



MANAGEMENT PLAN for TURTLE DOVE
(*Streptopelia turtur*)
2007 –2009

Directive 79/409/EEC on the conservation of wild birds

Europe Direct is a service to help you find answers
to your questions about the European Union

New freephone number:
00 800 6 7 8 9 10 11

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server (<http://ec.europa.eu>).

Luxembourg: Office for Official Publications of the European Communities, 2007

© European Communities, 2007

Reproduction is authorised provided the source is acknowledged.

The European Commission (DG ENV B2) commissioned this Management Plan for Turtle Dove.

A first version compiled by J.M. Boutin (Office National de la Chasse et de la Faune Sauvage, Station de Chizé, F- 79360 Villers aux bois) and published in *Game and Wildlife Science*, 18 (2001): 87-112

This version was completed in November 2006 by Marc Lutz, Station Biologique de la Tour du Valat, F-13200 Le Sambuc, France and Flemming Pagh Jensen, DDH Consult, Ringstedvej 20, DK-4000 Roskilde, Denmark.

Comments, data or general information to the final version were generously provided by:

Jean-Pierre Arnauduc, FNC - France

Jean-Marie Boutin, ONCFS - France

Nicola Crockford, RSPB – BirdLife in the UK

Bernard Deceuninck, LPO – BirdLife France

Wouter Faveyts, Cel Soortenbeleid, AMINAL, Afdeling Natuur, Belgium

Nicolaos Kassinis, The Game Fund, Interior Ministry, Cyprus

Konstantin Kreiser, BirdLife ECO

Yves Lecocq and Cy Griffin, FACE

Joseph Mangion, BirdLife Malta

Jesper Tofft and Knud N. Flensted, DOF – BirdLife Denmark

Sebastian J. Hidalgo de Trucios and Gregorio Rocha Camarero, Univ. Extremadura, Spain

Contents

Executive Summary	5
0. Introduction.....	7
1. Biological Assessment	8
2. Available key knowledge.....	15
3. Threats.....	20
4. Policies and legislation relevant for management.....	24
Member States / Contracting parties obligations	24
5. Framework for Action.....	25
Purpose of the action plan.....	26
6. Activities	29
7. References.....	37

TABLES

Table 1. <i>Geographical distribution of Turtle Dove during the year (EU 25 only)</i>	13
Table 2. <i>Estimates of European breeding population of Turtle Dove.</i>	15
Table 3. <i>Information concerning hunting in EU.</i>	17
Table 4. <i>International conservation and legal status of the Turtle Dove.</i>	21
Table 5. <i>Prioritised activities and results in all countries in the EU with populations of Turtle Dove.</i>	26
Table 6. <i>Summary of the objectives and results to be achieved of the Turtle Dove Management Plan 2007-2009.</i>	30

FIGURES

Figure 1. <i>Turtle Dove spring migration at Pointe de Grave (France) between 1984 and 2003.</i>	16
---	----

Annex I

Prenuptial migration and period of reproduction	36
---	----

Executive summary

The Turtle Dove *Streptopelia turtur* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting is permitted in the following Member States: Greece, Spain, France, Italy, Cyprus, Malta, Austria, and Portugal. The Turtle Dove is an important quarry species in these countries with 2-4 million birds shot annually.

The Turtle Dove has been identified as a bird species, which has an unfavourable conservation status within the EU. This concern is based upon the fact that Turtle Dove populations are showing decreasing trends in many Member States. Their breeding numbers show an overall decline beginning in the second part of the 20th century (1970s), especially in Western Europe where the decrease seems to be strongly linked with the intensification of agriculture.

The main threats to Turtle Dove in the EU are identified as (1) destruction/modification of the breeding habitats, linked to intensification or changes in agricultural practices, (2) droughts and climate change in wintering areas and (3) hunting can be seen as an aggravating factor especially where it takes place in spring during migration and the reproduction period, as the annual bag is large and the species suffers from low productivity and low adult and juvenile survivorship. Attention must also be paid to possible competition with the Collared Dove (4), which is extending in Europe,

Recognising that the Turtle Dove has an Unfavourable Conservation Status in EU (and Europe) due to a continuing large decline the long-term objective (10 years) of this plan is to restore the Turtle Dove to a favourable conservation status in the EU. This plan aims to address the most urgent issues to halt the decline of the Turtle Dove population in the EU but at the same time restrict the activities to be carried out to a realistic level. It is the responsibility of the relevant authorities of each Member State to decide how to implement the management prescriptions of this plan. Thus, the short-term objectives outlined in the plan will focus on:

- The implementation of improved management, (including restoration) of breeding habitats.
- The collection of scientific data about population trend, the ecology and dynamic of population of the species, in both breeding and wintering areas.
- The analysis of potential competition between the Collared Dove and the Turtle Dove
- The collection of more robust scientific data to better understand the potential importance of hunting on the populations of Turtle Dove.

To reach these targets, the Management Plan identifies ten Results to be achieved during its 3- year running period. These are:

1. Wooded farmland, hedges and other habitats important for breeding Turtle Dove are maintained and better protected to ensure no net loss of Turtle Dove numbers and distribution (all Member States with significant numbers of breeding Turtle Dove).
2. Turtle Dove hunting seasons in EU Member States are in accordance with information on breeding period as defined in “Period of reproduction and prenuptial migration of Annex II bird species in the EU”, and hunting does not affect late breeding birds and birds during spring migration.
3. Annual bag statistics are available for all Member States where Turtle Dove hunting is allowed.
4. Hunting bags information is collected from key countries outside the EU where European populations pass on migration and winter (especially Maghreb and Sub-Saharan countries).
5. A predictive model is developed to help determine what annual bag would be sustainable in each Member States where hunting is permitted.
6. From the existing monitoring schemes (e.g. CBS in the UK, STOC and ACT in France), common guidelines for monitoring the species are agreed and used by all Member States to monitor Turtle

Dove populations (can be included in a pan-European monitoring scheme for common birds).

7. National ringing activities and analyses of existing ringing data to estimate mortality and identify population units is supported by national authorities in all Member States with important breeding populations of Turtle Dove.
8. Annual estimates of breeding success is provided through national research activities on breeding grounds, and analysed at the European level.
9. Accurate information is gathered on the breeding population size and trend in Turkey and Russia and on numbers, distribution and ecology of wintering populations in West Africa.
10. Research on reproduction, mortality and feeding ecology targeted at assessing which components of agricultural intensification and habitat modification have significant adverse effects on Turtle Dove population trends, and research to determine which management is most effective for Turtle Doves, including reviews of existing pilot studies etc. is supported. Potential competition with Collared Dove also needs to be more investigated.

0. Introduction

The Turtle Dove *Streptopelia turtur* is listed on Annex II/2 of the EU Birds Directive as a species for which hunting is permitted. However, the Turtle Dove has been identified as a bird species, which has an unfavourable conservation status within the EU (Tucker & Heath 1994, Birdlife International, 2004b).

This concern is based upon the fact that Turtle Dove populations are showing decreasing trends in many Member States (Tucker and Heath 1994, Boutin, 1998, Birdlife International, 2004a). It is therefore important to assess its current conservation status and available research information in order to appraise the current effectiveness of conservation actions, identify reasons for the observed trends and recommend options for future management to reverse the downward trend in numbers. Hence, this plan will focus upon the full implementation of the provisions of the Birds Directive as these apply for this species.

Although this management plan provides recommendations and actions to be taken only by EU Member States, the ecology of the Turtle Dove makes it obvious that studies and conservation actions in wintering areas and along migration routes are also much needed, and that the long-term conservation of the Turtle Dove depends on international cooperation programs.

With a few exceptions the format of this management plan follows a Single Species Action Plan format developed by BirdLife International for UNEP/AEWA Secretariat.

The first chapter of the Management Plan presents information on the European Turtle Dove populations. Chapter 2 focuses on key-knowledge for the 25 EU Member States. Chapter 3 analyses the threats that are believed to be the causes of the decline while chapter 4 lists the policies and legislation relevant for Turtle Dove management in Europe.

Chapter 5 evaluates the status of Turtle Dove in the EU and set out long-term and immediate objectives for its future management.

Chapter 6 describes the actions to be taken for the period 2007-2009. These activities cover all 25 EU countries, and it is the intention that this management plan shall be revised in 2009.

