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Compilation and analysis of Member State update on hunting and habitat management – Western Flyway¹

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BACKGROUND

The European Commission services requested information in December 2023 about Member State activities carried out in 2023 in relation to the turtle dove. Questions aimed at obtaining information on the following aspects: hunting (14 questions), habitat management (3 questions), research programmes (7 questions). See Annex 2 for full details on the questionnaire sent to the Member States.

We present here a summary and an assessment of the responses received from Member States situated in the Western Flyway. Annex 1 contains a summary of the responses provided by the Member States to the Commission services.

RESULTS

The Commission services received information for six Member States: PT, BE (Flanders and Wallonia regions), IE, ES, FR, IT (Val D'Aosta, Liguria and Piemonte regions), and DE (Brandenburg, Hesse and Saxony-Anhalt). IE provided details indicating minimal occurrences of Turtle Dove within the country and clarified the absence of turtle dove hunting activities. Information from IE will not be included after this section. A summary of the responses is compiled in Annex 1 in three tables organized in the following sections: Hunting in 2023, Compliance and control mechanisms, Habitat Management and Research Programmes. Additionally, we provide below an overview of the responses.

HUNTING IN 2023

The hunting moratorium for the turtle dove (TD) remained in place during the 2022/2023 hunting season, in compliance with the technical recommendation made in the TFRB meeting held in March 2023 and in the NADEG meeting held in April 2023. As a result, a zero quota was established across PT, ES, FR, and north-west IT (Liguria, Val D'Aosta and Piemonte), the four EU countries in this flyway where hunting of turtle dove may be authorised.

An exception was the region of Extremadura (ES), where hunting was allowed on 08/09/2023 in a small number of hunting estates (17), as part of a separate Adaptive Harvest Management Strategy, started in the previous year; the harvest quota was set at 15 to 45 birds per hunting estate (depending on local abundance) and a total of 238 turtle doves were hunted. Similarly to the previous season, hunting estates entering this programme had previously implemented habitat management measures. A mandatory system for submitting data via an electronic seal

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using the digital sealing application was in place. That application incorporated a geolocation feature for on-site verification of the seal.

COMPLIANCE AND CONTROL MECHANISMS

INSPECTIONS

Information about compliance and control mechanisms was, again, rather scant for the four countries where turtle dove is a huntable species. FR did not specify any data on inspections and compliance. In PT, inspections were carried out but not specifically directed to turtle dove; the number of inspections carried out or their outcome was not specified. In IT, information on inspections was only provided for the region of Val D'Aosta, which specified the number of inspections for the whole hunting season, and also the frequency per month (which can give an estimation of the frequency during the TD hunting season). In Spain only four of the 17 regions specified the number of inspections or inspection days during the turtle-dove hunting period. In Extremadura, it was mentioned that the 17 "experimental" hunting estates were all monitored, but no quantification was made of inspections outside those (although they must have been carried out because infringements were detected, see below).

Quantitative data about the number of inspections (and the outcome of those inspections) is essential to assess compliance and potential factors affecting it and should be mandatory for reporting in future questionnaires.

INFRINGEMENTS

Among those countries or regions reporting to have carried out inspections, a few cases of infringements were found. In PT, one case of illegal hunting was declared (as the number of inspections is not specified, it is not possible to ascertain the numerical importance of this). In Extremadura (ES), two cases were reported (again, it is not possible to quantify the frequency, as numerical information of inspections is not provided). In Murcia (ES), 4 cases of infringement were detected, three of them during the TD hunting period (representing 5% of the inspections carried out during that time), and 1 of them outside the TD hunting season (4% of inspections). Additionally, 2 carcasses of shot TD were found in Murcia, where also 7 hunting estates declared to have hunted a total of 91 TD, despite the 0-quota legislation. Sanctioning procedures were initiated in all of those cases. The most common consequence of infringement was a fine, ranging from 2.500€ in Extremadura (ES) (which was implemented in the case of the two infringements found) to 10,000-100,000€ and the withdrawal of the hunting licence and disqualification in Castilla y León (ES).

