FROM THE ADRIATIC TO NORTH AFRICA: SEVEN YEARS OF MOVEMENT PATTERNS OF AN AUDOUIN'S GULL

Od Jadrana do sjeverne Afrike: sedam godina kretanja sredozemnog galeba

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SUPPLEMENTARY MATERIAL

FIGURES

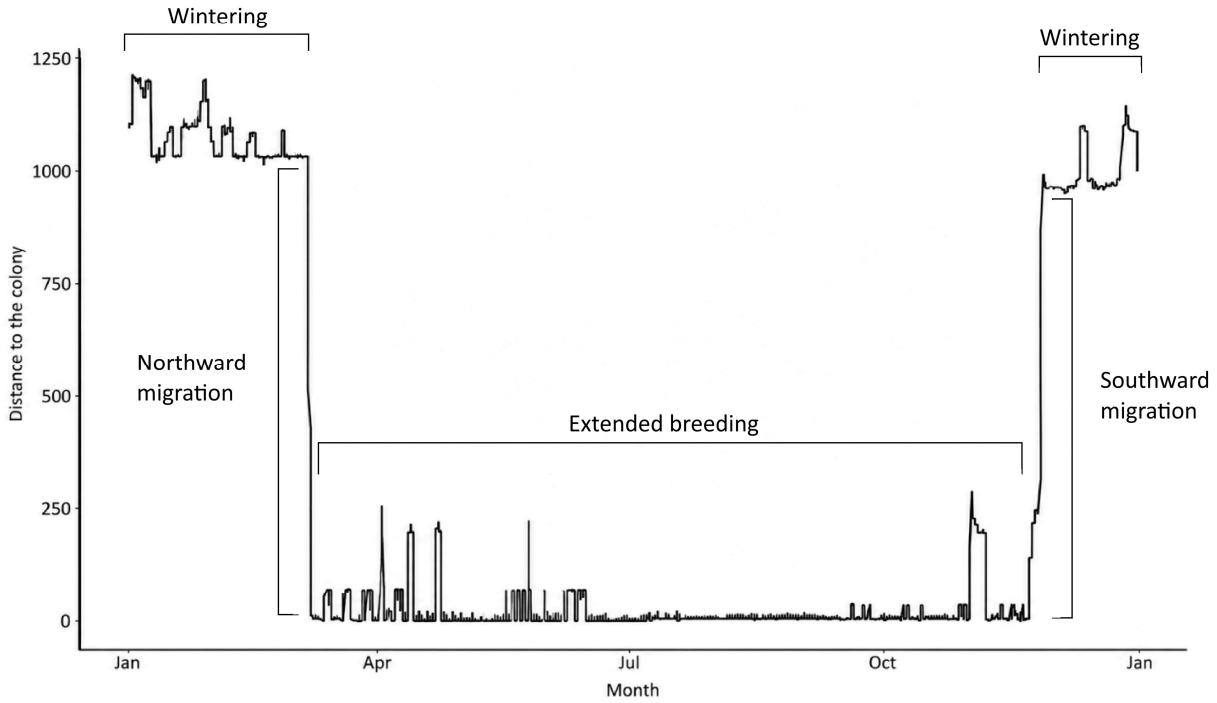


Figure S1. Example of Audouin's Gull movement trajectory classification based on the daily distance traveled from the breeding colony. Movement was classified as movement associated with wintering, migration (northward and southward) and an extended breeding period (Jan – Nov).

