

# Breeding Atlantic Yellow-legged Gulls in the Azores

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# Field Work

- Many visits to Atlantic locations from 1990-2017
  - Canary Islands (all)
  - Morocco
  - Portugal (W/S)
  - Spain (SW/NW)
  - France (SW)
  - Cape Verde (3 windward islands)

# Missing Link

- Up to Zagreb IGM in February 2012, no trips to Azores
  - Made 3-week visit in March 2012
  - 4 islands (+ Terceira airport!)
    - São Miguel (Ponta Delgada)
    - Faial (Horta)
    - Pico (Madalena)
    - Flores (Santa Cruz)
  - Loafing gulls in harbour at Ponta Delgada (mainly young birds)
  - Breeding colonies at Lagoa de Fogo, Mosteiros on São Miguel

# Azores March 2012 – Gulls Recorded 1

- Nearctic Gulls

- Bonaparte's Gull *Larus philadelphia*; minimum 5 (2 adult, 3 2cy)
- Ring-billed Gull *Larus delawarensis*; minimum 6 (1 adult, 2 3cy, 3 2cy)
- Laughing Gull *Larus atricilla*; minimum 35 (2 adult, 3 2cy, 31 2cy) + 3 W (1 3cy, 2 2cy)

- Small Eurasian Gulls

- Black-headed Gull *Chroicocephalus ridibundus*; minimum 11 (mixture adult/2cy)
- Common Gull *Larus canus*; 1 adult

# Azores March 2012 – Gulls Recorded 2

- Large Eurasian Gulls
  - Great Black-backed Gull *Larus marinus*; 2 (1 3cy, 1 2cy)
  - Lesser Black-backed Gull *Larus fuscus graellsii*; minimum 28 (7 adult, 9 3cy, 12 2cy) + 1 SW (1 3cy)
  - Lesser Black-backed Gull *Larus fuscus intermedius*; 2 (2 3cy)
  - Mediterranean Yellow-legged Gull *Larus michahellis*; 2 (1 2cy, 1 3cy)
  - Atlantic Yellow-legged Gull *Larus michahellis atlantis*; many!
- Total 10 types
- Peak counts 7-13 March for gulls other than *atlantis*

# Additional Visit

- In late July 2017 to Ponta Delgada to a conference (IWC)
- Flew LHR – PDL
- Made some observations in Ponta Delgada harbour and out at sea on whale-watching trip
- Mixture of adult, 3cy, 2cy, 1cy Atlantic Yellow-legged Gull
- No other gull species seen
- Total 1 type!

# Logistics

- Travel much improved to Azores
- Air Service
  - Boston – Ponta Delgada (PDL) – Lisbon
  - Direct service London Heathrow – PDL and to other European cities
  - Azores is 1450 km from Lisbon
- Busy in summer for holidays by Portuguese
- Part of Portugal, € currency
- Equable climate, high humidity, can be stormy

# The Study Area





# Map of the Azores



Pair Adult Atlantic Yellow-legged Gull, Mosteiros, São Miguel,  
Azores, 5 March 2012



Adult Atlantic Yellow-legged Gull, Horta, Faial,  
Azores, 15 March 2012



NEVES, V.C., N. MURDOCH & R.W. FURNESS. 2006. Population status and diet of the Yellow-legged Gull in the Azores. *Arquipélago. Life and Marine Sciences* 23A: 59-73

**Table 1**

Number of breeding pairs in 1984 and in 2004 and percentage of change between the two surveys.

Number of colonies shown in brackets

Island	1984*	2004	Percentage increase
Santa Maria	90 (1)	96 (2)	7
São Miguel	650 (6)	820 (7)	26
Terceira	430 (3)	904 (7)	110
Graciosa	260 (1)	320 (1)	23
São Jorge	560 (5)	980 (2)	75
Pico	250 (3)	483 (3)	93
Faial	270 (3)	480 (5)	78
Flores	105 (4)	166 (5)	58
Corvo	90 (1)	-	-
<b>TOTAL</b>	<b>2,705 (27)</b>	<b>4,249 (32)</b>	<b>57</b>

\* Source: DUNN 1989

NEVES, V.C., N. MURDOCH & R.W. FURNESS. 2006. Population status and diet of the Yellow-legged Gull in the Azores. *Arquipélago. Life and Marine Sciences* 23A: 59-73

Table 2  
Details of surveys in 1984 and in 2004.