ADDITIONAL COMPLIANCE PROMOTION MECHANISMS

Various regions in ES implemented a range of strategies to promote compliance with hunting regulations. Two regions used social media campaigns, two regions published information on official websites, three used official publications with the order of closure, one used press releases, and two made a distribution of informative paper materials to relevant stakeholders. No such additional mechanisms had been developed in PT, FR or IT.

HABITAT MANAGEMENT

Information about habitat management to be applied for the recovery of TD has improved in relation to previous years, with different regions/countries of this flyway reporting having taken habitat management measures and information being, overall, more detailed.

BE and IT declared having in place habitat management initiatives, in contrast with the previous year. PT reported that habitat management was carried out but not directed specifically to TD, and that there were no official reports of such initiatives. IE reported no habitat management

measures, as there are few records of the species in the country. DE reported habitat management measures in only one of the regions that submitted responses to the questionnaire (Hesse). ES and FR implemented a range of habitat management.

MEASURES IMPLEMENTED VARIED ACROSS REGIONS.

ES reported a range of habitat management measures depending on the region. From subsidies for biodiversity enhancement as part of farming practices to specific habitat improvement efforts in areas where the turtle dove was not a game species. Measures included the creation of biodiversity islands, live vegetation covers, and bestowing land to biodiversity. Region-specific initiatives also focused on providing water sources, food, and habitat restoration, although no measures were reported in six regions (representing 37,1% of the total Spanish territory, including Castilla y León, Gipuzkoa, Alava, La Rioja, Andalucía, and Cantabria). The regions that implemented measures such as the installation of feeders, water points and seeders represented 38,7% of the Spanish territory.

Agricultural practices played a significant role in habitat management of TD. Practices such as leaving margins, incomplete mowing, hedgerow management, establishment of biodiversity islands within pasturelands, maintenance of live vegetation covers, traditional elements important for biodiversity, and biological agriculture were reported from various regions/countries. However, there were regions where habitat management measures were lacking or less detailed. The region of Liguria in IT and two regions in DE (Brandenburg and Saxony-Anhalt) were examples of this. The Val D'Aosta region in Italy provided less detailed information regarding habitat management measures.

Various monitoring methods were declared to be employed to evaluate the efficiency of habitat management measures. They included inspections conducted by authorities in PT and in specific regions of ES such as Galicia and Extremadura. BE Flanders region utilized camera traps to assess the use of emergency feeding sites, along with test plots. In ES, GPS tagging was mentioned to be employed in Castilla la Mancha to assess the use of feeding sites. FR and DE Brandenburg region implemented capture-mark-recapture stations for monitoring purposes, although not specifically in relation to habitat management measures. However, there was a lack of mentioned monitoring methods in certain regions. Specifically, Hesse and Saxony-Anhalt in DE, as well as all three regions of IT, were not noted for employing any specific monitoring techniques.

RESEARCH PROGRAMMES

During 2023, national surveys or census were carried out in PT, BE (Flanders), ES, FR. In those countries, information related to surveys (relative abundance) rather than full estimates of abundance (national censuses), which have been only undertaken in FR. In all those countries except for BE, the surveys will be carried out again in 2024, mainly with the same methodology as last year. In the case of BE, no survey/census was planned for 2024. No national survey or census had been carried out in 2023 nor was planned for 2024 in all three regions of IT. Brandenburg (DE) had a system for recording monitoring data but no survey planned for 2024. On the other hand, Saxony-Anhalt and Hesse (DE) had not carried out a census/survey in 2023 but have plans to do so in 2024.

The use of GPS tracking devices to gather movement data has expanded across several countries, with 10 individuals being tracked in PT, 7 in DE, an unspecified number in FR (with data currently being analysed), and another 10 in ES. In DE, the data collected from GPS tracking has been also used to gather productivity information. Although not mentioned by the MS, it is worth mentioning that the HABITRACK Horizon Europe project (2024-2027), coordinated by the

MNCN (FR) will also deploy multiple-sensor tracking tags on migratory species in various countries with the aim to tackle fine scale habitat needs of mature individuals for a variety of huntable migratory species in an un-secure conservation status, including the turtle dove, in order to provide appropriate recommendations for ongoing habitat management policies and adaptive management initiatives. These analyses should fill knowledge gaps in relation to the amount and quality of habitat.