Slika S1. *Primjer klasifikacije putanje kretanja sredozemnog galeba na temelju dnevne udaljenosti prijeđene od kolonije za gniježđenje. Kretanje je klasificirano kao kretanje povezano s prezimljavanjem, selidbom (prema sjeveru i jugu) te produljenim razdobljem gniježđenja (siječanj – studeni).*

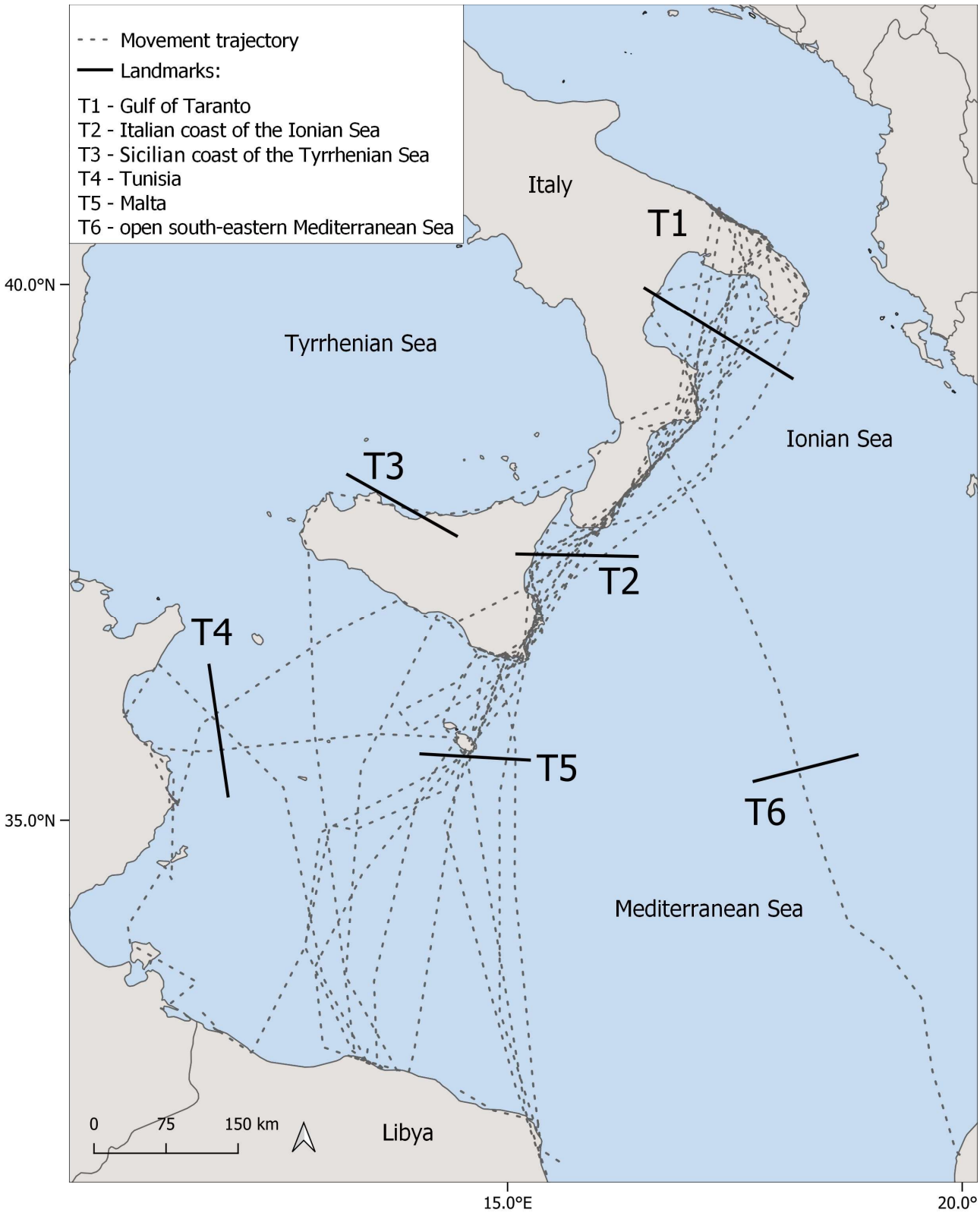


Figure S2. Northward and southward migration routes of Audouin's Gull, with shown landmarks used to assess migration route fidelity over seven years of tracking data (2017–2024).

