00 m K
16	35 T 487009.00 d D / 4494527.00 m K
17	35 T 488847.00 d D / 4494295.00 m K
18	35 T 486328.00 d D / 4494997.00 m K
19	35 T 486597.00 d D / 4495128.00 m K
20	35 T 486535.00 d D / 4495501.00 m K
21	35 T 486489.00 d D / 4495500.00 m K
22	35 T 486147.00 d D / 4495738.00 m K
23	35 T 486113.00 d D / 4495758.00 m K
24	35 T 485983.00 d D / 4495876.00 m K
25	35 T 485972.00 d D / 4496449.00 m K
26	35 T 486224.00 d D / 4496816.00 m K
27	35 T 486167.00 d D / 4496860.00 m K
28	35 T 486182.00 d D / 4496936.00 m K
29	35 T 486369.00 d D / 4496936.00 m K
30	35 T 486566.00 d D / 4496880.00 m K
31	35 T 486547.00 d D / 4496947.00 m K
32	35 T 487335.00 d D / 4497244.00 m K
33	35 T 487457.00 d D / 4497253.00 m K
34	35 T 487490.00 d D / 4497276.00 m K
35	35 T 487767.00 d D / 4497248.00 m K
36	35 T 488074.00 d D / 4496955.00 m K
37	35 T 488744.00 d D / 4496291.00 m K
38	35 T 488815.00 d D / 4498085.00 m K
39	35 T 487715.00 d D / 4497775.00 m K
40	35 T 487632.00 d D / 4497850.00 m K
41	35 T 486549.00 d D / 4499540.00 m K

1.1.3 Breeding codes used

(Taken from: https://help.ebird.org/customer/portal/articles/1006850-breeding-codes-behavior-codes)

NY Nest with Young (Confirmed): Nest with young seen or heard.

NE Nest with Eggs (Confirmed): Nest with eggs.

ON Occupied Nest (Confirmed): Occupied nest presumed by parent entering and remaining, exchanging incubation duties, etc.

FL Recently Fledged young (Confirmed): Recently fledged or downy young observed while still dependent upon adults.

FY Feeding Young (Confirmed): Adult feeding young that have left the nest, but are not yet flying and independent (should not be used with raptors, terns, and other species that may move many miles from the nest site; often supersedes FL).

FS Carrying Fecal Sac (Confirmed): Adult carrying fecal sac.

CF Carrying Food (Confirmed): Adult carrying food for young (should not be used for corvids, raptors, terns, and certain other species that regularly carry food for courtship or other purposes).

UN Used Nest (enter 0 if no birds seen) (Confirmed): Nest is present, but not active. Use only if you are certain of the species that built the nest.

DD Distraction Display (Confirmed): Distraction display, including feigning injury.

PE Brood Patch and Physiological Evidence (Probable): Physiological evidence of nesting, usually a brood patch. This will be used only very rarely.

NB Nest Building (Confirmed/Probable): Nest building at apparent nest site (should not be used for certain wrens, and other species that build dummy nests; see code "B" below for these species).

CN Carrying Nesting Material (Confirmed/Probable): Adult carrying nesting material; nest site not seen.

B Wren/Woodpecker Nest Building (Probable): Some species, including certain wrens (e.g., Marsh Wren), woodpeckers, and certain other cavity nesters (e.g., barbets) may build dummy nests and thus nest building activity cannot be considered confirmation. Use this category in those cases.

T Territory held for 7+ days (Probable): Territorial behavior or singing male present at the same location 7+ days apart.

C Courtship, Display or Copulation (Probable): Courtship or copulation observed, including displays and courtship feeding.

N Visiting probable Nest site (Probable): Visiting repeatedly probable nest site (primarily hole nesters).

A Agitated behavior (Probable): Agitated behavior or anxiety calls from an adult. This excludes responses elicited by "pishing", playing recordings, or mobbing behavior that species engage in year-round (for instance, mobbing an owl).

P Pair in suitable habitat (Probable): Pair observed in suitable breeding habitat within breeding season.

M Multiple (7+) singing males (Probable): At least 7 singing males present in suitable nesting habitat during breeding season.

S7 Singing Male Present 7+ Days (Probable): Use only if you have observed a singing male at the exact spot (same tree or shrub) one week or more earlier in the season. Do not use if you have observed a singing male a week earlier elsewhere on the same transect covered by your checklists.

S Singing male (Possible): Singing male present in suitable nesting habitat during its breeding season.

H In appropriate habitat (Possible): Adult in suitable nesting habitat during its breeding season.

F Flyover (Observed): Flying over only: This is not necessarily a breeding code, but can be a useful behavioral distinction.