Overall, there is no improvement in the number of research programmes aiming at collecting survival data; only FR and ES have ongoing programmes, the latter also using Pit-tags to enhance the probability of recapture. However, similar programmes have not been established in other regions (e.g. BE Flanders mentions the impossibility of implementing those due to the low number of individuals present and the challenges associated with capturing them).

Monitoring of breeding productivity was done in PT, ES, and FR, and in DE through monitoring GPS tracked birds, but has not been planned in BE. Such monitoring included nest checks in certain regions of ES and most regions of FR to assess productivity levels.

IT's three regions did not provide specific responses to this section of the questionnaire.

CONCLUSIONS

Our assessment reveals that there has been **some progress towards the development of credible regulatory and control/enforcement systems in place**, one of the conditions set by the AHM mechanism to allow resuming hunting. Despite such progress, the systems currently in place appear still **insufficient to guarantee the observance of necessarily reduced quotas**, at the time when hunting can be resumed.

The **hunting moratorium** was implemented again in 2023, as recommended, and zero quotas were established across Portugal, Spain, France, and north-west Italy, reflecting a concerted effort to protect the species. The only exception was in Extremadura, ES, where some hunting was unilaterally authorised at regional level as part of an independent AHM mechanism, with quotas allocated to individual estates based on habitat management and local abundance. Note that this exception was not agreed by the Task Force, and it goes against the flyway approach.

A few instances of infringements and illegal hunting of the species were detected in some regions of ES and in PT, and carried significant consequences, mainly fines, indicating a move towards better enforcement.

Information about inspection systems and efforts varied significantly across regions. Detailed information about inspection systems was lacking in many regions, and quantitative data (number of inspections and their outcome) were often not provided, or the information was given for the whole hunting season (not for the timing when turtle doves are likely to be hunted). When quantitative data were provided, inspection efforts appeared incomplete in many areas. Therefore, it is difficult to assess whether the low percentage of infringements found are due to compliance or insufficient monitoring. E.g., one case in Murcia, ES, where 91 turtle doves were declared to have been hunted despite the temporary moratorium, but it was not possible to ascertain whether that was a mistake in reporting or a case of illegal hunting, and the reason behind it, e.g. lack of information or other causes. Additional efforts to promote compliance through informational campaigns were noted mainly in ES. Similar initiatives in other countries would be welcome.

Many regions claimed to have implemented **habitat management measures** to improve habitats for the species. Despite this, disparities in the implementation and lack of detail on

those measures suggest room for improvement, especially in regions like Liguria in Italy and certain areas in Germany, where habitat management strategies were either lacking or less detailed. Information provided by FR and ES showed examples of habitat management for farmland species in general, with several eco-schemes and agro-environmental measures being used. However, as many of those are designed as a multi-species tool, no evidence was provided that they are indeed having a positive effect on the turtle dove population. In that sense, details about monitoring carried out to assess the effect of habitat measures on the species could be highly improved and be more targeted for the species, as only positive “effects on biodiversity” are mentioned in many instances. **Monitoring and research** efforts, including the use of GPS tracking and abundance surveys, underline the commitment to understanding and conserving the turtle dove. However, as indicated in previous reports, efforts to improve data on survival and productivity, as well as complete national censuses (rather than sampling surveys) are more important, and still needed.

Annex 1. Summary of responses by MS.

1. Hunting and hunting regulations

Member State	Hunting season (from/till) in 2023	Legal hunting days	Daily quota per hunter	Other relevant regulations
Portugal	Not applicable (no hunting in Portugal)	Not applicable	Not applicable	Not applicable
Belgium	Not a huntable species, no hunting.	Not applicable	Not applicable	Not applicable
Ireland	None. There is no hunting for Turtle Dove here, and in fact, very few records of the species here.	Not applicable	Not applicable	Not applicable
Spain	No hunting, with the exception of 17 hunting estates in the region of Extremadura.	0	0 (15-45 specimens per estate in Extremadura, depending on data from census)	Extremadura adopted the principles of AHMM in reserves in the Autonomous Community.
France	No	Not applicable	Not applicable	Not applicable
Germany	None (not a huntable species)	Not applicable	Not applicable	Not applicable
Italy	The species was not huntable in the 2023-2024 hunting season.	0	0	None