Colony	Island	Site	Habitat description	Estimated pairs		On or within 1km of tern colonies
				1984	2004	
1	Santa Maria	Lagoinhas	Sea stack	90	95	√
2		Ilhéu da Vila*	Islet	0	1	√
3	São Miguel <sup>®</sup>	Mosteiros*	Islet & sea stacks	-	115	√
4		Ponta do Escalvado	Cliff	-	40	√
5		North of Ponta da Ferraria	Cliff	-	60	√
6		Ladeira da Velha (Miradouro de Santa Iria)	Cliff	-	1	
7		Praia dos Moinhos	Cliff & sea stack	-	2	
8		Lagoa do Fogo*	Inland lake	-	600	
9		Porto da Caloura	Cliff	-	2	

Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel, Azores, 13 March 2012. Total 740 birds seen



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel, Azores, 6 March 2012





Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 13 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 13 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel, Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Lagoa de Fogo, São Miguel,  
Azores, 6 March 2012



Atlantic Yellow-legged Gull colony, Mosteiros, São Miguel,  
Azores, 5 March 2012. Total 755 adults





Atlantic Yellow-legged Gull colony, Mosteiros, São Miguel,  
Azores, 5 March 2012



Atlantic Yellow-legged Gull colony, Mosteiros, São Miguel,  
Azores, 5 March 2012



Adult Atlantic Yellow-legged Gull, Horta, Pico  
Azores, 17 March 2012



## Wing-tip Patterns for Adult Atlantic Yellow-legged Gulls by feathers and location

Area	Sample	P10 %			P9 %	Black Triangle %			P5 %			P4 %	Form
		White tip	Large mirror	Small mirror	Mirror	Solid	Slight indent	Large indent	Broad band	Thin band	Indistinct	Spot	
Azores	44	9	80	11	7	86	14	0	71	20	9	48	<i>Azorean Atlantis</i>
Canaries/ Madeira	235	37	49	14	22	86	12	2	48	30	22	14	<i>Southern Atlantis</i>
Morocco	99	53	42	5	26	87	12	1	38	33	29	13	<i>Southern Atlantis</i>
Iberia W/SW	132	26	70	4	40	62	31	7	63	20	17	14	<i>Lusitanus</i>
Spain NW	32	72	28	0	81	0	29	71	10	52	38	7	<i>Cantabrius</i>
Medi- terranean/ Atlantic intersection	52	50	45	5	32	74	22	4	66	26	8	50	<i>Southern Atlantis/ Michahellis/ Lusitanus intersection</i>
<b>Total</b>	<b>594</b>	<b>38</b>	<b>53</b>	<b>8</b>	<b>30</b>	<b>76</b>	<b>17</b>	<b>7</b>	<b>51</b>	<b>28</b>	<b>21</b>	<b>22</b>	<b>All Atlantic forms</b>

# Atlantic Forms of Yellow-legged Gull

## Raw Groupings on Distribution Map



1. Azores
2. Canary Islands/Madeira
3. Morocco
4. Iberia W/SW
5. Spain NW
6. Mediterranean/Atlantic Intersection Area

# Discussion on Wing-tip Patterns 1

- Azores does stand out
  - Very low proportion with mirror P9 (7%); 3/23 (13%) in another study; compare overall 30%
  - Very low proportion with complete white tip P10 (9%); compare 37% Canary Islands
  - Vast majority have solid black triangle on wing-tip (86%); very similar to Canary Islands/Morocco
  - Most have broad band on P5 (71%); compare overall 51%
  - Highest proportion with spot on outer web P4 (48%)
- Azores birds have most black and least white in wing-tips, compared to other forms