2 RESULTS

2.1 Breeding Areas for Collared pratincole

The observation points in and near Saros Bay IBA for breeding Collared Pratincole were shown in Figure 1 and 2, and coordinates of observation points were given in Table 2. Observations were performed in three perios as June 30, July 14 and July 28 of 2018.

2.1.1 First survey: 30 June 2018

The first survey to determine breeding areas of Collared Pratincole was conducted on 30 June 2018. During this trip a total of 20 observation point were surveyed. Observation was started at 05:00 am and finished at 21:00 pm (Table 3). The number survey points selected high to check suitable breeding habitats. According to the observation results in the first survey, the number of observation points remeined less in later observation periods.

Breeding data was collected from 7 out of 20 observation points. These points were shown as green dots in Figure 7. All of these points were located inside the Saros Bay IBA (Figure 3).

Figure 3. Observation points visited during the first survey in Saros Bay IBA (yellow dashed area). Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge. Pink dots indicate non breeding areas, green dots indicate breeding areas of Collared pratincole.

Table 3. Coordinates of observation points and observation results conducted on 30 June 2018 in and around Saros Bay IBA.

Observation point	Time	Coordinates	Bird number observed	Breeding code	Explanations
Starting	05:00				
1.	05:17	35T0486428/ 4493056	No target bird	0	Flooded area. Reedy area. Habitat is not suitable for breeding.
2.	06:29	35T0486524/ 4493739	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
3.	07:14	35T0486758/ 4493521	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
4.	07:57	35T0487259/ 4493602	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
5.	08:20	35T0486549/ 4499540	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
6.	09:15	35T0487715/ 4497775	5	P	Pair observed while flying in suitable breeding habitat within breeding season.
7.	09:31	35T0487767/ 4497248	7	P	Pair observed while flying in suitable breeding habitat within breeding season.
8.	09:54	35T0487490/ 4497276	22	DD	Distraction display, including feigning injury.
	10:17	Rain started, observation stopped			
	12:00	Rain stopped, observation started			
9.	12:12	35T0485972/ 4496449	No target bird	0	Habitat yüksek otlu üreme için uygun değil
10.	12:26	35T0485983/ 4495876	No target bird	0	Üreme için uygun habitat birey gözlenmedi
11.	12:34	35T0486147/ 4495738	4	DD	Distraction display, including feigning injury.
12.	12:55	35T0486489/ 4495500	6	DD	Distraction display, including feigning injury.
13.	13:12	35T0486328/ 4494997	1	P	One bird observed while flying in suitable breeding habitat within breeding season.
14.	13:48	35T0486224/ 4496816	4	DD	Distraction display, including feigning injury.
15.	14:43	35T0488847/ 4494295	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
16.	15:59	35T0486372/ 4492453	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
17.	16:18	35T0484438/ 4490703	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
18.	16:52	35T0483041/ 4489096	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
19.	17:56	35T0479443/ 4487257	No target bird	0	Partly agricultural, partly flooded area, partly sattlemet area that is not suitable for breeding.
20.	19:27	35T0482810/ 4488370	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
	21:00	Not enough light. Observarion finished.			

Figure 4. Collared pratincole (*Glareola pratincola*) observed while flying in suitable breeding habitat within breeding season.

Figure 5. Collared pratincole (*Glareola pratincola*) pair observed while flying in suitable breeding habitat within breeding season.

Figure 6. Collared pratincole (*Glareola pratincola*) pair observed in suitable breeding habitat within breeding season.

Figure 7. Collared pratincole (*Glareola pratincola*) displaying distraction display, including feigning injury.

Figure 8. Collared pratincole (*Glareola pratincola*) displaying distraction display, including feigning injury.

2.1.2 Second survey: 14 July 2018

The second survey was conducted on 14 July 2018. During this trip a total of 11 observation point were surveyed. Observation was started at 05:15 am and finished at 20:45 pm (Table 4). The number survey points selected limited by eliminating unsuitable habitats that determiedn during the first survey. Breeding data was collected from 6 out of 11 observation points. These points were shown as green dots in Figure 7. All of these points were located inside the Saros Bay IBA (Figure 9).