2. Outcomes of hunting regulations

Member State	Total turtle doves hunted in the MS/region in 2023 (please include uncertainty about the estimate when relevant)	Method for estimating national bag	Was there a mandatory bag data reporting system or a voluntary system?
Portugal	Not applicable	Not applicable	Not applicable
Belgium	Not applicable	Not applicable	Not applicable
Ireland	Not applicable	Not applicable	Not applicable
Spain	0 (In Extremadura: 238 turtle doves, 145 juveniles, 93 adults – 0,09% of the total population; In Murcia: 91 turtle doves declared to be hunted, sanctions initiated).	Annual reports from each hunting estate for all game species.	Bag data reporting is compulsory for all game species. Extremadura uses an electronic seal app.
France	Not applicable	Not applicable	Not applicable
Germany	Not applicable	Not applicable	Not applicable
Italy	Not applicable	Not applicable	Mandatory bag data.

3. Compliance and control mechanisms

Member State	Number of inspections carried out in turtle dove hunting areas during the turtle dove hunting season	Number of inspections carried out in turtle dove hunting areas outside the turtle dove hunting season	Spatial distribution of those inspections within the country/regions	Outcome of those inspections (number of infringements found, type of infringements)	Consequences for offenders	If daily quotas are in place, estimation of the proportion of hunters exceeding the daily quota	Any other applied compliance promotion mechanism (e.g. public information campaigns)
Portugal	Inspections carried out by police authorities (SEPNA/GNR) and ICNF, but not directed to turtle dove.	No outcomes for 2023	No outcomes for 2024	One case	Fines	Not applicable	No
Belgium	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Ireland	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Spain	Castilla y Leon: 1,696 inspections. Ibiza: 65 days of inspection. Murcia: 57 inspections. Mallorca: 79 days of inspection. Castilla La Mancha: 35 inspections.	Castilla y Leon: 10,855 inspections. Ibiza: 190 days of inspection. Murcia: 25 inspections. Mallorca: 244 days of inspection. Castilla La Mancha: 0.	Spatial distribution was specified in the regions of Castilla y Leon, Ibiza, Murcia, Mallorca, Castilla La Mancha	Infringements found: 2 in Extremadura, 3 during hunting season and 1 out of season + 2 carcasses in Murcia, + 7 estates including TD in their annual reports	Fines (quantity depending on region) and withdrawal of hunting license in some regions	Not applicable	Catalunya: resolution of closures, website of the regional ministry. Castilla y Leon: social media campaign through twitter. Extremadura: information material for hunting societies and game reserve managers. Galicia: publication of official gazette. Madrid: publication of annual order. Murcia: through the press. Mallorca: social media and publication on turtle dove through paper. Castilla La Mancha: leaflets
France	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable	Not applicable
Germany	0, not relevant	0, not relevant	Not relevant	Not relevant	Not applicable	Not relevant	No
Italy	Val D'Aosta: Average 235 controls/month between Sept 10 – Dec 14 2023	Val D'Aosta: None	Not applicable	No illegal killing of Turtle Dove detected in Val D'Aosta	Not applicable	Not applicable	