1. Biological Assessment

<p>General information</p>	<p>The Turtle Dove is the smallest representative of the Dove family in Europe. Its breeding area stretches from Europe to Asia and North Africa. The majority breeding in the EU are found in the Mediterranean countries. The European population is entirely migratory, wintering in Sahelian Africa from Senegal to Eritrea (Glutz 1980, Geroudet 1983, Cramp 1985).</p> <p>Although the European population is still very large the populations in most countries have been declining since the 1970s (BirdLife International 2004a). However there are some recorded evidence of the decline, but a detailed analysis of the breeding populations would be necessary to confirm/infirm the decline. It is a quarry species in eight EU Member States.</p>
<p>Taxonomy</p>	<p>The Turtle Dove includes 4 subspecies, which are <i>S. t. turtur</i> (the nominal race present in Europe), <i>S.t. arenicola</i> (Balearic Islands), <i>S.t. rufescens</i> and <i>S.t. hoggara</i>.</p>
<p>Populations</p>	<p>The nesting area of the nominal race <i>Streptopelia t. turtur</i> in Europe stretches from Portugal East to the Ural, and from the 35th parallel to the 65th parallel North. The distribution area is vast and greater in latitude on the eastern half.</p> <p>In the European Union, the Turtle Dove is currently found in all Member States (including all Mediterranean Islands) with the exception of the Alpine Arc and Ireland, (Parslow 1967, Sharrock 1976, Snow & Perrins, 1998); it has only colonized Denmark since the late 1980s where it is almost exclusively confined to the south western corner of Jutland (mainland Denmark) (Grell <i>et al.</i> 2004). Its distribution is linked to an isotherm of a minimum of 16° C in July (19° C in Great Britain) (Glutz, 1980). In general, the bird nests at a maximum altitude of 350 meters (Glutz, 1980) but very occasionally on warmer slopes up to 1,000 meters.</p>

<p>Population developments</p>	<p>Estimates of population sizes are available for most European countries; however they are still imprecise, with important differences between maximum and minimum numbers. For most countries, these estimates are not backed up by censuses prepared from sampling programs (table 2), and an updating of all estimates are much needed.</p> <p>The total European population estimate stands between 3.5 and 7.2 million pairs (BirdLife International, 2004a). This large band is due to the enormous vagueness concerning the populations in Russia and Turkey. Without these two countries, the estimate is between 2.2 and 3.8 million breeding pairs. In the EU25 the population is 1.6 to 2.6 million that comprises 36-46% of the European population total (BirdLife International 2004b).</p> <p>According to BirdLife International (2004a, b), the status for the species in Europe is Declining, due to a moderate continuing decline but in the EU alone it is a continuing large decline.</p> <p>The decline is particularly significant for the large population in Spain, Russia, Turkey and Ukraine but also in the smaller populations in Finland, the Baltic States, Poland, Germany, UK, Belgium and the Netherlands (BirdLife International 2004a). Using data from shooting captures in the Iberian peninsula during the postnuptial migration, the population decrease has been estimated from 57% to 63% for the 1970s- 1990s decades (Hidalgo & Rocha, 2005). Stable populations are found in central Europe: Italy, Austria, The Czech Republic and Slovenia (BirdLife International 2004a). Among the populations in Europe only the populations in France and Romania are increasing (BirdLife International 2004a). The increase in France has also been highlighted by Boutin <i>et al.</i> (2001) through the ACT research program.</p> <p>The Turtle Dove is included in several national common bird monitoring and census schemes (e.g. CBC/BBS in the United Kingdom, ACT and STOC in France and the BirdLife/European Bird Census Council Pan-European Common Birds Monitoring Scheme), but it is obvious that more scientific work should be done on European populations to assess their on-going trend.</p>
---------------------------------------	--

<p>Distribution throughout the annual cycle</p>	<p>One of the essential characteristics of this species is its entirely migratory character.</p> <p>The postnuptial migration towards Africa starts by the end of July and reaches its most intensive period at the end of August/beginning of September, the last birds being observed at the beginning of October (Snow & Perrins 1998). The main migratory routes are through the Iberian Peninsula and Morocco. Other routes are passing through Tunisia, Malta and Italy, as well as Egypt, Greece and the Middle-East (Cramp, 1985, Rocha & Hidalgo, 2002a).</p> <p>The wintering area stretches in Africa from the 10th parallel to the 20th parallel North and corresponds to the Sahelian-Sudanian zone. The western European populations migrate via the South - West of France and the Iberian peninsular where they are joined by birds breeding in Portugal and Spain, subsequently crossing Morocco and Mauritania, and finally wintering in the savannahs of the western half of tropical Africa.</p> <p>Senegal, the Gambia, Guinea Bissau, the north of Konakry Guinea and south-west Mali were considered to be the host country for the greater part of these populations, but the species has also been recorded in many other African countries (Burkina Faso, southern Niger, northern Ivory Coast, northern Ghana, northern Nigeria, northern Cameroon) (Aebischer 2002). Some individuals also winter in Morocco (Jarry 1994). A more eastward migratory band, concerning probably the birds of Central Europe, stretches over Italy, Malta, Cyprus, Tunisia and Libya, and possibly winters in Sudan, Ethiopia and Chad.</p> <p>The prenuptial migration in Europe starts in late March really getting under way between the 21st and 30th of April, and reaching its climax during the first 20 days of May then finishing between the 11th and 20th June (figure 4).</p>
--	---

<p>Survival and productivity</p>	<p>Few studies have been carried out on the demography of the species. The Turtle Dove is capable of reproducing at the age of one year and the maximum life-span for a bird in the wild is reckoned to be 20 years (Glutz 1980), but annual mortality rate can be about 64% during the first year of life and 50% for those surviving beyond that (Calladine <i>et al.</i> 1997). Turtle Dove nest success rate average 53% during incubation and 65% during the nestling stage, so that only 35% of nests successfully produce young in the UK (Browne and Aebischer 2004), while in Spain the percentage of nest successfully producing young reaches 53% in Extremadura and 36-58% in the area of Madrid (Rocha & Hidalgo, 2002a).</p> <p>According to Murton (1968), the annual production rate per pair was between 2 and 2.8 fledglings in the 1960s, and Fontoura & Dias (1995) also observed a rate of 2.71 young per pair in north-west Portugal. According to Rocha & Hidalgo, the annual productivity in Extremadura can vary from 2 to 3 chicks per couple, depending on the years.</p> <p>Browne & Aebischer (2004) have shown that the number of nesting attempts undertaken by each pair per breeding season was significantly lower in the late 1990s compared with the early 1960s, so the importance of productivity in the decline of the species is perhaps mainly caused by a reduction in nesting attempts. The reduction of food availability and reduced nesting habitat availability may be the underlying causes of the decrease of productivity (Browne & Aebischer 2005). In Great Britain the breeding season seem also to be shortened by 8 days, the production per pair being half the number of clutches and young than formerly.</p> <p>Thus the species has a relatively low survival rate and low productivity, which has implications when it comes to discussing the sustainability of hunting this species.</p>
---	---

Breeding	Feeding	Outside breeding season
<p>As a general rule, two to three clutches of 2 eggs are laid between May and July.</p> <p>According to Browne <i>et al.</i> (2005), the mean first-egg date was recorded 18 May +/- 1 day (annual range 28 April to 26 May).</p> <p>In the UK, with a mean clutch size of 1.84 +/- 0.01 (annual range 1.65 – 1.93) producing a mean brood size of 1.82 +/- 0.01 (annual range 1.50-2.00).</p> <p>In Cyprus active nests are found from the beginning of May until August (N. Kassinis in litt.)</p> <p>In Spain, the reproduction period begins at mid-april and lasts till end August (5.26% of nests with eggs at mid-April and 2.70% of nests with chicks at mid-August, Rocha & Hidalgo, 2002a).</p>	<p>The Turtle Dove's diet is mainly made up of seeds and fruit but tiny animals are also eaten from time to time (worms, molluscs, insects) (Cramp 1985). It mainly feeds on the ground. It needs to drink daily. Modern agricultural methods make available to the bird seeds of cereal, rape and sunflower in summer. In spring it is particularly fond of “weed seeds”, for example those of the Common Fumitory (<i>Fumaria officinalis</i>) (Murton 1968, Calladine <i>et al.</i> 1997).</p> <p>Rocha and Hidalgo (2002a) have shown an absolute dependence on weed-seeds for birds arriving at nesting sites, and an increased nesting index in herbicide-free areas.</p> <p>Grain silos serve as spring feeding areas and flocks of several dozen birds can be seen, particularly in France and England. Cluster Pine seeds (<i>Pinus pinaster</i>) are also eaten during migration (Devort <i>et al.</i> 1988).</p> <p>A study by Browne and Aebischer (2003) recorded the species feeding mainly at “man-made” sites (i.e. spilt grain, animal feed and grain stores). According to the authors, set-asides and agri-environmental schemes provide a framework for the maintenance of weed-rich areas as a source of wild food.</p>	<p>The species is very much concentrated in the wintering areas, where wooded areas of <i>Acacia Seyal</i> constitute major roosting places.</p> <p>Water must be available not far from those roosting places, as the species needs to drink daily.</p>

