

Migratory status and movements of the Portuguese Mallard (*Anas platyrhynchos*)

By David J. C. Rodrigues, António M. D. Fabião,
Maria E. M. A. Figueiredo and Paulo J. Q. Tenreiro

Abstract: RODRIGUES, D. J. C., A. M. D. FABIÃO, M. E. M. A. FIGUEIREDO & P. J. Q. TENREIRO (2000) : Migratory status and movements of the Portuguese Mallard (*Anas platyrhynchos*). Vogelwarte 40: 292–297.

Results from recoveries, recaptures and resightings indicated a resident character of the Portuguese Mallard populations. Some winter migration may reach the studied areas but movements from the summer-ringed birds showed mostly dispersion and abmigration, although some were as long as 3580 km long until Russia. Frequent movements between local Portuguese Mallard populations resulted from dispersion. Mallard populations from central and northern Portugal (from Mondego River basin to north) were more related to Galicia and north Atlantic Mallard populations (Atlantic Flyway) than with the Southern Portuguese Mallard populations (from Tagus River basin to south), forming 2 distinct regional populations.

Key words: Mallard (*Anas platyrhynchos*), migration, movements, Portugal.

Addresses: Centro de Estudos Florestais, Instituto Superior de Agronomia, 1349-017 Lisboa, Portugal; Departamento Florestal, Escola Superior Agrária de Coimbra, 3040-316 Coimbra, Portugal (current address) (D.R.); Coordenação de Coimbra do Instituto da Conservação da Natureza, Mata Nacional do Choupal, 3000 Coimbra (P. T.).

1. Introduction

In Europe, the Mallard (*Anas platyrhynchos*) is essentially a migratory species tending to increase its resident character in southern and western directions (CRAMP & SIMMONS 1977). SAEZ-ROYUELA & MARTINEZ (1985) concluded that the Spanish Mallard populations were mainly sedentary. In Portugal, RUFINO (1989) empirically considered the Portuguese breeding populations to be resident. COSTA & GUEDES (1994 and 1997) results reinforced that supposition but did not prove it.

The recent integrated monitoring of some Portuguese Mallard populations allowed the study of various aspects of their ecology, biology and management. It resulted on the estimation of apparent survival rates for each sex and age class, determination of body conditions and biometrics, adequacy of present shooting period (RODRIGUES & FERREIRA 1993, D. RODRIGUES unpublished data), habitat requirements (RODRIGUES & FABIÃO 1997), diet and lead poisoning (RODRIGUES & FERREIRA 1993, RODRIGUES 1998, D. RODRIGUES unpublished data), as well as movements and migration. This paper intends to study these two last aspects.

2. Methods

Ducks were captured on baited swim-in and walk-in traps and marked with metal rings from the Centro de Estudos e Protecção das Aves (CEMPA) and nasal marked with flexible PVC or rubber tape saddles (RODRIGUES et al. in press). A colour and an alphanumerical code of the nasal saddles allowed individual identification by observation with telescopes with maximum magnifications ranging from 45 to 105. The capture areas were S. Jacinto Dunes Natural Reserve (40° 40'N, 08° 45'W), Braças Lagoon (40° 14'N, 08° 48'W), Madriz Marsh (40° 07'N, 08° 37'W), Arzila Marsh Natural Reserve (40° 10'N, 08° 35'W), Albufeira Lagoon (38° 30'N, 09° 10'W) and Sado River Estuary (38° 28'N, 08° 38'W). Captures occurred from July 1993 to April 1999, but they were only regularly performed through this period at S. Jacinto and Madriz Marsh. Search and analysis of the foreign Mallard recoveries in Portugal until the end of 1999 was also performed (TAIT 1955, 1960, 1961 and 1962, FREIRE 1969, OLIVEIRA 1974, CARVALHO 1975, FERREIRA 1980, CANDEIAS & CASTRO 1982, SILVA & CASTRO 1991 and 1992, CEMPA unpublished data).

Populations were estimated monthly by point counts (POYSA & NUMMI 1992) at Vouga River Lowlands (S. Jacinto) and Mondego River Lowlands (Madriz Marsh, Arzila Marsh and Taipal Marsh (40° 15'N, 08° 41'W)).

For the purpose of this paper we only considered estimates done just before the shooting season (the shooting season for ducks starts on 15th August and ends in late January), representing mainly birds from local populations, and those done during January, when migrants were potentially present in greater numbers (CRAMP & SIMONS 1977).