4. Habitat management

Member State	Description of initiatives implemented, (restoration measures, maintenance measures, Agrienvironment measures, contribution of hunters to habitat management, measures targeting turtle dove) including spatial scope,	Funding of those initiatives (including in the context of Common Agricultural Policy)	Monitoring carried out to assess effects – please describe monitoring method as well as results
Portugal	Habitat management is carried out (not directed to turtle dove) but there are no official reports	LIFE Program and POSEUR (the impact on turtle dove population is unknown)	Inspection by authorities (ICNF e SEPNA)
Belgium	<p>Emergency feeding has been carried out in 2023 in a core breeding area in Flanders with the aim to scale up to a larger area in the breeding season of 2024. Agri-environmental schemes: targeted around the nesting sites: in 2023 on 10 fields a AES with specific Turtle Dove foraging seed mixture was contracted with farmers (in total 7,45 ha).</p> <p>Innovated pilot project targeting turtle doves in Wallonia. Stakeholders: NATAGORA – NATAGRIWAL – SPW. Provision of technical support for the choice of one or more action areas for the Turtle Dove, the definition of the modalities for the establishment and agricultural management of the developments, support for the agri-environmental advisers concerned, regular monitoring to define the intervention periods, contacts with farmers and volunteers ready to get involved in the project. - 5 agri-environmental test plots dedicated to the turtle dove were established in 2022 and 2023.</p>	<p>Emergency feeding: budget from the Agency of Nature and Forest, as a measure of the species protection programme for the turtle dove. Regional funding in Wallonia: “Actions and assessments relating to birds in agricultural areas”. - Agri-environmental schemes</p>	<p>Emergency feeding: wildcameras were placed at feeding sites to assess if turtle doves came to feed, and what other species also benefited from the food. Test plots with specific seed mixtures that were sown before 2023 were evaluated in 2023 on their foraging suitability, in order to improve the targeted AES. Generally the vegetation was evaluated too dense. Monitoring of the 5 agri-environmental test plots. A note summarizing the observations related to the evolution of the test plots located in the south of Wallonia, including considerations relating to the improvement of their specifications. A note on the monitoring methodology, and its application in the vicinity of the plots test.</p>
Ireland	None. - There is no hunting for Turtle Dove here, and in fact, very few records of the species here		
Spain	Subsidies were given from the Ministry for the Ecological Transition and the Demographic Challenge (MITECO) towards livestock farmers for the establishment of biodiversity islands within pasturelands, farmers of permanent crops to establish and maintain live vegetation covers, farmers of permanent and annual crops to dedicate 7% of their lands to different elements and/or activities important for biodiversity (fallow lands, surface of cereals and oilseeds not harvested, ponds, lagoons, walls of stones, strips of vegetation, hedges, etc). Also, MITECO takes the measure of establishing good	<p>MITECO uses the eco-scheme included in the Spanish Strategic Plan for the CAP 2023-2027 for the subsidies. The Regional Government provided 18,000 for the development of the PIRTE. EAFRD was used in Galicia, Castilla La Mancha,</p>	<p>Monitoring of the effect of the measures on biodiversity is currently under development by MITECO (conclusions will be revealed after 2025). The Ministry of Agriculture, Fisheries and Food develops periodical surveys to the regions in order to evaluate implemented measures. In Extremadura, the measures are monitored and verified through the Natural Environment Agents, as well as the agreement signed with Artemisan</p>

	<p>agriculture and environmental conditions (for example by avoiding the loss of permanent pasturelands or to establish and protect vegetation strips). Within the CAP program 2023-2027, habitat improvement measures are programmed.</p> <p>In regions where turtle dove is not a game species, the Department of Environment and Tourism is in charge of the habitat measures (eg Aragon).</p> <p>In Extremadura, hunters have implemented measures for turtle dove in 202 reserves (sowings, recovery of forests and bushes, establishment of water points, grain supply)</p> <p>Most regions installed drinkers, feeders and seedings (Catalunya, Ibiza, Madrid, Murcia, Comunidad Valenciana, Mallorca, Castilla La Mancha).</p> <p>Apart from measures such as improvement of fences, hedges, mowing meadows, sowing; Galicia has taken measures such as the restoration of wetlands, heathland, modification of structures to improve connectivity.</p> <p>No measures have been put in place in Castilla y Leon, Alava, La Rioja, Andalucia, Cantabria, Gipuzkoa.</p>	<p>Galicia also used a contribution from the Ministry of Agriculture, Fisheries and Food, as well as a contribution from the Xunta de Galicia.</p> <p>Private funding (hunting grounds and hunting societies) is used in Ibiza, Extremadura, Comunidad Valenciana, and Castilla La Mancha.</p> <p>Funding from the Consell de Ibiza was used in Ibiza, and Consell de Mallorca in Mallorca.</p> <p>Natura 2000 funds were used in Madrid.</p>	<p>Foundation in close collaboration with the Extremadura Hunting Federation.</p> <p>In Galicia and Navarra, monitoring is done through verification inspection or field reviews of the execution of the measures.</p> <p>No action-specific monitoring is carried out in Ibiza, Mallorca.</p> <p>In Castilla La Mancha, 10 individuals have been tagged with GPS to evaluate the effect of feeders and CAP eco-schemes.</p>
France	<p>As part of the new agro-environmental measures of the CAP, measures in favor of hedgerow management are contracted by 1,940 farms in France (3,900 hectares) for 16 MM euros in 2023.</p> <p>Within the framework of these measures, the creation of plant covers for 12 MM euros in 2023.</p>	See above	<p>A framework of capture-mark-recapture stations are ongoing in several regions of France which should allow to investigate eventual changes in adult annual survival rate following actions targeting legal hunt and habitat management.</p>
Germany	<p>No habitat management measures existing in Brandenburg and Saxony-Anhalt. In Hesse, in 2023 the first 5 ha of feeding habitat (seed rich habitat in agriculture) have been provided near areas that were recently occupied by the turtle dove. No information for other regions.</p>	<p>For Hesse, this measure was funded through the HALM- program from the respective ministry (HMLU)</p>	<p>Brandenburg State breeding birds monitoring as a general scheme</p>
Italy	<p>In Val D'Aosta: maintenance + agri-environmental measures under specific sub-measures of RDP 2014-2022 and PSP 2023-2027.</p> <p>In Piemonte: a) Maintenance of groves, rows, shrubs and hedges in agricultural areas, maintenance of strips of herbaceous fallow close to crops, interventions in favor of crop heterogeneity (set aside, fallow, alfalfa); b) biological agriculture.</p> <p>No information from Liguria, meaning no habitat management measures were implemented.</p>	<p>In Val D'Aosta: organic farming + maintenance and expansion of grassland and/or extensive grazing areas under specific sub-measures of RDP 2014-2022 and PSP 2023-2027.</p> <p>For Piemonte: a) €115.137,05; b) €9.075.038,95 (source of this funding is not specified)</p>	<p>No information given</p>