<p>Habitat requirements</p>	<p>The Turtle Dove prefers nesting in bushes in landscapes with a rich, patchy habitat mosaic of open cultivated land for feeding adjacent to wooded areas with trees and bushes in clumps (woods, copses, groves) or lines (riparian woodlands, hedges).</p> <p>In a study in Spain 53% of nests were in olive trees (<i>Olea europea</i>) and 23.5% in Oak (<i>Quercus rotundifolia</i>) (Icona 1989). In 40% of cases, Hawthorn was the support, in 19% it was Hazel (<i>Coryllus avellana</i>) and in 10% Plum (<i>Prunus spinosa</i>). Intensive olive orchards in Spain have densities of only 0,5 pairs/ 100 ha (Peiró in Purroy 1997). Recently, Rocha & Hidalgo have pointed out the importance of the habitats of <i>dehesa</i> with cereals as breeding sites for the species (with a significant positive relation between the nests density and the surface of cereals). In these habitats, Evergreen oak (<i>Quercus ilex</i>) hosts 75.8 % of the nests.</p> <p>Aubineau and Boutin (1998) have also shown the importance of Hawthorn in association with <i>Prunus spinosa</i> and <i>coryllus avellana</i> as support for nesting in France. Those shrubs are really attractive for the species when associated with <i>Rubus sp.</i>, which can reinforce the structure of vegetation for the construction of nests. Creeps or shrubs growing beneath trees, in particular Brambles (<i>Rubus sp</i>), play an important role as support and protection for the nest.</p> <p>In Cyprus the Turtle Dove mainly breed wooded farmland with <i>Pinus brutia</i>, <i>Olea european</i> and <i>Prunus amygdais</i> as main nesting trees (N. Kassinis in litt.).</p> <p>In a study in England, the preferred nesting sites were in Hawthorn (<i>Crataegus monogyna</i>) (Brown and Aebischer 2004) and Elder (<i>Sambucus niger</i>) bushes, these two representing 43% and 17% respectively of the shrubs harbouring nests (Murton, 1968).</p> <p>The small Danish population inhabit (young) coniferous plantations on sandy soils (J. Tofft in litt.).</p> <p>In the Dutch province of Drenthe, the highest densities are found in (broken) woodland (5,5-10,5 pairs/ 100 ha; 56% of total population), above average densities in farmland with hedges and wood plots (3/ 100 ha; c. 20%) and lowest densities in open farmland (<1/ 100 ha; c.15%) (van den Brink et al. 1996, Broedvogels van Drenthe).</p>
------------------------------------	---

Table 1. *Geographical distribution of Turtle Dove during the year (EU 25 only)*

Breeding	Migrating <i>(August – November & March – June)</i>
<ul style="list-style-type: none"> • Austria • Belgium • Czech Republic • Cyprus • Denmark • Estonia • Finland • France • Germany • Greece • Hungary • Italy • Latvia • Lithuania • Luxemburg • Malta • Netherlands • Poland • Portugal • Slovakia • Slovenia • Spain • Sweden • United Kingdom (only England and Wales) 	<p>the following have areas of particular importance for staging Turtle Dove during migration :</p> <ul style="list-style-type: none"> • Cyprus • France • Greece • Italy • Malta • Portugal • Spain

2. Available key knowledge

This chapter provides a summary of up-to-date knowledge on the biology, distribution and trends of the populations of Turtle Dove that occur in the EU. It also gives information on the hunting status in the Member States.

A major problem in developing a management plan for the Turtle Dove is the extremely wide distribution of the species, breeding in wooded farmland throughout nearly the whole of Europe. This makes it difficult to precisely evaluate the population without detailed monitoring.

An important part of the Turtle Dove lifecycle takes place outside the borders of the EU, where it is also difficult to assess the wintering populations (e.g. West-Africa).

Furthermore the knowledge of the bag statistics and the year to year variation in the number of Turtle Dove taken throughout Europe, North and West Africa is simply inadequate to assess accurately the extent and variation of hunting pressure. What is available on open seasons and annual bags is shown in Table 3.

Table 2. Estimates of European breeding population of Turtle Dove.

Estimates from the 1980s (and 1990-2000)					Estimation by Birdlife International (Birdlife International, 2004a)		
Country	Breeding pairs	Year(s) of the estimate	Breeding Population trend	Reference	Breeding pairs	Year(s)	Trend
Austria	8000-10000		0	Snow & Perrins, 1998	(8,000 – 15,000)	1998- 2002	(-)
Belarus	60000-80000	1990	0	Snow & Perrins, 1998	40,000 – 60,000	1997-2002	0
Belgium	9000-12000	1998	-2 (since 1975)	Snow & Perrins, 1998	5,800 – 9,600	2001-2002	-
Bulgaria	(100000-250000)	--	0	Snow & Perrins, 1998	20,000 – 100,000	1996-2002	0
Cyprus					5,000 – 15,000	1994-2002	-
Czech Rep	60000-120000	1985-1989	-1	Snow & Perrins, 1998	60,000 – 120,000	2000	0
Denmark	60-100	1998-2003	0/F	Grell et al. 2004	(25 – 75)	1998-2001	(-)
Estonia	3000-7000	1998-2002	-1	Elts et al. 2003	4,000 – 8,000	1998	-
Finland	50-100	Late 80s	-1	Snow & Perrins, 1998	5 - 30	1998-2002	-
France	200000-450000	1989/1992	0 (Stable or fluctuating after decline)	Snow & Perrins, 1998	150,000 – 450,000	1998-2002	+
Germany	117000	-	(0) (Stable after decline)	Snow & Perrins, 1998	55,000 – 81,000	1995-1999	(-)
Greece	10000-30000	-	-1	Snow & Perrins, 1998	(10,000 – 30,000)	1995-2000	(-)
Hungary	100000-200000	-	0	Snow & Perrins, 1998	165,000 – 215,000	1999-2002	0
Italy	50000-100000	-	(0)	Snow & Perrins, 1998	(200,000 – 400,000)	2003	(0)
Latvia	3000-5000	-	+1	Snow & Perrins, 1998	(500 – 2,000)	1990- 2000	-
Lithuania	2000-5000	1999-2001	(-)*	Kurlavicius & Raudonikis 1999, 2001,	(2,000-5,000)	1999-2001	(-)
Luxembourg	300-700	-	-1	Snow & Perrins, 1998	1,800 – 2,000	2002	0
Malta	2-5	-	0	Snow & Perrins, 1998	2 – 5	1990-2002	-
Netherlands	35000-50000	1979	-1	Snow & Perrins, 1998	10,000 – 12,000	1998-2000	-
Poland	100000-200000	-	0	Snow & Perrins, 1998	40,000 – 70,000	2000-2002	(-)
Romania	20000-40000	-	-2		(15,000 – 25,000)	1990-2002	(+)
Portugal	10000-100000	-1989	-1	Tucker and Heath 1994	(10,000 – 100,000)	2002	?
Russia	500000-5000000	-	(0)		1,000,000 – 2,500,000	1990 - 2000	-
Slovakia	15000-30000	-	(0)		15,000 – 30,000	1990 - 1999	0
Slovenia	2000-3000	-	0	Tucker and Heath 1994	2,000 – 3,000	1994	(0)
Spain	390000 – 650000	2006	-1	Rocha et al. 2006	790,000 – 1,000,000	1992	-
Switzerland	1000-2500	1986-1991	-1		1,000-2,500	1993-1996	0
Turkey	500000-5000000	-	-		300,000 – 900,000	2001	(-)
Ukraine	20000-22000	1986	-1		110,000-176,000	1990-2000	-
UK	75000-750000	1988-1991	-2	Tucker and Heath 1994	44,000-44,000	2000	-
Total EU breeding population					1.2 – 2.2 million pairs		
Breeding population trend: - 2 Large decrease, - 1 Small decrease, 0 Stable, F Fluctuating, N New breeder. * - (-2) for the period of 1990-2000; and (-1) for 2001-2003					Breeding populations trends + increase, 0 stable, - decreasing, F fluctuating, ? unknown () quality of data: poorly known, with no quantitative data available		

Figure 1. Turtle Dove spring migration at Pointe de Grave (France) between 1984 and 2003.