Acknowledgements: The research work was funded within projects STRD/AGR/0038 (Junta Nacional de Investigação Científica e Tecnológica, Lisbon), PAMAF 4031 (Instituto Nacional de Investigação Agrária, Lisbon) and research line Freshwater Resources and Wetland Management of Centro de Estudos Florestais, Lisbon. DAVID RODRIGUES was funded through a doctoral scholarship (Programs CIENCIA and PRAXIS XXI). We also wish to acknowledge the co-operation of the Instituto da Conservação da Natureza (ICN) through the Coimbra co-ordination and through the Centro de Estudos de Protecção e Migração de Aves (CEMPA), as well as of the Direcção Geral das Florestas, through the Direcção de Serviços de Caça.

3. Results

Total captures amounted to 2792 Mallards, but only in S. Jacinto (2000), Albufeira Lagoon (300), Madriz Marsh (270) and Sado Estuary (160) total captures were higher than 100 birds. The total number of recoveries from birds marked during this work was 162 (recovery rate of 5.8%), with 57% and 90% occurring at less than 20 km and 60 km of marking local, respectively, and only 14 (0.5%) were international recoveries. Total number of resightings were higher than 10 000, with 20 identified birds on Galicia (North-western Spain) and 1 in Charente-Maritime (Atlantic coast of France). Five of the 20 birds observed in Galicia returned at least once to S. Jacinto (25% returning rate) and one of the females returned twice. The international recoveries and the French resighting are detailed in the Table. There were 40 recoveries in Portugal from Mallards ringed abroad, mostly (36) from southern Spain. From the birds ringed in southern Spain only 4 were recovered in central or northern Portugal (11.1% of the Spanish recoveries in Portugal). Fig. 1 illustrates the main movements (> 60 km) within the Iberian Peninsula (the double bar shows the approximate limit between the 2 main Portuguese regional populations). Fig. 2 illustrates the other international movements observed during this study. Movements between Mondego lowlands and Vouga lowlands were frequent, with 109 recoveries/recaptures/resightings between the two areas, but with only 4 individuals making movements at least once in both ways (3.7%). Most of them (85%) dispersed from the marking place within the first month. Movements between southern and central Portugal were reduced with only one resighting of birds of Albufeira Lagoon and Sado Estuary in S. Jacinto, one recovery of Albufeira Lagoon on Mondego Lowlands and a resighting of a bird from S. Jacinto on Sado Estuary.

August counts were higher than the double of January with values ranging from 1600 to 2400 on Vouga lowlands, depending on the year. In Mondego lowlands, only in August 1997 a representative count was accomplished, which amounted to 3000 ducks and represented the double of the 1998 January counts.

4. Discussion

Nasal marks proved to be efficient in the study of Mallard movements, increasing the amount of information obtained from marked birds and also allowing the estimation of survival rates (D. RODRIGUES unpublished data). The study became less dependent from the hunters reporting rate, presumably low in Portugal since the recovery rate obtained was 5.8%.

The marked ducks showed a resident character with 90% of recoveries occurring within 60 km of marking place. This result is comparable with the results obtained by BOYD & OGILVIE (1961) and reinforces the importance of local actions on the management of Mallard populations from western Europe.

The observed regional movements resulted from dispersion since the returning rate between Mondego lowlands and Vouga lowlands (50 km of distance) was low. However, a small proportion of birds from S. Jacinto seem to produce intentional movements to and from Galicia, being in Spain

Table: Data from recoveries in foreign countries and from a French resighting. – Daten zu Wiederfinden außerhalb Portugals und einem Beobachtungsnachweis aus Frankreich.