5. Research programs (1)

Member State	National survey or census carried out in 2023	National survey census planned for 2024	Ringing Capture Mark Recapture programs to estimate survival (where, since when, number of birds marked, etc.)
Portugal	Only local census on study areas: 9 hunting zones distributed along the country, during the final of the breeding season. In this first year, the work was developed to discuss methodologies, engagement of stakeholders and to prepare the next monitoring steps. The following years, it is expected that the project continues to implement the methodology already discussed and tested.	The same areas with the same methodologies applied since the beginning of the season.	Equipment (GPS markers) was acquired to ring 10 specimens. This study will follow the standard method of telemetry used in this species (adapted from the ones already implemented in France and Spain)
Belgium	In 2023 the last field work for the Flemish breeding bird atlas was done. Although not specifically aimed at the turtle dove, this project will give a good view on the numbers and distribution of the turtle dove in Flanders. The field work of 2021-22-23 will be processed in 2024. The resulting atlas will be published at the end of 2025. No national survey planned for the region of Wallonia.	Not planned for Flanders and neither for Wallonia.	Not planned for Flanders or Wallonia. In Flanders, it is highlighted that the number of turtle doves is low and the species is hard to catch (even on feeding sites).
Ireland	None. - There is no hunting for Turtle Dove here, and in fact, very few records of the species here		
Spain	Monitoring at national scale developed by SEO/BirdLife and ICO (for Cataluña region) within the SACRE and SOCC programs. Results from 2023 still pending to be received by MITECO from the NGOs coordinating these monitoring schemes. These data are the used for the PECBMS at pan-european level. The Ministry of Agriculture, Fisheries and Food, within the contract signed with Artemisan Foundation, developed a national census via a specific application. Over 565 volunteers have participated in last years campaign, carrying out over 3135 censuses. A total of 911 10x10 grids have been sampled along all national territory. Some regions perform population monitoring programs at a regional level, such as Castilla y Leon, Extremadura, Navarra, Comunidad Valenciana, Mallorca, Andalucia, Castilla La Mancha.	Continuation of SACRE and SOCC programs, commissioned by MITECO. The Ministry of Agriculture, Fisheries and Food will carry out the same program as the previous year. Castilla y Leon, Extremadura, Comunidad Valenciana, Mallorca, Andalucia, Castilla La Mancha, plan to continue with their regional population monitoring.	None activity promoted and commissioned by MITECO on this topic. The Ministry of Agriculture, Fisheries and Food, in the context of the contract signed with IREC, since 2022 ringing capture-mark-recaptures programme based on pit-tag system have been in place. This monitoring system has been carried out in Baleares, Cataluña and Castilla la Mancha, and a total of 705 adults and 96 juveniles have been marked with pit-tags. A total of 226 individual have been recaptured in these few years with this specific programme. In Extremadura, tagging (also through pit tag) and recapture is performed to estimate survival.