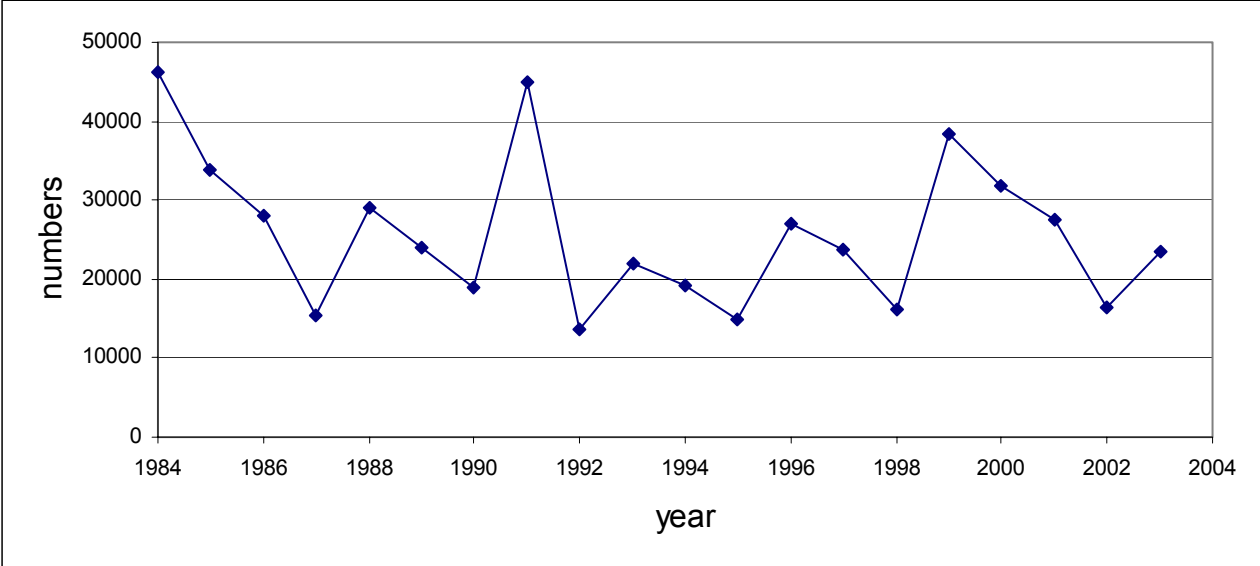


Table 3. Information concerning hunting in EU.

Country	Status	National Hunting Season	Regional Hunting Season	Birds bagged annually	References
Austria - Burgenland - Niederösterreich - Wien	H H H		01/08-15/04 16/07-15/04 01/08-15/04	< 7800	KARNER <i>et al.</i> 1996 RANNER A., questionnaire 1998
Belgium	P				
Czech Republic	P				
Cyprus	H		End August 4-7 days on islands September – mid October for other areas (restricted)	20,000 – 35,000 for the whole territory. From them 2,500-5,000 harvested in the inland areas and seem to be local breeders.	Cyprus Game Fund Service, 2005
Denmark	P				
Estonia	P				
Finland	P				
France - South - North	H	General opening season (early to mid-September), but opening could be set earlier, after the second decade of August Closing : second decade of February	01/09-28/02	189,300	Boutin & Tesson 2000 ONFSH (2004)
Germany	P				F. Agency for Nature Conservation
Greece	H	20/08-28/02	20/08-28/02	300,000- 600,000	Questionnaire-1998
Hungary	P				
Italy	H	3 rd Sun. 09 - 31/12	01/09-31/12	< 200,000	Questionnaire-1998
Ireland	P				
Latvia	P				
Lithuania	P since 07/2000	None	None		Ministry of Environment of Lithuania
Luxemburg	P				
Malta	H, T	1/09 - 31/01 and 25/03 – 22/05		Unknown ¹	-
Netherlands	P				
Portugal	H	15/08-30/09		190,000 400,000 in 1994	Fontoura 1996 & questionnaire 1998 Santos 1998
Slovakia	P				
Slovenia	P				
Spain	H		15/08-17/09	1,200,000	Rocha et al., 2006
Sweden	P				
United Kingdom	L				questionnaire - 1998
Total EU bag				2 – 3 million	

STATUS: P: Protected, H: Hunted, T: Trapped, L: Protected (possibility of exceptional authorisation to captures).

¹ The number of *Streptopelia turtur* reported as shot and trapped in Malta in 2004 by the authorities was 10 910. The number of registered hunters in 2004 was 11 759 and the number of trappers 4 691, of whom 2 694 also held hunting licences. This means that according to the records, each registered hunter shot or trapped an average of about one bird in 2004. It seems probable that the true situation differs from that reported. Cramp (1985) reported that about 100 000 Turtle Doves were shot annually on Malta. There have been no reports of a 90% reduction in the hunting bag over the past 20 years, and the situation is monitored by a number of agencies, although accurate data are lacking (Delany 2005). The new Conservation of Wild Birds Regulation of 2006 excludes spring hunting and consequently the number of Turtle Doves shot annually should be considerably lower in the coming years.

3 Threats

This chapter gives an overview of current human activities, along with climate changes, that are believed to have a negative impact on the Turtle Dove populations. Although not located in the European Union, the threats to the species in the wintering areas are also taken into account, as those areas are believed to be of crucial importance for the Turtle Dove.

To describe the importance of threats to Turtle Dove populations, the following categories are used:

Critical: a factor causing or likely to cause **very rapid declines** (>30% over 10 years);

High: a factor causing or likely to cause **rapid declines** (20-30% over 10 years);

Medium: a factor causing or likely to cause relatively **slow, but significant, declines** (10-20% over 10 years);

Low: a factor causing or likely to cause **fluctuations**;

Local: a factor causing or likely to cause negligible declines;

Unknown: a factor that is likely to affect the species but it is unknown to what extent

1. Habitat loss/modification

Breeding

In Europe, changes in habitat have been quoted to explain the fall in breeding numbers in the Cyprus, the Netherlands, Italy, United Kingdom, Spain, Greece, Belgium and Austria. In France, land restructuring operations (agricultural land regrouping) linked to the mechanization and intensification of agriculture has led to considerable tearing-up of hedgerows since the 1960s. Thus, 610,000 kilometres of hedgerow were destroyed while only 10,000 kilometres were replanted during the same period. Again, the mechanical upkeep of hedges as well as new tree surgery techniques has considerably modified potential breeding sites.

Rocha & Hidalgo (2002a) have shown that the decline of Turtle Dove populations in Spain is directly linked to the decrease of surfaces of cereals over the last decades, and that the density of nests is 3.5 times less in areas where herbicides are used than in areas without herbicides.

In Cyprus changes of agricultural practise, in particular abandonment of small-scale agriculture in mountainous and rural areas and changes in cultivated crops are believed to threaten the Turtle Dove population (N. Kassinis in litt.).

Changes in agriculture practices have several impacts on the species, as they can both reduce food supply and nesting habitats availability and it is likely that the decline in food is the main limiting factor, rather than decline in nest site availability. Breeding habitats is not limited to hedgerow habitats, and farmland incl. cereals are considered as a continuum of breeding sites, as they provide food for the species.

In some new Member States (for example Lithuania and other Baltic countries) the breeding habitat has not been transformed heavily during 1990-2000. Thus, habitat loss in some new Member States might not be the main factor causing the large decrease in breeding population.

Wintering

In West Africa, the increasing human population has caused significant changes to the natural

environment with increased cultivation of the Sahel and Sudan zone, overgrazing and cutting of trees, notably in Senegambia (Jarry 1994). Such modification of habitats has led to the disappearance or deterioration of important roosting places but may also have had an impact on the feeding opportunities for wintering Turtle Doves.

Importance of habitat loss/modification

- For **breeding areas** in the EU the importance of habitat loss/modification is set at High
- For the **wintering areas** outside the EU the importance of habitat loss/modification for is set at Medium.

2. Droughts and climate change

Although not located in the European Union, climate conditions (particularly drought) in wintering areas can, in an indirect way, lead to an abnormally high mortality rate. In the 1970s and 1980s, the Sahelian regions of western Africa, which make up the principal wintering areas for western European populations of Turtle Dove, was hit by long periods of drought, annual rainfall only very infrequently going above the annual average and very often remaining well below (Jarry 1994).

These factors may be a main cause of the large declines in breeding population observed during this period in some Eastern European and Baltic countries where habitat destruction has not been as evident as further west.

However, changes in Turtle Dove abundance in the UK do not show any strong correlation with severe drought years in the Sahel wintering grounds (Marchant *et al.* 1990). Moreover, several species which are known to be affected by drought in the Sahel (Whitethroat *Sylvia communis* and Sedge Warbler *Acrocephalus schoenobaenus*) showed strong population increases during the 1990s in response to increasingly favourable rainfall conditions in the Sahel. This suggests the abundance of Turtle Doves in western Europe is not determined directly by rainfall in winter quarters. Although it is possible that the decline in Turtle Doves is caused by a long-term deterioration of the winter habitat (linked to human activities) this does not seem to be the case for other trans-Saharan migrants (because they have recently increased in abundance).

Importance

The importance of climate change in wintering area is provisionally set at Low/unknown

3. Hunting

Eight Member States allow hunting of Turtle Dove in the EU including all seven Mediterranean plus Austria. The hunting pressure on Turtle Dove is generally high in these Member States where between 2 and 4 millions of birds are shot annually (Table 3, Boutin 2001).

In countries where the Turtle Dove is protected, hunting of Collared Dove *Streptopelia decaocto* could present a “confusion species” problem. For example, in Denmark Collared Dove is hunted from October 1st to November 30th, and in October a few Turtle Doves may be shot by mistake. However, the number of Turtle Doves shot by mistake in the EU is considered to be small.

According to Jarry (1994) and Hill (1992) Turtle Dove is the EU quarry species worst affected by hunting as the species has a particularly low survival and productivity in Europe. Hunting is considered to constitute one of the main factors in their decline (Hill 1992, Tucker 1996).