Sex and age ring number	Ringing place and coordinates	Date of ringing	Date of last resighting	Recovery place - country and coordinates	Date and distance of recovery
♂ 2 nd year M012876	S. Jacinto 40° 40' N 08° 45' W	18/01/95	19/02/95	Rep. Ireland ¹ 52° 56' N 06° 14' W	30/07/95 1378 km
♂ 2 nd year M012915	Paul da Madriz 40° 07' N 08° 37' W	04/01/95	–	France 47° 02' N 01° 38' W	22/09/96 985 km
♂ adult M014457	S. Jacinto 40° 40' N 08° 45' W	03/10/95	–	France 47° 04' N 00° 29' W	15/09/96 970 km
♂ 1 st year M014478	S. Jacinto 40° 40' N 08° 45' W	04/10/95	28/11/95	France 48° 19' N 07° 42' E	04/01/97 1549 km
♀ 1 st year M015530	S. Jacinto 40° 40' N 08° 45'	12/12/95	–	France 47° 29' N 02° 28' W	25/09/96 907 km
♂ 1 st year M015547	S. Jacinto 40° 40' N 08° 45' W	06/08/96	–	France 47° 12' N 01° 45' W	28/08/97 914 km
♂ 1 st year M015994	S. Jacinto 40° 40' N 08° 45' W	13/08/96	17/09/96	France 50° 22' N 03° 17' E	12/01/98 1426 km
♂ 1 st year M016297	S. Jacinto 40° 40' N 08° 45' W	13/08/96	–	Spain – Galicia 42° 28' N 08° 51' W	10/08/97 200 km
♂ 1 st year M017245	S. Jacinto 40° 40' N 08° 45' W	20/12/96	20/02/97	France 46° 55' N 02° 03' W	30/01/98 900 km
♀ 2 nd year M017303	Herd. Zambujal 38° 28' N 08° 21' W	01/08/97	–	Spain – South 37° 23' N 05° 59' W	13/05/98 239 km
♂ 1 st year M018141	S. Jacinto 40° 40' N 08° 45' W	14/08/97	17/09/97	Russia ² 59° 37' N 33° 33' E	08/05/98 3580 km
♂ 1 st year M018389	S. Jacinto 40° 40' N 08° 45' W	17/12/97	21/03/97	England 50° 36' N 02° 27' W	01/11/98 1217 km
♀ 1 st year M020857	S. Jacinto 40° 40' N 08° 45' W	16/11/98	15/03/99	France 47° 12' N 01° 33' W	18/09/99 924 km
♂ 1 st year M020914	S. Jacinto 40° 40' N 08° 45' W	14/12/98	00/03/99	France 47° 47' N 00° 46' W	30/01/98 1010 km
♂ 1 st year M018360	S. Jacinto 40° 40' N 08° 45' W	25/11/97	20/03/98	France ³ 45° 54' N 01° 02' W	28/08/99 852 km

¹ – represented by 5 in Fig. 2; ² – represented by 6 in Fig. 2; ³ – resighting.

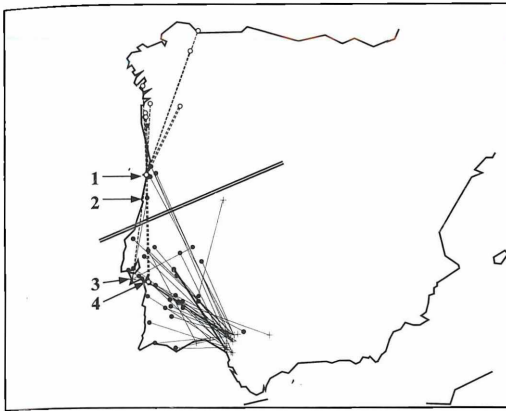


Fig. 1: Map showing the main movements within Portugal (> 60 km) and movements between Portugal and Spain. Black circles and full lines represent recoveries; white circles and dotted lines represent resights (double dot – movements in both ways). The double bar represents the limit between the 2 main Portuguese regional populations. Number 1 localises S. Jacinto Dunes Natural Reserve, number 2 the Mondego River Lowlands, number 3 the Albufeira Lagoon and number 4 the Sado River Estuary.

Abb. 1: Die Karte zeigt Wanderbewegungen (> 60 km) innerhalb Portugals und zwischen Portugal und Spanien. Schwarz ausgefüllte Kreise und durchgezogene Linien = Wiederfunde, weiße Kreise und gestrichelte Linien = Sichtbeobachtungen (doppelte Strichelung = Wanderbewegung in beide Richtungen). Die Doppellinie kennzeichnet die Grenze zwischen den beiden hauptsächlich regionalen Populationen Portugals. Die Zahlen weisen auf verschiedene Fang- und Zählgebiete hin (s. Text).

Tagus River basin to south). These last ones should be more related to the southern Spanish and Mediterranean populations. In the future, attempts to model Portuguese Mallard populations will have to take this in consideration, inducing the use of at least one model for each regional population.

SCOTT & ROSE (1996) considered the Portuguese Mallard populations as a whole and included them in the western Mediterranean population. Our data does not confirm that uniformity.

Zusammenfassung

Migrations-Status und Wanderbewegungen portugiesischer Stockenten (*Anas platyrhynchos*).