	<p>Extremadura performed a total of 149 surveys. The average density obtained in the censuses carried out by professional technicians in the stations was 38.3 turtle doves/km², while the average density of the transects carried out on foot by volunteers was 16.16 turtle doves/km².</p> <p>These data give a population for the whole of Extremadura of between 266,969 and 69,969 individuals. In Euskadi, an Atlas of nesting birds was developed (Arizaga et al., 2023).</p> <p>No surveys or census were reported in Aragon, Galicia, Ibiza, Madrid, Murcia, Asturias, Alava, La Rioja, Cantabria.</p>		
France	Annual point count survey (Suivi Temporel des Oiseaux Comuns STOC) – provides an index of annual breeding population size	Annual point count survey (Suivi Temporel des Oiseaux Comuns STOC) – provides an index of annual breeding population size	<p>Ringling in place for ca. 20 years in all administrative regions, with CMR hotspots in some areas (e.g. Chizé forest), see https://professionnels.ofb.fr/fr/doc/programme-detudes-colombides-bilans-annuels (annual report for 2023 in press)</p>
Germany	<p>In Brandenburg: no survey but recording of monitoring data and, additionally, of all random reports via ornitho.de</p> <p>No information provided from Saxony-Anhalt or Hesse.</p>	<p>No special survey planned in Brandenburg. For Saxony-Anhalt, it is planned to develop a New German breeding bird atlas (ADEBAR2) from 2024.</p> <p>In Hesse, it is planned to call on the ornithologists to actively search for turtle doves in the area. This will be organized by a local NGO, the “HGON”. Based on this information the locations of the measures (HALM) will be planned.</p>	<p>In Brandenburg, no special ringling programme existing, as the species has become too rare. GPS-telemetry in cooperation with University Giessen in Saxony-Anhalt and Hesse (since 2023 and until 2026, 7 birds marked, former coal mining areas in the south of Saxony-Anhalt; catching attempts also at other places). The research project includes: flyway tracking, tracking habitat use and breeding success, measuring the success of measures, analysis of the concentration of lead within the feathers, population genetics.</p>
Italy	No national survey or census has been carried out in 2023 because the responsibility lies with the regions/provinces.	No national survey or census has been planned for 2024 because the responsibility lies with the regions/provinces.	

6. Research programs (2)

Member State	Monitoring of productivity (method used, spatial and temporal scale, results available)	Monitoring of hunting bags (e.g. piloting of electronic systems for real time data)	Quantification of illegal killing	Any other research programs
Portugal	Monitoring of productivity on the 9 study areas during the final part of the breeding season.	No update. The developed platform application to submit hunting bags and others data on turtle dove occurrence was discuss among partners and will be concluded before the beginning of the next breeding season.	During 2023, a hunter was fined for killing one specimen of turtle dove.	No
Belgium	Not planned	No	Not planned	In Flanders, a project with satellite trackers has been initiated in 2023 (and will be continued in 2024) in order to better understand the use of the landscape of the species. This should lead to a better understanding of what measures can be taken to improve habitat management and food availability. In 2023 only 1 bird could be equipped with a tracker, in 2024 new attempts will be made. In Wallonia: A regional action plan is expected at the end of the year 2024. Funding under the LIFE B4B https://www.lifeb4b.be/fr . Stakeholders: NATAGORA – NATAGRIWAL – SPW
Ireland				
Spain	No activity promoted and commissioned by MITECO on this topic. Catalunya developed a project to obtain survival parameters, productivity and habitat selection of turtle doves. Studies of	In development in Castilla y Leon. The Ministry of Agriculture, Fisheries and Food, and Within the Artemisan Foundation contract, during 2023 an electronic hunting bag monitoring system has been fully developed, in order to be	Compilation of data from the autonomous communities for the period 2021-2022, initiative promoted by the Convention for the Conservation of Migratory Species (CMS) and the Bern Convention (https://www.coe.int/en/web/bern-convention/ikb-scoreboard-	In Castilla y Leon: development at regional level of monitoring systems through the Game Population Monitoring System (SeCi). In Murcia, within the contract with the Artemisan Foundation, georeferenced transects are done with a mobile application to obtain census data.