Estimates of population sizes and bag-takes in most EU are not very accurate, and care must be taken in the interpretation of the available data. However, Hill (1992) based on a modelling analysis, recommended that hunting losses in Europe should be reduced to 5-15% of the post breeding population is populations were to be self-sustaining.

Furthermore, the impact of hunting on the European populations of Turtle Dove, in terms of populations' dynamics has not been clearly assessed, but absolute numbers of birds shot are high. Therefore, priority efforts regarding hunting should be put on the collect of hunting bags.

According to Rocha and Hidalgo (2002a), a delay in the beginning of the hunting period is beneficial to the species, not only because it avoids hunting when some pairs are still reproducing, but also because it allows a longer growth of the chicks and a higher survival probability.

Of particular concern is hunting during spring migration, which is still practiced outside the EU and (illegally) in some other Mediterranean countries. Hunting is also practiced in some wintering areas where there is no hunting management, and very few data are available for those sites.

Spring hunting affect adult birds only and brings additional mortality on bird populations that are ready to breed. It is clearly stated in the Birds Directive that hunting of birds outside periods of reproduction or during their return to their rearing grounds, may only be permitted under derogation if the strict conditions under Article 9 are met.

Importance

- For **breeding ranges States** in the EU (Member States where hunting is allowed) the importance of hunting is set at Medium/unknown.
- For the **wintering areas** outside Europe, the importance of hunting is set at Medium/unknown

4. Competition with Collared Dove (*Streptopelia decaocto*)

The Collared Dove has expanded throughout the Western Palearctic over the past decades (Rocha & Hidalgo, 2000, 2002b). This species is mainly found in the vicinity of urban areas, especially in parks, avenues and other wooded areas. Its presence is usually linked with human activities, and it is often very common in the surrounding of agriculture infrastructures (barns, farms, livestock silos) where food is available.

In central Spain (notably Extremadura) and in several parts of France where both species of dove occur Collared Dove appears to compete with Turtle Doves. When comparing the presence/absence in places where both species could exist, Rocha & Hidalgo (2000) observed that there was an excluding relation between the two species. Furthermore, the analysis of densities of both species in the same places showed that Turtle Dove densities decreased as Collared Dove densities increased. In Hungary, the Turtle Dove disappeared from many of its traditional areas, in parallel with an increase of the Collared Dove populations (Gluts & Bauer, 1992).

The Collared Dove benefits from important advantages such as its sedentary and territorial characters, bigger size and aggressiveness (Fletcher, 1979) and a high reproductive success (several egg-lays throughout a year, with 66% of success, versus less lays and 35% of success for the Turtle Dove). The hunting pressure is also much lower on the Collared Dove.

Therefore, in a hypothetical competition situation, the Collared Dove can displace the Turtle Dove, and thus the presence of the Collared Dove can be considered s a threat factor. More scientific investigations should be conducted on this topic throughout Europe, as research was almost done only in the Iberian Peninsula and France.

Importance

The importance of the competition with the Collared Dove is provisionally set at **Unknown**

4. Policies and legislation relevant for management

Table 4. *International conservation and legal status of the Turtle Dove.*

World Status ¹ (Criteria)	Pan-European Status ²	EU Threat Status ³	SPEC category	EU Birds Directive Annex	Bern Convention Annex	Bonn Convention Annex	African-Eurasian Migratory Waterbird Agreement	Convention of International Trade on Endangered Species
Not listed	Unfavourable: Declining	Unfavourable: Vulnerable	3/3	II/2	Not listed	Appendix II	Listed	Not listed

Member States / Contracting parties obligations

Turtle Dove is listed on Annex II/2 in the EU Birds Directive which implies that it can be hunted only in Member States which have defined a hunting season for this specie

¹ BirdLife International 2004a

² BirdLife International 2004a

³ BirdLife International 2004b

5. Framework for Action

Priority statement/evaluation

The Turtle Dove is still a widespread and fairly common species in southern Europe. However, except for France, the population in the EU has declined considerably since the 1970s and it is now considered to have an unfavourable conservation status. The breeding range in Europe is stable, with a small recent extension north to Denmark, Finland and occasionally Sweden. However the trend of the large populations in Russian and Turkish is a decline.

The Turtle Dove is an important quarry species in the Mediterranean countries and, to a lesser extent, in Austria with 2-3million birds shot annually in the EU.

Habitat loss and modification due to agricultural intensification are believed to be the major causes for the observed decline in the EU but also the Turtle Doves high vulnerable to drought and habitat modification in the wintering areas in West Africa may have had a negative impact on the European population. The potential impact of the competition with the Collared Dove should also be more investigated.

Whilst it is likely that loss of breeding habitat is the primary factor involved in recent declines, it is also clear that the recovery of such a relatively widespread and common species will not be assisted by unsustainable hunting exploitation, the impact of spring hunting being especially critical as only adult birds are targeted.

Efforts should therefore be addressed to ensuring sufficient habitat throughout the range, minimizing the effects of habitat loss and degradation and ensuring that protection measures are applied in a coordinated fashion throughout the flyway.

Purpose of the action plan

Recognising that the Turtle Dove has an Unfavourable Conservation Status in EU (and Europe) due to a continuing large decline the long-term objective (10 years) of this plan is:

To restore the Turtle Dove to a favourable conservation status in the EU¹.

This plan aims to address the most urgent issues to halt the decline of the Turtle Dove population in the EU but at the same time restrict the activities to be carried out to a realistic level. Thus, the short-term objectives outlined in the plan will focus on:

- The implementation of improved management, (including restoration) of breeding habitats.
- The collection of scientific data about population trend, the ecology and dynamic of population of the species (incl. data about competition with Collared Dove).
- The collections of more robust scientific data to better understand the potential importance of hunting on the populations of Turtle Dove.

This EU management plan applies for a 3 years period after which it should be evaluated and reviewed. This should include an assessment of the results achieved during the first 3 years. During this process updated short-term objectives for the next Turtle Dove management plan should be identified, that most effectively will lead to the recovery of the Turtle Dove population.

Results for the period 2006-2009

This section outlines the Results to be achieved during the first 3-years period of Turtle Dove management within the EU. The Results outlined below (and the corresponding activities in Part 3) are targeted at the authorities responsible for the implementation of the provisions of the Birds Directive in the Member States.

Management of breeding and staging populations and habitats

Throughout the EU a major factor causing declines or limiting Turtle Dove populations are habitat loss and modification linked to the intensification or changes in agriculture practices (decrease of cereals cultivation), including loss of hedges. Therefore a key long-term aim is to eventually increase these habitats to their former levels. The short-term (3 year) Result of this management plan is that by the end of 2009:

¹ The EU Habitats Directive (92/43/EEC) states that a species's conservation status will be taken as Favourable when:

- Population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats; and
- The natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future; and
- There is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long-term basis.

1. Wooded farmland, hedges and other habitats important for breeding Turtle Dove are maintained and better protected to ensure no net loss of Turtle Dove numbers and distribution (all Member States with significant numbers of breeding Turtle Dove).

Policy and legislative actions

The opening and closing date for the hunting season in the EU Member States should be set to avoid any impact on late hatching Turtle Dove broods and birds in spring migration in the EU Member States. Moreover, as long as the Turtle Dove is in unfavourable conservation status, derogations [under Article 9 of the Birds Directive] for spring hunting or trapping should not be granted.

Furthermore, since the Turtle Dove in the EU is in a long-term decline and has low productivity and survival there is an urgent need to assess the pressure of hunting on the populations and to what extent the current take is sustainable.

Results of the implementation of this Management Plan should therefore be that by 2009:

2. Turtle Dove hunting seasons in EU Member States are in accordance with information on breeding period as defined in “*Period of reproduction and pre-nuptial migration of Annex II bird species in the EU*”, and hunting does not affect late breeding birds and birds during spring migration.
3. Annual bag statistics are available for all Member States where Turtle Dove hunting is allowed.
4. Hunting bags information is collected from key countries outside the EU where European populations pass on migration and winter (especially Maghreb and Sub-Saharan countries).
5. A predictive model is developed to help determine what annual bag would be sustainable in each Member States where hunting is permitted.

Research, monitoring and international cooperation

Adequate population monitoring is essential to reach the objective of restoring the species from an unfavourable conservation status to favourable conservation status. This must be done at local, national and international level. Monitoring will provide an assessment of annual productivity in late summer prior to the autumn migration, and this information could subsequently form the basis for a decision on the annual hunting pressure the species can tolerate.

As Russia and Turkey appear to have the biggest Turtle Dove breeding populations in Europe, along with Spain, and yet they are little known, but may contribute a substantial proportion of birds shot in the EU Mediterranean Member States, it is important to find out more about these populations.

The Turtle Dove is a migratory species wintering mainly in West Africa. To better understand

the dynamic of the EU Turtle Dove population it is therefore important to also have a detailed understanding of the situation in the winter quarters.