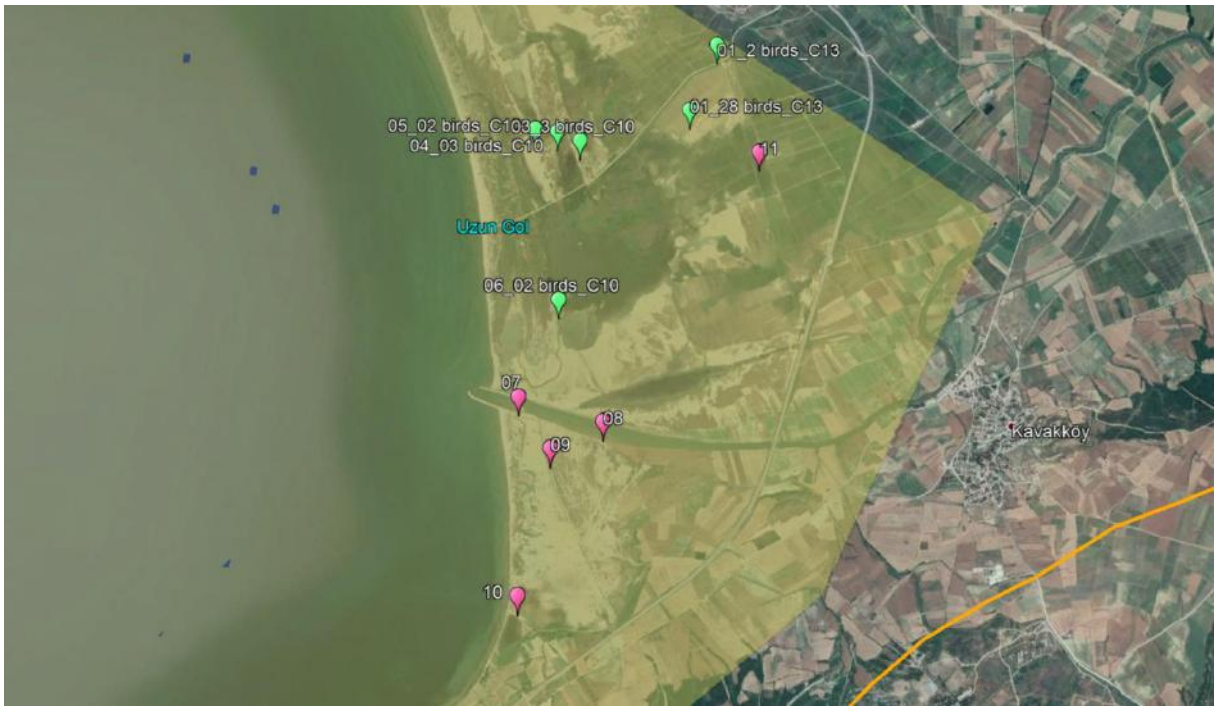

Figure 9. Observation points visited during the second survey in Saros Bay IBA (yellow dashed area). Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge. Pink dots indicate non breeding areas, green dots indicate breeding areas of Collared pratincole.

Table 4. Coordinates of observation points and observation results conducted on 14 July 2018 in and around Saros Bay IBA.

Observation point	Time	Coordinates	Bird number observed	Breeding code	Explanations
Starting	05:15				
1.	05:48	35T0487632 /4497850	2	ON	Occupied nest presumed by parent entering and remaining, exchanging incubation duties, etc.
2.	06:56	35T0487457 /4497253	28	ON	Occupied nest presumed by parent entering and remaining, exchanging incubation duties, etc.
3.	07:51	35T0486566 /4496880	3	DD	Distraction display, including feigning injury.
4.	08:20	35T0486369 /4496936	3	DD	Distraction display, including feigning injury.
5.	08:48	35T0486182 /4496936	2	DD	Distraction display, including feigning injury.
6.	09:42	35T0486535 /4495501	2	DD	Distraction display, including feigning injury.
7.	16:30	35T0486295 /4494652	No target bird	0	Habitat is suitable for breeding, however, any bird could not be observed.
8.	17:00	35T0487009 /4494527	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
9.	18:00	35T0486603 /4494259	No target bird	0	Habitat is suitable for breeding, however, any bird could not be observed.
10.	19:00	35T0486469 /4493035	No target bird	0	Habitat is suitable for breeding, however, any bird could not be observed.
11.	20:00	35T0488074 /4496955	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
	20:45	Not enough light. Observarion finished.			

Figure 10. Collared pratincole (*Glareola pratincola*) displaying distraction display, including feigning injury.

Figure 11. Collared pratincole (*Glareola pratincola*) observed while flying in suitable breeding habitat within breeding season.

Figure 12. Collared pratincole (*Glareola pratincola*) in breeding habitat.

Figure 13. Breeding habitat of Collared pratincole (*Glareola pratincola*). Photo shows "Observation point 5" indicated in Table 4.

Figure 14. Collared pratincole (*Glareola pratincola*) in a suitable breeding habitat of. Photo was taken in "Observation point 5" indicated in Table 4.