	<p>density and breeding populations with listening and observation points are carried out in Galicia. In Navarra, a study using camera traps to collect data on productivity was developed. This data is currently being analysed. In Andalucia, adults were tagged for productivity monitoring. The data is not yet available.</p>	<p>implemented at territorial level this year. In Comunidad Valenciana, there is a telematic procedure for reporting of management of hunting areas. In Mallorca, hunting bags are monitored through inspections. Notifications of depletions per hunting ground are made after the hunting season is over. In Castilla La Mancha, game bags are reported through an online form (Tramita). A collaboration with Artemisan has been developed to test digital seals.</p>	<p>assessment-table). The exact number of turtle doves included in the Scoreboard is not split from the total statistics. Compilation of information from other different sources within the TIFIES plan ongoing in Spain (Plan contra el tráfico ilegal de fauna y el furtivismo a nivel internacional). In Extremadura, the digital game tag is used to record and verify catches of turtle dove in real time. In Murcia, catch and control sheets for environmental agents are used. In Mallorca, if illegal hunting is detected, it is quantified by means of the sanctioning files opened.</p>	<p>In Mallorca, they have been working on population and extraction models for several species, and on the involvement of rural social actors. No decline in the island breeding population has been detected. In Castilla La Mancha, the information collected by the 10 GPS-tagged individuals are being analysed.</p>
France	<p>Nest checks in place for ca. 20 years in most regions.</p>	<p>None: quota zero currently in place</p>		<p>Satellite tag data currently being analysed</p>
Germany	<p>2018 and 2019 capture of single birds for tagging and researching migration routes and mortality rates during migration and wintering (Giessen University) à 4 birds tagged (1 in 2018, 3 in 2019). No further information on the fate of the birds available / former website closed</p>	<p>Not relevant (no game bird)</p>	<p>No illegal killing registered in Brandenburg</p>	<p>No other research programs</p>
Italy			<p>Undetected and unplanned illegal culling of turtle dove.</p>	

Annex 2. Questionnaire sent to MS.

	Member State:	
	Region (if relevant):	
1. Hunting		
	Hunting season (from/till) in 2023	
1.1 Hunting regulations as published in official bulletins		
	Legal hunting days	
	Daily quota per hunter	
	Other relevant regulations	
1.2 Outcome		
	Total turtle doves hunted in the MS/region in 2023 (please include uncertainty about the estimate when relevant)	
	Method for estimating national bag	
	Was there a mandatory bag data reporting system or a voluntary system?	
1.3 Compliance and control mechanisms		
	Number of inspections carried out in turtle dove hunting areas during the turtle dove hunting season (or the time when hunting season would normally take place, in the case of countries with temporary moratoriums)	
	Number of inspections carried out in turtle dove hunting areas outside the turtle dove hunting season	
	Spatial distribution of those inspections within the country/regions	
	Outcome of those inspections (number of infringements found, type of infringements) (please differentiate during and outside the hunting season)	
	Consequences for offenders (enforcement and sanctions)	
	If daily quotas are in place, estimation of the proportion of hunters exceeding the daily quota (please also specify assessment method and associated uncertainty)	
	Any other applied compliance promotion mechanism (e.g. public information campaigns)	
1.4 Habitat management carried out in 2023		
	Description of initiatives implemented, (restoration measures, maintenance measures, Agrienvironment measures, contribution of hunters to habitat	

	management, measures targeting turtle dove) including spatial scope,	
	Funding of those initiatives (including in the context of Common Agricultural Policy)	
	Monitoring carried out to assess effects – please describe monitoring method as well as results	
1.5 Research programs (mark all that apply and provide details)		
	National survey or census carried out in 2023	
	National survey census planned for 2024	
	Ringed Capture Mark Recapture programs to estimate survival (where, since when, number of birds marked, etc.)	
	Monitoring of productivity (method used, spatial and temporal scale, results available)	
	Monitoring of hunting bags (e.g. piloting of electronic systems for real time data)	
	Quantification of illegal killing	
	Any other research programs	