Results of the implementation of this management plan should therefore be that by the end of 2009:

6. From the existing monitoring schemes (e.g. CBS in the UK, STOC and ACT in France), common guidelines for monitoring the species are agreed and used by all Member States to monitor Turtle Dove populations (can be included in a pan-European monitoring scheme for common birds).
7. National ringing activities and analyses of existing ringing data to estimate mortality and identify population units is supported by national authorities in all Member States with important breeding populations of Turtle Dove.
8. Annual estimates of breeding success is provided through national research activities on breeding grounds, and analysed at the European level.
9. Accurate information is gathered on the breeding population size and trend in Turkey and Russia and on numbers, distribution and ecology of wintering populations in West Africa.
10. Research on reproduction, mortality and feeding ecology targeted at assessing which components of agricultural intensification or changes in agricultural practices and habitat modification have significant adverse effects on Turtle Dove population trends, and research to determine which management is most effective for Turtle Doves, including reviews of existing pilot studies etc. is supported. Potential competition with Collared Dove also needs to be more investigated.

6. Activities

Table 5. *Prioritised activities and results in all countries in the EU with populations of Turtle Dove.*

Result	Priority	National activities	Time scale	Means of verification
Wooded farmland, hedges, <i>dehesas</i> and other habitats important for breeding Turtle Dove are maintained and better protected to ensure no net loss of Turtle Dove numbers and distribution (all Member States with significant numbers of breeding Turtle Dove).	Medium	<ul style="list-style-type: none"> • Member States will support restoration and conservation projects based on the plantation of hedges, shrubs and linear forests. Member States will also pay attention to ongoing programs of land regrouping, and will avoid within these programs the destruction of hedges, shrubs and other favourable habitats for Turtle Dove. • Member States will support nature-friendly agriculture, with evidence-based, targeted prescriptions for Turtle Dove e.g. the development of set-asides. • Member States administrations will raise awareness among landowners, farmers and other relevant stakeholders about the importance of maintaining linear plantations and hedges. • Dissemination of information on the response of Turtle Dove populations to specific management prescriptions. 	Short	<p>Public awareness rising, including distribution of publications and brochures to private landowners, local authorities and other relevant stakeholders.</p> <p>Projects reports about results of conservation and restoration of linear plantations and other management prescriptions targeted at Turtle Doves.</p>

<p>Turtle Dove hunting seasons in EU Member States are in accordance with information on breeding period as defined in “<i>Period of reproduction and prenuptial migration of Annex II bird species in the EU</i>”, and hunting does not affect late breeding birds and birds during spring migration.</p>	<p>Medium</p>	<ul style="list-style-type: none"> • Ensure that national hunting seasons are in accordance with information on breeding period as defined in “<i>Period of Reproduction and Prenuptial migration of Annex II Bird Species in the EU</i>”. • Avoid any derogations for spring hunting or trapping. 	<p>Short</p>	<ul style="list-style-type: none"> - Publications/web-pages with official hunting season in Member State available by 2008. Additional annual publicity about compliance with hunting seasons is undertaken in key areas. - Turtle Dove hunting detected outside hunting season during monitoring of hunting activity in key areas - Report of the Member States to the European Commission on derogations.
<p>Annual bag statistics are available for all Member States where Turtle Dove hunting is allowed.</p>	<p>High</p>	<p>Ensure that an annual estimate of harvest is available from all Member states with Turtle Dove hunting.</p>	<p>Immediate</p>	<p>Publication/web-site with official bag statistics in relevant Member States available by the end of 2008 and report to Commission by national Ornis Committee delegate.</p>
<p>Hunting bags information is collected from key countries outside the EU where European populations pass on migration and winter (especially Maghreb and Sub-Saharan countries).</p>	<p>Medium</p>	<ul style="list-style-type: none"> • Support the collection of estimates of bags taken in Africa are available, through cooperation projects with private hunting estates and national administrations in charge of game and wildlife management 	<p>Medium</p>	<p>Report available to the Commission by the end of 2008.</p>

<p>A predictive model is developed to help determine what annual bag would be sustainable in each Member States where hunting is permitted.</p>	<p>High</p>	<ul style="list-style-type: none"> Support the development of predictive model that will help determine what annual bag would be sustainable in each Member States where hunting is permitted. 	<p>Short</p>	<p>Model available to the relevant Member States by the end of 2008.</p>
<p>From the existing monitoring schemes (e.g. CBS in the UK, STOC and ACT in France), common guidelines for monitoring the species are agreed and used by all Member States to monitor Turtle Dove populations (can be included in a pan-European monitoring scheme for common birds).</p>	<p>Medium</p>	<ul style="list-style-type: none"> Member States reach an agreement on a common monitoring survey for breeding Turtle Dove and other <i>columbidae</i>, through the Ornis Scientific Working Group. 	<p>Medium</p>	<p>Papers and/or reports produced and disseminated documenting new information.</p>
<p>National ringing activities and analyses of existing ringing data to estimate mortality and identify population units is supported by national authorities in all Member States with important breeding populations of Turtle Dove.</p>	<p>Medium</p>	<ul style="list-style-type: none"> Support ringing activities in breeding areas and analyses of existing ringing data to better estimate mortality and identify population units. 	<p>Short</p>	<p>Papers and/or reports produced documenting new information.</p>
<p>Annual estimates of breeding success is provided through national research activities on breeding grounds, and analysed at the European level.</p>	<p>Medium</p>	<ul style="list-style-type: none"> Support research activities on breeding success. 	<p>Short</p>	<p>Papers and/or reports produced documenting new information.</p>

<p>Accurate information is gathered on the breeding population size and trend in Turkey and Russia and on numbers, distribution and ecology of wintering populations in West Africa.</p>	<p>Medium</p>	<ul style="list-style-type: none"> Support studies on breeding populations in Russia and Turkey and studies on wintering populations in Africa 	<p>Short</p>	<p>Papers and/or reports produced documenting new information.</p>
<p>Research on reproduction, mortality and feeding ecology targeted at assessing which components of agricultural intensification and habitat modification have significant adverse effects on Turtle Dove population trends, and research to determine which management is most effective for Turtle Doves, including reviews of existing pilot studies etc. is supported. Potential competition with Collared Dove is more investigated.</p>	<p>Medium</p>	<ul style="list-style-type: none"> Support research on reproduction, mortality and feeding ecology targeted at assessing which components of agricultural intensification and habitat modification have significant adverse effects on Turtle Dove population trends, and research to determine which management is most effective for Turtle Doves, including reviews of existing pilot studies etc. 	<p>Short</p>	<p>Papers and/or reports produced documenting new information.</p>

The **Priority** of each Result is given, according to the following scale:

- Essential: an action that is needed to prevent a large decline in the population, which could lead to species or subspecies extinction.
- High: an action that is needed to prevent a decline of more than 20% of the population in 20 years or less
- Medium: an action that is needed to prevent a decline of less than 20% of the population in 20 years or less
- Low: an action that is needed to prevent local population declines or which is likely to have only a small impact on the population across the range.

The **Time scales** attached to each Activity use the following criteria:

- Immediate: completed within the next year.
- Short: completed within the next 1-3 years

- Medium: completed within the next 1 – 5 years.
- Long: completed within the next 1 – 10 years
- Ongoing: an action that is currently being implemented and should continue.
- Completed: an action that was completed during the preparation of the Action Plan.

Table 6. Summary of the objectives and results to be achieved of the Turtle Dove Management Plan 2007-2009.

DESCRIPTION	VERIFIABLE INDICATORS	MEANS OF VERIFICATION	ASSUMPTIONS
<p>Overall objective To restore the Turtle Dove to a Favourable Conservation Status in the EU</p>	The Turtle Dove has a Favourable Conservation Status in the EU	The European Threat Status classification of Turtle Dove.	Turtle Dove Management Plan approved and supported by EU and Member States.
<p>Results 2007-2009:</p> <p>1. Wooded farmland, hedges and other habitats important for breeding Turtle Dove are maintained and better protected to ensure no net loss of Turtle Dove numbers and distribution (all Member States with significant numbers of breeding Turtle Dove).</p> <p>2. Turtle Dove hunting seasons in EU Member States are in accordance with information on breeding period as defined in “<i>Period of reproduction and prenuptial migration of Annex II bird species in the EU</i>”, and hunting does not affect late breeding birds and birds during spring migration.</p> <p>3. Annual bag statistics are available for all Member States where Turtle Dove hunting is allowed.</p> <p>4. Hunting bags information is collected from key countries outside the EU where European populations pass on migration and winter (especially Maghreb and Sub-Saharan countries).</p> <p>5. A predictive model is developed to help determine what annual bag would be sustainable in each Member States where hunting is permitted.</p> <p>6. From the existing monitoring schemes (e.g. CBS in the UK, STOC and ACT in France), common guidelines for monitoring the species are agreed and used by all Member States to monitor Turtle Dove populations (can be included in a pan-European monitoring scheme for common birds).</p>	<p>1. Favourable habitats are conserved or restored. There is not more net loss of favourable habitats for Turtle Dove, and set-aside projects or other similar actions are implemented.</p> <p>2. Opening and closing of hunting season are not conflicting with “Period of Reproduction and Prenuptial migration of Annex II Birds Species in the EU”.</p> <p>3. Data on annual number of Turtle Dove shot in EU is available.</p> <p>4. Data on number of Turtle Dove breeding in EU shot outside Europe available.</p> <p>5. Model developed and running.</p> <p>6. Common guidelines developed and pan-European turtle Dove monitoring initiated.</p>	<p>1. Publications and statistics about landscape evolution and farming practices.</p> <p>2. Publication/web-site with official hunting seasons in Member States available by 2007. National derogation report</p> <p>3. Publication/web-side with official bag statistics in relevant Member State available.</p> <p>4. Report available to the Ornis Committee.</p> <p>5. Estimate available on what annual bag would be sustainable in each Member States where hunting is permitted</p> <p>6. New, accurate population data on Turtle Dove populations available from all key countries.</p>	<p>For all results: Member States have adequate resources and commitment to take responsibility for Turtle Dove management in accordance with the Birds Directives requirements.</p> <p>For result 1, an assumption is that environmental issues are taken into account by Member States Ministries of Agriculture.</p> <p>For result 3 and 4. Hunters and hunters association are willing to provide annual bags.</p>