Slika S2. *Putovi selidbe Sredozemnog galeba prema sjeveru i jugu, uz prikazane orijentire korištene za procjenu vjernosti selidbenog puta na temelju podataka praćenja prikupljenih tijekom sedam godina (2017. – 2024.).*

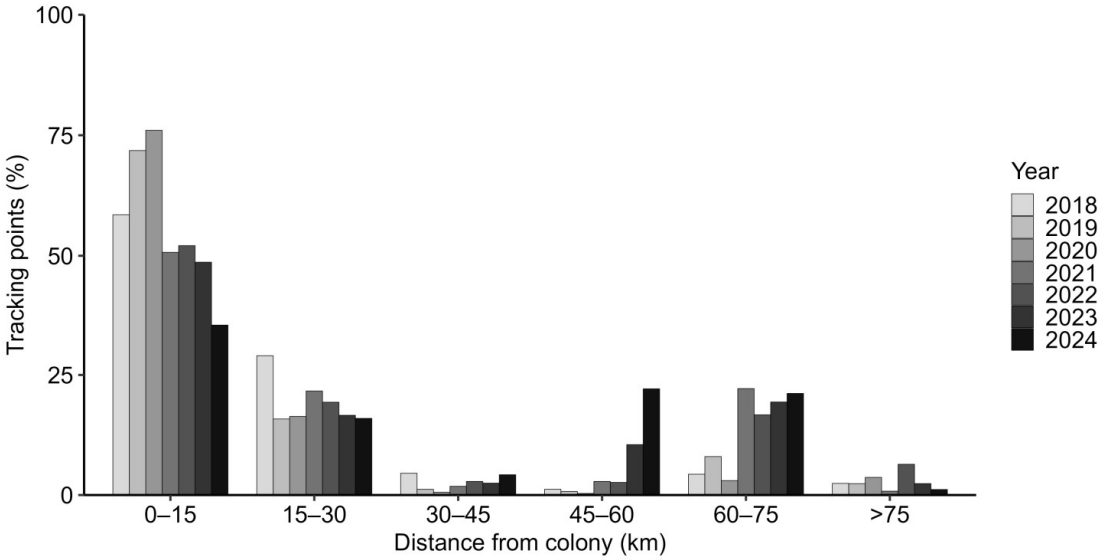


Figure S3. Percentage of GPS points recorded at different distances from the breeding colony during the extended breeding season (Jan – Nov) from 2018 to 2024. Data from 2017 were excluded because breeding failed and the individual moved away from the colony.

Slika S3. *Postotak GPS točaka zabilježenih na različitim udaljenostima od kolonije tijekom produljenog gniježđenja (siječanj – studeni) od 2018. do 2024. godine. Podaci iz 2017. godine isključeni su jer gniježđenje nije uspjelo, a jedinka se udaljila od kolonije*.