Wiederfunde, Wiederfänge und Sichtbeobachtungen individuell markierter Individuen belegen, dass portugiesische Stockenten (*Anas platyrhynchos*) weitgehend Standvogel-Charakter besitzen. Im Winter erhalten die Untersuchungsgebiete einen gewissen Zuzug, doch erfolgt die Migration der im Sommer markierten Vögel vor al-

during the breeding season and in Portugal during the rest of the year, but this must be confirmed with further data.

There is a winter income from migratory birds from northern countries but in a reduced number as can be observed from the significantly lower winter counts (resulting mainly from local populations that suffered shooting mortality) and the low international recovery rate. We must distinguish two situations from the international movements described in the Table and illustrated in Fig. 1 and 2. Some are the result of the marking of winter migrant birds from northern countries, like the Mallard shot in Ireland (represented by 5 in Fig. 2). The bird was captured at S. Jacinto during the winter and recovered during the summer. Other movements are purely the result of dispersion or abmigration like the example of the bird that was recovered in Russia (represented by 6 in Fig. 2) at 3580 km from S. Jacinto. The young male was captured in August and dispersed during September. Migrant mallards stayed in Portugal during the winter until late February / March.

According to our data, Mallard populations from central and northern Portugal (from Mondego River basin to north) are more related to Galicia and north Atlantic Mallard populations (Atlantic Flyway) than with the southern Portuguese Mallard populations (from

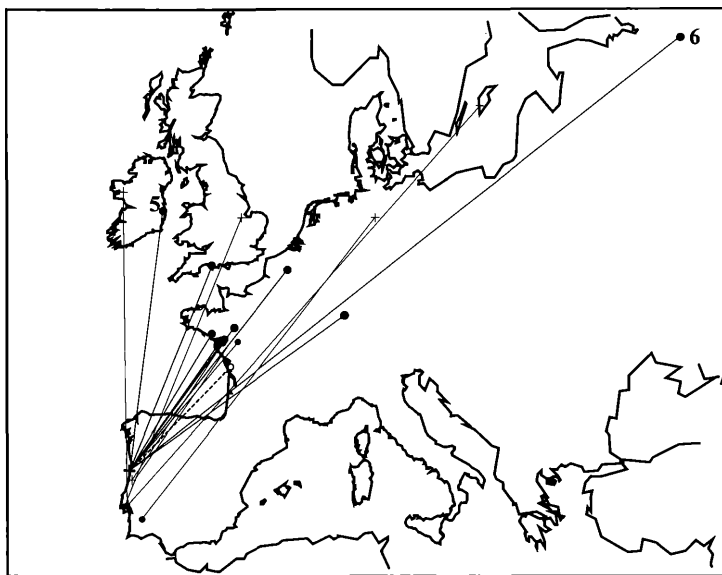


Fig. 2: Map showing movement of the non Iberian recoveries; white circles and dotted line represents resighting. Number 5 represents the recovery in Ireland and number 6 represents the recovery in Russia.

Abb. 2: Die Karte zeigt Wanderbewegungen nach Wiederfinden außerhalb der Iberischen Halbinsel. Schwarz ausgefüllte Kreise und durchgezogene Linien = Wiederfunde, weißer Kreis und gestrichelte Linie = Sichtbeobachtung. 5 = Wiederfundort in Irland, 6 = Wiederfundort in Rußland.

lem im Rahmen von Zerstreungs- bzw. Abwanderung, obwohl diese unter Umständen auch sehr weit – bis hin nach Rußland (ein Beleg 3580 km entfernt) – führen können. Der häufige Austausch zwischen verschiedenen lokalen Brutregionen erfolgt im Rahmen von Dispersionswanderungen. In Portugal gibt es offenbar zwei verschiedene Stockenten-Populationen, wobei die Stockenten des zentralen und nördlichen Portugal (vom Gebiet des Mondego-Flusses nach Norden) stärker mit den Stockenten Galiciens und der nordatlantischen Region (Atlantic Flyway) zusammenhängen als mit den Stockenten des südlichen Portugal (vom Fluß Tagus nach Süden).