<p>7. National ringing activities and analyses of existing ringing data to estimate mortality and identify population units is supported by national authorities in all Member States with important breeding populations of Turtle Dove.</p> <p>8. Annual estimates of breeding success is provided through national research activities on breeding grounds, and analysed at the European level.</p> <p>9. Accurate information is gathered on the breeding population size and trend in Turkey and Russia and on numbers, distribution and ecology of wintering populations in West Africa.</p> <p>10. Research on reproduction, mortality and feeding ecology targeted at assessing which components of agricultural intensification and habitat modification have significant adverse effects on Turtle Dove population trends, and research to determine which management is most effective for Turtle Doves, including reviews of existing pilot studies etc. is supported.</p>	<p>7. New information on Turtle Dove population units and mortality from key Member States available.</p> <p>8. New information on Turtle Dove breeding success is available from key Member States.</p> <p>9. New information is available on breeding numbers and trend in key countries neighbouring the EU and from wintering areas.</p> <p>10. New information is available on the agricultural factors and habitat modification that significantly impact Turtle Doves negatively.</p>	<p>7. Papers and/or reports documenting new information.</p> <p>8. Papers and/or reports documenting new information.</p> <p>9. Papers and/or reports documenting new information.</p> <p>10. Papers and/or reports documenting new information.</p>	
--	--	--	--

7. References

- AEBISCHER, N.J. (2002).** Turtle Dove *Streptopelia turtur*. In The Migration Atlas: movements of the Birds of Britain and Ireland. C.V. WERNHAM, M.P. TOMS, J.H. MARCHANT, J.A. CLARK, G.M. SIRIWADERNA & S.R. BAILLIE, eds. T. & A.D. Poyser, London: 420 – 422.
- **AUBINEAU J. , BOUTIN J.M., (1998)** - L'impact des modalités de gestion du maillage bocager sur les colombidés nicheurs dans l'ouest de la France. *Gibier Faune Sauvage, Game Wildl. Science*, Vol 15, (Hors série Tome 1), pp. 55-63.
- **BIRDLIFE INTERNATIONAL, (2004a)** – Birds in Europe: population estimates, trends and conservation status. *BirdLife Conservation series*, n°12.
- **BIRDLIFE INTERNATIONAL, (2004b)** – Birds in the European Union: a status assessment. Wageningen, The Netherlands: BirdLife International.
- **BOUTIN J.M. (1998)** – Les populations de colombidés nicheurs en France. Actes du Colloque de Bordeaux Suivi de populations de colombidés, *Bordeaux 17-18 Décembre 1998*. 26-32.
- **BOUTIN, J.M, TESSON, J.L., (2000)** Enquête nationale sur les tableaux de chasse à tir, saisons 1998-1999 : les tourterelles des bois et turques. *Faune sauvage*, 251: 70-81.
- **BOUTIN, J.M. (2001)** – Elements for a Turtle Dove (*Streptopelia turtur*) management plan. *Game and Wildlife Science*, 18 : 87-112.
- **BOUTIN, J.M., BARBIER, L., ROUX, D. (2001)**. Suivi des effectifs nicheurs d'Alaudidés, colombidés et Turdidés en France : le programme ACT. *Alauda* 69 (1) : 53-61.
- **BROWNE, S.J., AEBISCHER, N. (2003)** Habitat use, foraging ecology and diet of Turtle Doves *Streptopelia turtur* in Britain. *Ibis*, 145, p.572-582.
- **BROWNE, S.J., AEBISCHER, N. (2004)** Temporal changes in the breeding ecology of European Turtle Doves *Streptopelia turtur* in Britain, and implications for conservation. *Ibis*, 146, p. 125-137.
- BROWNE, S.J., AEBISCHER, N. (2005)** Studies of West Palearctic birds: Turtle Dove. *Brit. Birds*, 98: 58-72.
- **BROWNE, S.J., AEBISCHER, N., CRICK, H. (2005)** Breeding ecology of Turtle Doves *Streptopelia turtur* in Britain during the period 1941-2000: an analysis of BTO nest records cards. *Bird Study* 52, 1-9.
- **CALLADINE J.R., BUNER F., AEBISCHER N.J. (1997)** - The summer ecology and habitat use of the Turtle Dove. A pilot study. *English Nature Research Reports*, n° 219 : 87 pp.
- **CRAMP S. (1985)** - Handbook of the birds of Europe, the Middle East and North Africa. Vol IV, Terns to Woodpeckers - Oxford University Press : 353-363.
- CYPRUS GAME FUND SERVICE, (2005)** – Comments from Cyprus on Annex II species EU management plans. *Unpublished report*, 8pp.

- DELANY, S. (2005)** – A preliminary assessment of the Derogation Report from Malta regarding spring hunting of Common Quail *Coturnix coturnix* and European Turtle Dove *Streptopelia turtur*. Prepared for the European commission DG ENV by the consortium DDH Consulting, Tour du valat and Wetlands International. 8 pp.
- **DEVORT M., TROLLIET B., VEIGA J. (1988)** - Sur la migration postnuptiale de la tourterelle des bois en Gironde. *Gibier Faune Sauvage* (5) : 61-70.
- **ELTS J., KURESOO A., LEIBAK E., LEITO A., LILLELEHT V., LUIGUJÕE L., LÕHMUS A, MÄGI E., OTS M. (2003)**. Status and numbers of Estonian birds, 1998-2002. *Hirundo* 12 (2): 58-83.
- **EUROPEAN COMMISSION (2004)** – Guidance document on hunting under Council Directive 79/409/EEC on the conservation of wild birds – “The Birds Directive”.
- **FLETCHER, M.R., (1979)** – Aggression by Collared Doves *Streptopelia decaocto* to Turtle Doves *Streptopelia turtur*. *British birds*. 72 (7) : 346.
- **FONTOURA A.P., DIAS S. (1995)** - Productivity of the turtle Dove (*Streptopelia turtur*) in the northwest of Portugal. In Proc.Int.Union Game Biol.XXII Congress "The game and man", Sofia, Bulgarie 4-8 septembre 1995, BOTEV N., ed., 1996 : 1-6.
- **FONTOURA A.P. (1996)** - Importância socio-economica da caça em Portugal. Actas do 1º Workshop sobre biologia da caça. Porto : 95-99.
- **GEROUDET, (1983)** - Limicoles, Gangas et Pigeons d'Europe. Volume 2. Delachaux et Niestlé. Neuchâtel, Paris, 264 p.
- **GLUTZ VON BLOTZHEIM U.M. (1980)** - Handbuch der Vögel Mitteleuropas. Akademische Verlagsgesellschaft, Wiesbaden.
- **GLUTZ VON BLOTZHEIM U.M., BAUER, K.M., (Eds). (1992). Handbuch der Vögel Mitteleuropas, 13. Wiesbaden, Aula-Verlag.**
- **GRELL, M.B.; HELDBJERG, H., RASMUSSEN, B., STABELL, M., TOFFT, J. & VIKSTRØM, T. (editors). 2004.** ”Truede og sjældne ynglefugle I Danmark 2003”. DOFT (Journal of the Danish Ornithological Society) vol. 98, page 77. (With a summary in English: *Rare and threatened breeding birds in Denmark, status 1998-2003*).
- HIDALGO DE TRUCIOS, S.J. & ROCHA CAMARERO, G., (2001a)**. Status de la Tourterelle des bois *Streptopelia turtur* en Estrémadura (Espagne). Incidence sur la chasse. *Faune Sauvage*, 253 (Janv.-fév.): 82-85. ISSN: 0151-4806
- **HIDALGO DE TRUCIOS, S.J. & ROCHA CAMARERO, G., (2001b)**. Valoración de la presión cinegética sobre la Tórtola Común en Extremadura. *Naturzale*, 16: 157-171. ISSN: 1137-8603
- **HIDALGO DE TRUCIOS, S.J. & ROCHA CAMARERO, G., (2002)**. ¿Qué está pasando en realidad con la Tórtola Común?. *Euskonews & Media*, 184 (2002/10): 18-25. ISSN: 1139-3629
- **HIDALGO DE TRUCIOS, S.J. & ROCHA CAMARERO, G., (2003)**. La Caza de la Tórtola Común como actividad sostenible. En: *CONSERVACIÓN, EXPLOTACIÓN Y COMERCIALIZACIÓN DE LOS ESPACIOS CINEGÉTICOS*. Editado por el Centro de Desarrollo Rural Campiña Sur. pp. 135-149. ISBN: 84-688-2928-5