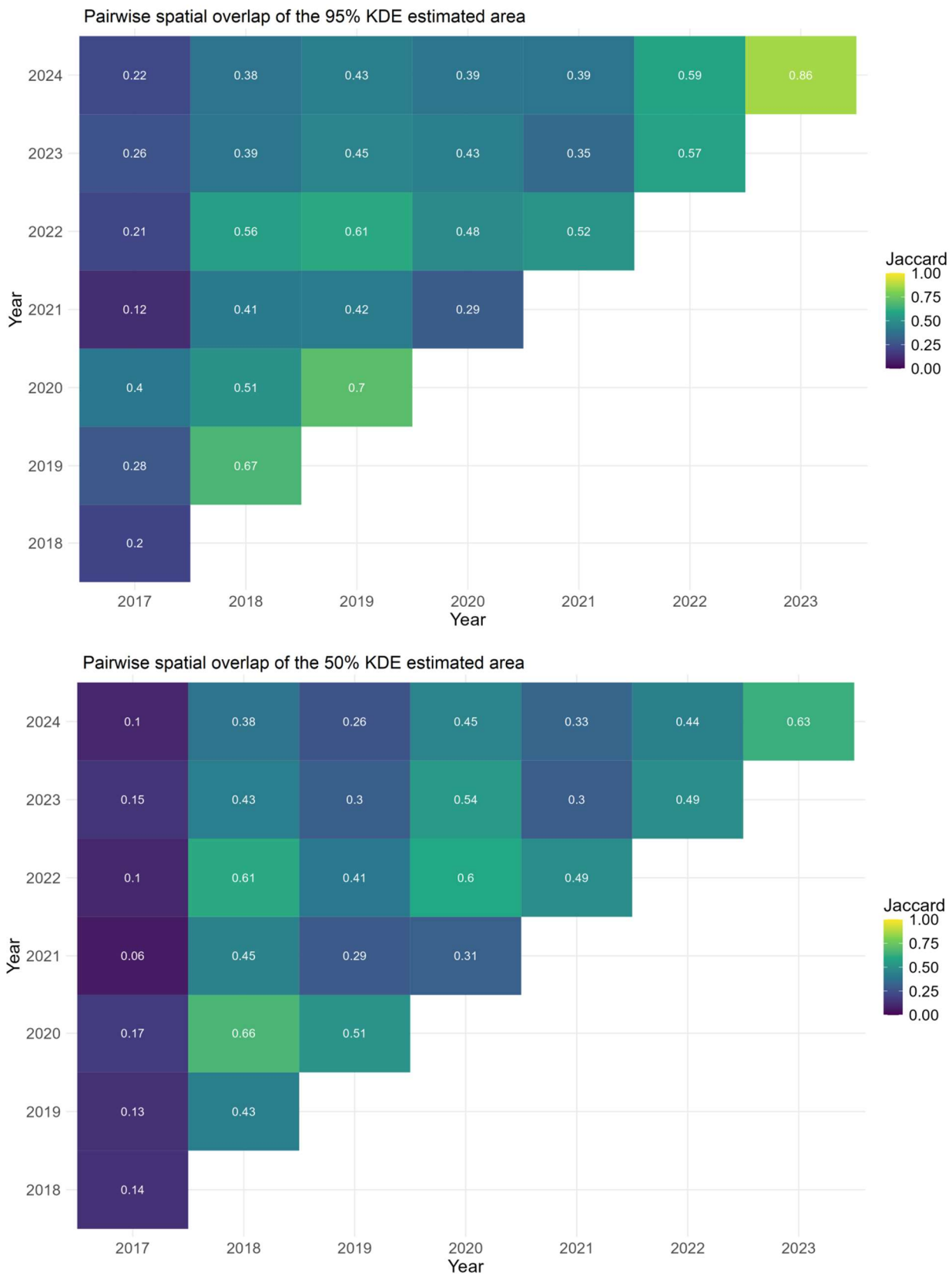


Figure S4. Heatmap of pairwise Jaccard similarity coefficients describing interannual overlap of 95% and 50% KDE utilization estimated areas for the tracked individual during the extended breeding period (Jan – Nov), from 2017 to 2024. Coefficients range from 0 (no overlap) to 1 (complete overlap).

Slika S4. *Toplinska karta parnog koeficijenata Jaccardove sličnosti koja opisuje međugodišnje preklapanje 95% i 50% KDE područja za praćenu jedinku tijekom produljenog razdoblja gniježđenja (siječanj–studeni), od 2017. do 2024. godine. Vrijednosti koeficijenata kreću se od 0 (nema preklapanja) do 1 (potpuno preklapanje).*