References

- Boyd, H., & M. A. Ogilvie (1961): The distribution of Mallard ringed in Southern England. *Wildfowl* 12: 125–136. * Candeias, D. R., & M. F. C. Castro (1982): Aves com anilhas estrangeiras capturadas em Portugal até final de 1981. CEMPA, SEA. Lisbon, Portugal. * Carvalho, M. B. (1975): Anilhas recuperadas em Portugal Continental e Insular entre 1968/72 de aves anilhadas na Europa. CEMPA, SEA. Lisbon, Portugal. * Costa, L. T., & R. S. Guedes (1994): Contagens de Anátídeos Invernantes em Portugal – 1992/93. Estudos de Biologia e Conservação da Natureza, 14. ICN. Lisbon, Portugal. * Idem (1997): Contagens de Anátídeos Invernantes em Portugal Continental. Invernos de 1993/94 a 1995/96. Estudos de Biologia e Conservação da Natureza, 20. ICN. Lisbon, Portugal. * Cramp, S., & K. E. L. Simmons (1977): The birds of Western Palearctic. Vol. 1. Oxford University Press. Oxford, U.K. * Ferreira, A. C. (1980): Recapturas de aves anilhadas no estrangeiro (1972–74). *Cyanopica* 2 (2): 57–94. * Freire, O. (1969): Aves anilhadas no estrangeiro e capturadas em Portugal (1966–1967). *Cyanopica* 1 (2): 95–132. * Oliveira, N. G. (1974): Recapturas em Portugal de aves anilhadas no estrangeiro (1968–1971). *Cyanopica* 1 (4): 51–73. * Poysa, H., & P. Nummi (1992): Comparing two methods of data collection in waterfowl habitat use counts. *Bird Study* 39: 124–131. * Rodrigues, D. J. C. (1998): Summer diet and Lead poisoning risk of

Mallard *Anas platyrhynchos* on Canal farm rice fields. *Airo* 9: 34–40 (in Portuguese with English summary). * Rodrigues, D., & A. Fabião (1997): Loss and change of habitat and possible effects on mallard populations of Mondego and Vouga river basins. Pages 127–130 in *Effects of Habitat Loss and Change on Waterbirds*. J.B. Goss-Custard, Rufino R. & Luís, A.S. (Ed.). ITE Symposium no. 30/ Wetlands International Publication 42. The Stationery Office. London, U.K. * Rodrigues, D. J. C., A. M. D. Fabião & M. E. M. A. Figueiredo (in press): The use of nasal markers for monitoring Mallard populations. *Proceedings of the II International Wildlife Management Congress*. The Wildlife Society. Godollo, Hungary. * Rodrigues, D. J. C., & M. T. Ferreira, (1993): Summer food and body condition of Mallards (*Anas platyrhynchos* L.) in river Mondego Lowlands. Doñana, *Acta Vertebrata* 20 (1): 87–94. * Rufino, R. (1989): *Atlas das Aves que nidificam em Portugal Continental*. SNPRCN. Lisbon, Portugal. * Saez-Royuela, R., & T. S. Martinez (1985): *Estudio sobre la Biología Migratoria del Orden Anseriformes (Aves) en España*. SEO. Madrid, Spain. * Scott, D. A., & P. M. Rose (1996): *Atlas of Anatidae Populations in Africa and Western Eurasia*. Wetlands International Publication N°41. Wetlands International. Wageningen, The Netherlands. * Silva, M. A., & M. F. C. Castro (1991): Recaptura de aves com anilha estrangeira em Portugal e com anilha CEMPA no estrangeiro (1977–1988). SNPRCN. Lisbon, Portugal. * Idem (1992): Recuperação de anilhas entre 1989 e 1991. *Airo* 3 (3): 90–120. * Tait, G. M. (1955): Aves anilladas capturadas en Portugal. *Ardeola* 2: 79–86. * Idem (1960): Aves anilladas recuperadas en Portugal (Abril 1957 – Diciembre 1958). *Ardeola* 6: 259–278. * Idem (1961): Aves anilladas recuperadas en Portugal (Enero – Diciembre 1959). *Ardeola* 7: 175–195. * Idem (1962): Aves anilladas recuperadas en Portugal (Años 1960 y 1961). *Ardeola* 8: 189–222.

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Zeitschrift/Journal: [Vogelwarte - Zeitschrift für Vogelkunde](#)

Jahr/Year: 1999/2000

Band/Volume: [40_1999](#)

Autor(en)/Author(s): Rodrigues David J. C., Fabiao Antonio M. D.,
Figueiredo Maria E. M. A., Tenreiro Paulo J. Q.

Artikel/Article: [Migratory status and movements of the Portuguese Mallard
\(*Anas platyrhynchos*\) 292-297](#)