Figure 15. Breeding habitat of Collared pratincole (*Glareola pratincola*). Photo shows "Observation point 2" area indicated in Table 4. Here is one of the most important breeding area for Collared pratincole in Saros Bay IBA, and 28 birds were seen in this area.

2.1.3 Third survey: 28 July 2018

The third survey was conducted on 28 July 2018. During this trip a total of 11 observation point were surveyed. Observation was started at 06:00 am and finished at 20:30 pm (Table 5). Breeding data was collected from 2 out of 11 observation points. These points were shown as green dots in Figure 16. All of these points were located inside the Saros Bay IBA (Figure 16).

Table 5. Coordinates of observation points and observation results conducted on 14 July 2018 in and around Saros Bay IBA.

Observation point	Time	Coordinates	Bird number observed	Breeding code	Explanations
Starting	05:45				
1.	06:15	35T0484440 /4490212	No target bird	0	Habitat is not suitable for breeding.
2.	06:50	35T0488744 /4496291	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
3.	07:20	35T0488815 /4498085	No target bird	0	Agricultural area. Habitat is not suitable for breeding.
4.	08:15	35T0487335 /4497244	9	DD	Distraction display, including feigning injury.
5.	09:00	35T0486547 /4496947	No target bird	0	Habitat is not suitable for breeding.
6.	09:30	35T0486167 /4496860	4	DD	Distraction display, including feigning injury.
7.	10:20	35T0486113 /4495758	No target bird	0	Habitat is not suitable for breeding.
8.	11:50	35T0486597 /4495128	No target bird	0	Habitat is not suitable for breeding.
9.	17:00	35T0487349 /4493579	No target bird	0	Habitat is not suitable for breeding.
10.	18:00	35T0486491 /4494636	No target bird	0	Habitat is not suitable for breeding.

11.	19:00	35T0486462 /4493040	No target bird	0	Habitat is not suitable for breeding.
	20:30	Not enough light. Observarion finished.			

Figure 16. Observation points visited during the second survey in Saros Bay IBA (yellow dashed area). Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge. Pink dots indicate non breeding areas, green dots indicate breeding areas of Collared pratincole.

Figure 17. Breeding habitat of Collared pratincole (*Glareola pratincola*). Photo shows "Observation point 4" indicated in Table 5. Nine Collared pratincole were observed here.

Figure 18. Collared pratincole (*Glareola pratincola*) in breeding habitat. Photo was taken in "Observation point 4" area given in Table 5.

Figure 19. Collared pratincole (*Glareola pratincola*) flying around us and displaying distraction display, including feigning injury. Photo was taken in "Observation point 4" area given in Table 5.

Figure 20. Breeding habitat of Collared pratincole (*Glareola pratincola*). Photo shows "Observation point 6" indicated in Table 5. Four Collared pratincole were observed here.

Figure 21. Collared pratincole (*Glareola pratincola*) observed in suitable breeding habitat within breeding season. Photo was taken in "Observation point 6" area given in Table 5.

Figure 22. Collared pratincole (*Glareola pratincola*) pair observed in suitable breeding habitat within breeding season. Photo was taken in "Observation point 6" area given in Table 5.

3 DISCUSSION

During the observations listed in Table 2-4 as three perios, the areas were visited to obtaind data for breeding areas of target species Collared pratincole (*Glareola pratincola*) within the project footprint plus ≥500 m buffer (up to 5 Km).

We get breedind data from 15 out of 41 survey point visited. These points were shown as green dots in Figures 1, 2, 3, 9, 16, and also summarized in Figure 23.