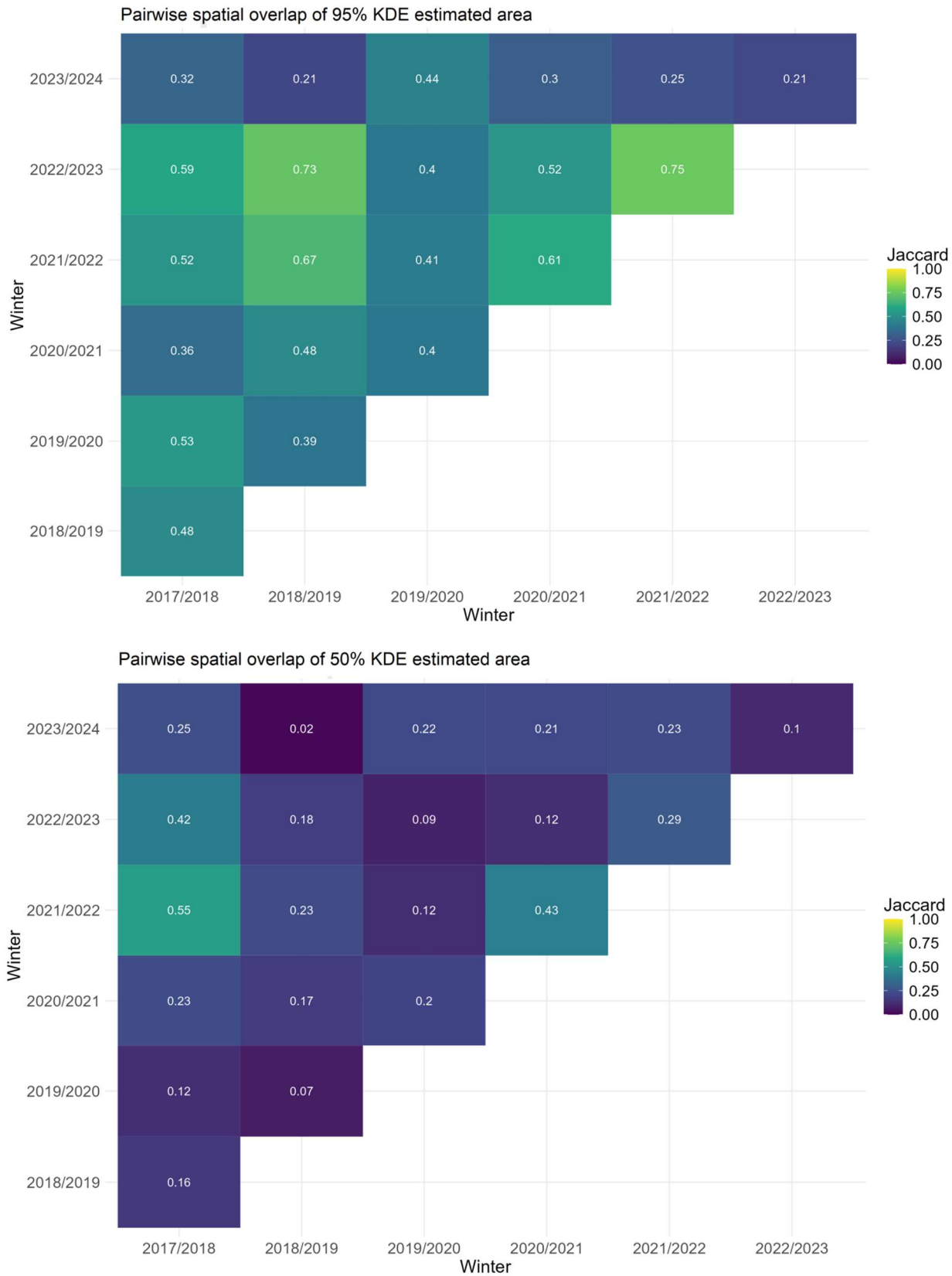


Figure S5. Heatmap of pairwise Jaccard similarity coefficients describing interannual overlap of 95% and 50% KDE utilization estimated areas for the tracked individual during wintering, from 2017 to 2024. Coefficients range from 0 (no overlap) to 1 (complete overlap).