- **HIDALGO DE TRUCIOS, S. J. & ROCHA CAMARERO, G. (2005).** Revisión del status de la Tórtola Común en Extremadura, implicaciones en su conservación. En *Flora y Fauna amenazada de Extremadura*. Consejería de Agricultura y Medio Ambiente. Ed. Junta de Extremadura.
- **HILL D. (1992)** - Assessment of the population dynamics of Turtle Dove in EC COUNTRIES - Rapport DGXI : 12.
- **ICONA (1989)** - Determination del status de la tortola comun *Streptopelia turtur*. Informe final. Instituto Nacional para la Conservacion de la Naturaleza, servicio de vida silvestre: 321 pp + biblio.
- **JARRY G. (1994)** - In « Nouvel atlas des oiseaux nicheurs de France, 1985-1989 », Société d' Etudes Ornithologiques : 380-383.
- **KARNER E., MAUERHOFER V., RANNER A. (1996)** - handlungsbedarf für Österreich zur Erfüllung der EU-Vogelschutzrichtlinie. Wien, Umweltbundesamt.
- **KURLAVICIUS P., RAUDONIKIS L. (1999).** Assessment of the Lithuanian breeding bird abundance. *Ciconia*, vol 7 : 52-57.
- **KURLAVICIUS, P., RAUDONIKIS L. (2001).** Assessment of the Lithuanian breeding bird abundance, 1999-2001. *Ciconia*, vol. 9: 92-97.
- **MARCHANT J.H., HUDSON R., CARTER S.P., WITTINGTON P. (1990) - Population trends in British breeding birds. B.T.O.: 300 p.**
- **MURTON R. K. (1968)** - Breeding, migration and survival of Turtle Doves. *Brit. Birds* 61 (5) : 193-212.
- **PARSLOW J.L.F. (1967)** - Changes in status among breeding birds in Britain and Ireland. *Brit. birds*, 60 : 177-202.
- **PEIRÓ V., (1990).** Aspectos de la reproducción de la Tórtola Común (*Streptopelia turtur*, L) en Madrid. *Mediterránea Ser. Biol.* 12: 89-96.
- **PURROY F., (1997)** - Atlas de las aves de España - (1975/1995). SEO Sociedad Española de Ornitología - LYNX Edicions.
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J., (1998).** Distribución y abundancia de la Tórtola Turca *Streptopelia decaocto* en Extremadura (SO de España). *Butll. GCA*, 15: 1-8. ISSN: 1130-2070
- **ROCHA CAMARERO, G. e HIDALGO DE TRUCIOS, S.J., (2000a).** *ECOLOGÍA DE LA TÓRTOLA TURCA (Streptopelia decaocto)*. Servicio de Publicaciones de la Universidad de Extremadura. Cáceres (España) 88 pp. ISBN: 84-7723-410-8.
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J., (2000b).** Ecología y Gestión Cinegética: El efecto de reclamos alimenticios en la caza de la Tórtola. *Ann. R. Acad. CC. Vet.*, 8: 357-367. ISSN: 1135-2795
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J., (2001a).** La Tourterelle Turque *Streptopelia decaocto* en Estrémadure, en Espagne: sa distribution, son expansion et son incidence sur la Tourterelle des bois. *Faune Sauvage*, 253 (Janv.-fév.): 66-68. ISSN: 0151-4806

- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J., (2001b)**. Incidencia del uso de reclamos alimenticios sobre la Tórtola Común. *Naturzale*, 16: 147-155. ISSN: 1137-8603
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S. J. (2002a)**. *LA TÓRTOLA COMÚN (Streptopelia turtur). ANÁLISIS DE LOS FACTORES QUE AFECTAN A SU STATUS*. Servicio de Publicaciones. Universidad de Extremadura. Cáceres. España. 198 pp.
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S. J. (2002b)**. Examining the spread of the Collared Dove in Europe. Colonization patterns in the west of the Iberian Peninsula. *Bird Study*. 489: 11-16. ISSN: 0006-3657
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J., (2003a)**. Claves para una correcta gestión cinegética de la Tórtola Común. En: *LA CAZA COMO ACTIVIDAD IMPULSORA DEL DESARROLLO SOSTENIBLE*. Editado por el Centro de Desarrollo Rural Campiña Sur, pp. 107-114. ISBN: 84-699-4709-5
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J. (2003b)**. Seguimiento de la actividad cinegética en la Media Veda de 2001. En: *CONSERVACIÓN, EXPLOTACIÓN Y COMERCIALIZACIÓN DE LOS ESPACIOS CINEGÉTICOS*. Editorial (si libro): Centro de Desarrollo Rural Campiña Sur. pp. 123-13. ISBN: 84-688-2928-5
- **ROCHA CAMARERO, G. & HIDALGO DE TRUCIOS, S.J. (2004)**. La Investigación científica al servicio de una gestión eficaz: el ejemplo de los estudios sobre la Tórtola Común en Extremadura. *Foresta*, 27: 76-81. ISSN: 1575-2356
- **ROCHA CAMARERO, G & HIDALGO DE TRUCIOS, S.J. (2005)**. La Tórtola Turca, ¿especie cazable?. En: *GESTIÓN CINEGÉTICA Y DESARROLLO RURAL*. Editado por el Centro de Desarrollo Rural Campiña Sur. pp. 143-152 (ISBN: 84-688-8491-X)
- **ROCHA CAMARERO, G., MERCHÁN, T. & HIDALGO DE TRUCIOS, S. J. (2006)**. Otras especies de caza menor en dehesas y bosques mediterráneos: Tórtola Común y Paloma Torcaz. En: Carranza, J. & Saez de Buruaga, M. (2006). *Manual para la gestión integral de los ecosistemas mediterráneos en los terrenos cinegéticos de andalucía*. España. (in press).
- **ROMAGOSA, C. & MCENEANEY, T. (1999)**. Eurasian Collared-Dove in North America and the Caribbean. *North American Birds*. 53 (4): 348-353.
- **SANTOS E. (1998)** - Caractérisation « géostatique » des résultats de chasse aux colombidés au Portugal. *Colloque International Colombidés, Bordeaux 17-18 Décembre 1998. Actes à paraître*.
- **SHARROCK J.T.R.(1976)** - The atlas of breeding birds in Britain and Ireland. B.T.O., 479 p.
- **SNOW D.W. et PERRINS C.M. (1998)** - The Birds of the Western Palearctic. Concise Edition vol. 1 - Non passerines. Oxford University Press : 856-859.
- **TUCKER G.M., HEATH M.F. (1994)** - Birds in Europe, their conservation status. Birdlife International.
- **TUCKER G.M., (1996)** - Investigation on the conservation measures taken by member states for bird species of annex II of the council directive 79/409/EEC which have an unfavourable conservation status. Ecoscope Applied Ecologists, Final report for European Commission DG XI : 170-175.

Annex I

Period of Reproduction and Prenuptial migration of Turtle Dove *Streptopelia turtur* –from “Period of Reproduction and Prenuptial migration of Annex II Bird Species in the EU”- (EU 2004).

Prenuptial migration

Member State	YES	NO	References
FI		X	1, 2, 3, 4
SE			
DK		X	
UK		X	1
IE		X	
DE		X	4, 9
NL		X	21
BE			
LU		X	1
AT		X	8
FR		X	2, 16, 17
ES		X	5
PT			
IT			
GR		X	1, 2, 3

	J	A	N	F	E	B	M	A	R	A	P	M	A	Y	J	J	J	A	A	S	S	O	O	N	D	D	E	C
FI																												
SE																												
DK																												
UK																												
IE																												
DE																												
NL																												
BE																												
LU																												
AT																												
FR																												
ES																												
PT																												
IT																												
GR																												

FR - prenuptial migration from 20th April until 20th June; isolated cases observed from the beginning of April

Comments and conclusions

1) The species is strictly migratory and winters in Africa. Beginning of prenuptial migration coincides with arrival of first migrants.

Beginning of prenuptial migration ranges from the 3rd decade of March (ES, PT) to the 1st decade of May (DK).