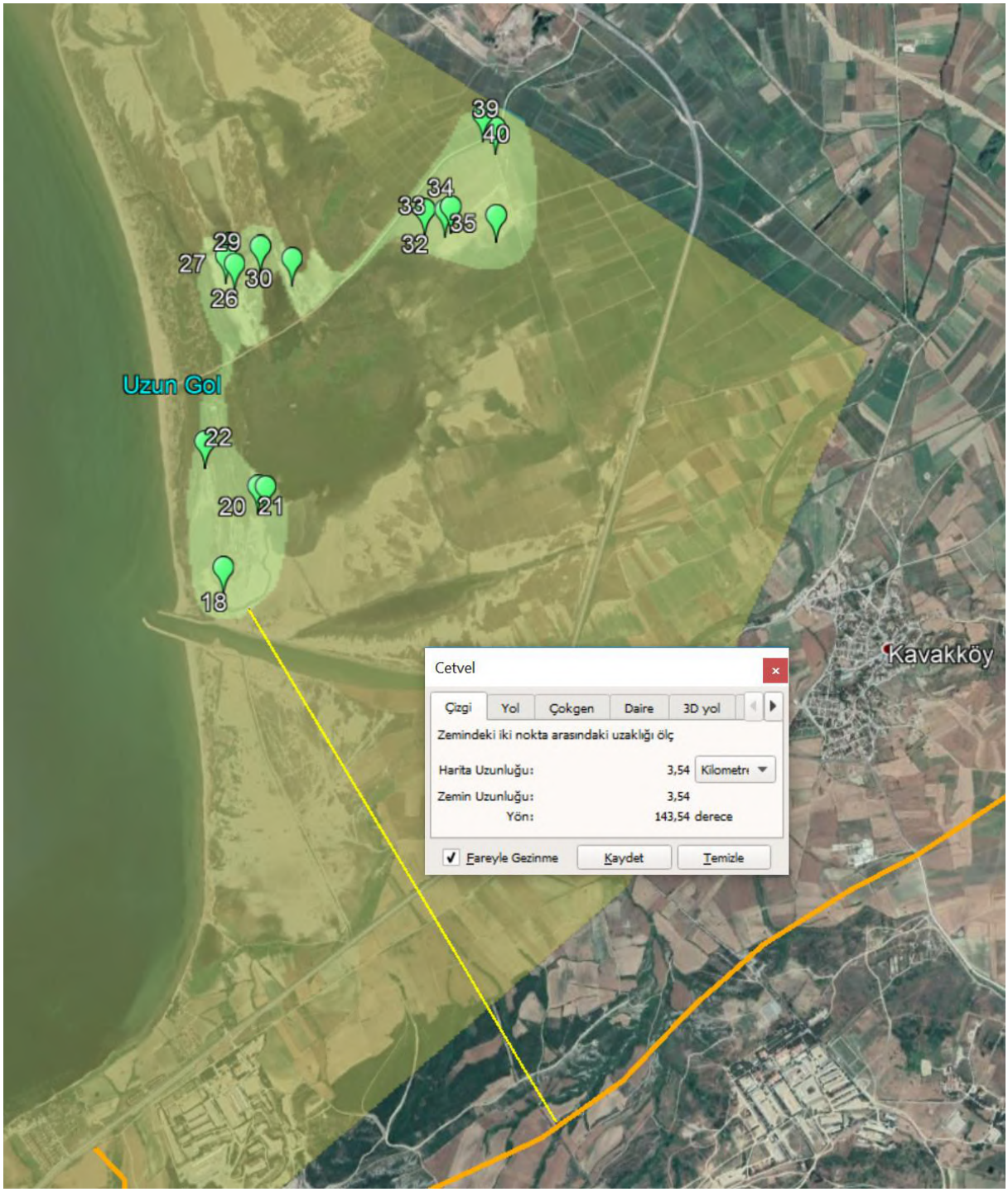

Figure 23. Breeding points (green dots) and breeding area (green dashed area) determined in Saros Bay IBA (yellow dashed area). Chrome yellow line shows new motorway planned that connected to 1915 Çanakkale Bridge.

Figure 24. Breeding points (green dots) and breeding area (green dashed area) determined in Saros Bay IBA (yellow dashed area). Redline shows new motorway planned that connected to 1915 Çanakkale Bridge.

The distance of breeding area to new motorway planned that connected to 1915 Çanakkale Bridge is more than 3.5 km (Figure 23). The estimated breeding area is about 1.6 km^2 (Figure 24).

The effect area of notorway is accepted as 2 kilometers. That is why, the metdology to study potatial suitable breeding area that conducted in February and March 2018 was to visit the areas of suitable breeding habitat for target species within the project footprint plus ≥500 m buffer (**up to 2 Km**). Since we could not determine any breeding activity during the first survey that was conducted on 30th of June 2018 the study area was enlarged **up to 7 kilometers** (onservation point 41 in Table 2) to get current breeding data for Collared pratincole (*Glareola pratincola*) in Saros Bay IBA.

Any negative impact the of the new motorway project on Collared pratincole (*Glareola pratincola*) breeding in Saros Bay IBA is not been expected, since any breeding area is not present within the project footprint plus ≥500 m buffer (up to 2 Km).

On the other hand, the main threats that negatively effect on breeding areas of Collared pratincole (*Glareola pratincola*) in area is human pressure such as agricultural activities and domestig animal grazing (Figure 25). Any breeding samples of Collared pratincole could not be determined in agricultural areas in Saros Bay IBA. These issues are not related to the project.

Figure 25. Grazing domestic cows in Collared pratincole (*Glareola pratincola*) breeding habitat.

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