Slika S5. *Toplinska karta parnog koeficijenata Jaccardove sličnosti koja opisuje međugodišnje preklapanje 95% i 50% KDE područja za praćenu jedinku tijekom zimovanja, od 2017. do 2024. godine. Vrijednosti koeficijenata kreću se od 0 (nema preklapanja) do 1 (potpuno preklapanje).*

TABLES

Table S1. Visited breeding colonies and potentially suitable breeding islands (LIUZZI *et al*. 2023) of Audouin's gull during the extended breeding period (Jan – Nov) from 2017 to 2024. Numbers indicate the number of visits recorded at each location in each month.
Tablica S1*. Posjećene kolonije i potencijalno prikladni otoci za gniježđenje (LIUZZI et al. 2023.) Sredozemnog galeba tijekom produljenog razdoblja gniježđenja (siječanj–studeni) od 2017. do 2024. godine. Brojke označavaju broj posjeta zabilježenih na svakoj lokaciji u pojedinom mjesecu.*

Year	Breeding colony	Visited (potential) breeding colony	Feb	Mar	Apr	May	Jun	Jul	Sep	Oct	Nov
2017	Lastovo	Lastovo				5	1				
		Torre Guaceto rocks								3	
		La Chiesa island								1	1
2018	Eremita rock	Lastovo		2	2						
		Sant' Andrea island				2					
		Apani rocks					1				
		Giorgio Treviso islet				1	12	3	1		
2019	Eremita rock	Lastovo			2	1					1
		Giorgio Treviso islet		3	1	5	3				
2020	Eremita rock	Lastovo			1						1
		Giorgio Treviso islet	1	1		7	3				
2021	Giorgio Treviso islet	Lastovo			1		1				
		Torre Guaceto rocks								1	
2022	Giorgio Treviso islet	Lastovo				1					
		Eremita rock			3	1	1				
		Malva island					3				
		Sant' Andrea island				1	3				
		Apani rocks					2				
2023	La Chiesa island	Lastovo		1		1		2			1
		Eremita rock			1	1					
		Malva island					1				
		Sant' Andrea island					1				
		Apani rocks				1	4	1			
		Torre Guaceto rocks						2			
2024	La Chiesa island	Lastovo				1					
		Apani rocks		1			3	4			
		Torre Guaceto rocks	1				1	4			
		Giorgio Treviso islet			3	1					

Table S2. Area size of 95% and 50% KDE utilization estimated area during extended breeding (Jan – Nov) and wintering period from 2017 until 2024.
Tablica S2. *Veličina 95% i 50% KDE procijenjenog područja tijekom produljenog razdoblja gniježđenja (siječanj – studeni) i zimovanja od 2017. do 2024. godine.*

Period	Year	95% KDE (km^2)	50% KDE (km^2)
Extended breeding	**2017**	213.72	21.98
	2018	1,055.48	149.47
	2019	766.72	127.45
	2020	539.57	99.24
	2021	1,832.56	321.14
	2022	993.95	157.38
	2023	652.10	95.68
	2024	735.79	148.51
Wintering	**2017/2018**	87,276.36	20,285.11
	2018/2019	137,367.61	25,770.35
	2019/2020	54,595.92	9,727.57
	2020/2021	89,844.13	11,988.98
	2021/2022	110,201.0	21,754.3
	2022/2023	133,097.2	24,094.87
	2023/2024	28,273.26	5,698.43

Table S3. Annual deviation of routes during the southward and northward migration from 2017 until 2024.
Tablica S3*. Godišnje odstupanje ruta tijekom selibe prema jugu i sjeveru od 2017. do 2024. godine.*

	Southward migration	Northward migration
Year	Mean (max) deviation (km)	Mean (max) deviation (km)
2017	145.99 (250.86)	-
2018	194.01 (453.89)	153.78 (325.41)
2019	142.17 (324.86)	262.26 (562.46)
2020	147.45 (288.95)	135.16 (249.60)
2021	76.53 (241.07)	103.73 (195.28)
2022	117.49 (178.03)	73.53 (155.14)
2023	124.21 (331.65)	314.06 (501.23)
2024	-	115.88 (244.55)