# Discussion on Wing-tip Patterns 2

- *Cantabrius* appears to have most white in wing-tip
  - 72% white tip complete white tip P10, 81% mirror P9
- And least black in wing-tip
  - 0% solid black triangle, 10% broad band P5
- But
  - Smallest sample
  - Done at start of study with more primitive photography
- Discounted for time being
- Thought to be *lusitanius* by others

# Discussion on Wing-tip Patterns 3

- Canary Island birds and Morocco birds are very similar in all respects
  - Not surprising as most Morocco data is from Agadir
- *Lusitanius* shows more white and less black than populations to S/W
  - 40% have Mirror on P9 (14% Canary Islands Group)
  - 62% have solid black triangle (86% Canary Islands Group)
  - 31% have slight indent to black triangle (12% Canary Islands group)



# Discussion on Wing-tip Patterns 4

- Caution is Mediterranean/Atlantic intersection area
  - Some populations here in SW Spain/ Algarve are *michahellis*, breeding on marismas/dunes/mineral extraction sites e.g. Ilha Deserta (Faro)
  - Some populations in Algarve/W Andalusia are *lusitanus*, breeding on sea cliffs/buildings, e.g. Barbate (Andalusia), 50km W of Tarifa
  - Some populations in NW Morocco are southern *atlantis*, breeding on sea cliffs/buildings, e.g. Asilah, 30km SE from Tanger
  - Some populations in Gibraltar/Estepona area show intermediate features between *lusitanus* and *michahellis*

# Atlantic Forms of Yellow-legged Gull

## Groupings on Distribution Map after Discussion

## Trends in Wing tip Patterns



1. Azorean Atlantis  
Azores
2. Southern Atlantis  
Canary Islands, Madeira, Morocco
4. Lusitanius  
Spain SW/NW, Portugal
5. Cantabrian ?
6. Mediterranean/Atlantic Intersection

MW More White in wing-tip

MB Opposite to MW; More black in wing-tip

Atlantic Yellow-legged Gull, Ponta Delgada, São Miguel,  
Azores, 4cy, with Lesser Black-backed Gull 3cy, 13  
March 2012



Mediterranean Yellow-legged Gull 3cy, Ponta Delgada,  
São Miguel, Azores, 24 March 2012



Mediterranean Yellow-legged Gull 3cy with atlantis,  
Ponta Delgada, São Miguel, Azores, 12 March 2012



Mediterranean Yellow-legged Gull 3cy, Ponta Delgada,  
São Miguel, Azores, 24 March 2012



Atlantic Yellow-legged Gull, Ponta Delgada, São Miguel,  
Azores, post-breeding flock, 27 July 2017



Atlantic Yellow-legged Gull, Ponta Delgada, São Miguel,  
Azores, 1cy, 27 July 2017





Atlantic Yellow-legged Gull, Ponta Delgada, São Miguel,  
Azores, 2cy, 7 March 2012



Atlantic Yellow-legged Gull, Ponta Delgada, São Miguel,  
Azores, 2cy, 13 March 2012



# Further Reading

- Gull Research Organisation
  - Atlantic Yellow-legged Gull (atlantis)
  - <http://gull-research.org/atlantis/>
- Philippe Dubois, Atlantic Islands Yellow-legged Gulls: an identification gallery, BIRDING WORLD, Vol 14 No 7 (2009).
  - <http://gull-research.org/atlantis/images/recent/Birding%20World%2014%20%20293-304.pdf>
- News: Azores Gull Added To BOU's British List
  - 18/05/2016
  - <https://www.birdguides.com/news/azores-gull-added-to-bous-british-list/>

# The Future

- NR to visit Azores again in summer (July) to see breeding colonies in full swing
- Await sightings of colour-ringed birds
  - Ringed on Faial, Azores
  - Part of joint programme between University of Azores and Bilbao
    - See talk at this year's IGM by Juan Arizaga, Aranzadi Science Society, Department of Ornithology
  - Looking for them in
    - Ireland, where 14 acceptances to 2016, UK (3 accepted to 2016), France, Spain NW, carried on prevailing W jet stream to N
    - SE of USA, e.g Florida, carried on prevailing NE trade winds to S