










## Article

# Range Contraction and Population Decline of the European Dupont's Lark Population

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**Abstract:** The Dupont's lark (*Chersophilus duponti*) is an endangered passerine typical of Mediterranean shrub-steppes, whose European distribution is restricted to Spain. Here, we update the population size and distribution range of the species at a European scale and evaluate (i) the current status; (ii) the change in population size and distribution range of the species from 2004 to 2009 to the current period (2017–2022); and (iii) the effectiveness of the current network of special protection areas (SPAs) for protecting the Dupont's lark. The European Dupont's lark population showed a decrease of 29.9%, declining from ca. 3267 to 2289 territorial males from 2004 to 2009 to the current period. Moreover, the species has suffered a contraction in its distribution range of 35.9%, with only 39.3% of the species' territories located within the current network of SPAs. Our findings agree with the previously described decline of the Dupont's lark in Europe. The population decline was even larger in peripheral regions, which suggests that the species is suffering a centripetal process of contraction and extinction. These results indicate that if there is no change in present-day declining forces, several peripheral populations will reach extinction in a few decades and the overall population size of the species will continue decreasing. Our study should be considered as a last call for action and used for

implementing urgent conservation measures to protect the species and its habitat. Future studies should focus on analyzing and managing the factors driving the species' extinction and future actions for the conservation of the species should focus on increasing the percentage of the Dupont's lark territories within protected areas, since the data are alarmingly low for a species that is facing clear risk of extinction.

**Keywords:** endangered lark; range contraction; steppe birds

## 1. Introduction

Global diversity has largely declined during the last decades [1,2] and the population abundance of many bird species has accordingly declined worldwide [3,4]. However, local trends of abundance and diversity differ among regions and taxonomic groups, demonstrating that biodiversity changes are often complex [5]. For example, specialist birds are declining more rapidly than generalist species [6]. Currently, grassland and steppe birds are among the groups of birds showing the greatest population declines [7–9], and they are threatened mainly due to agricultural intensification and land use changes [10–12].

In the case of open habitats such as grasslands and steppes, habitat fragmentation and land use changes are the main drivers of habitat loss and degradation [13–16]. In the Iberian steppes, specifically, agricultural intensification and the abandonment of extensive grazing have been documented as the main threats to these rare and valuable habitats, and to steppe-specialist species [17]. The Dupont's lark (*Chersophilus duponti*) is a steppe bird of particular concern, being among the most threatened European birds [18] and included within the 65 priority bird species inhabiting steppes [19]. The Dupont's lark is catalogued as "Vulnerable" at a European level [20] even though Spain is the only European country that the species inhabits, and in Spain the species has recently been declared as "Endangered" (BOE Orden TED/339/2023). This species is a medium sized passerine (ca. 38 g) with strict habitat requirements, as it selects flat natural treeless shrub-steppes (<40 cm) with a slope of less than 15% [21]. This habitat selectivity of the Dupont's lark for semi-natural steppes makes it a highly sensitive species to alterations of these habitats, as well as an indicator species for habitat quality. In recent years, a substantial proportion of the species' potential habitat is being occupied by wind turbine installations as part of initiatives aimed at establishing power plants for the generation of renewable electricity. The adverse impact of these installations on the species and its habitat has already been substantiated by previous studies [13], leading to population loss and isolation.

The Dupont's lark population in Spain was estimated during the II National Census (2004–2007) to be around 3463–4452 males, which means 2200–2800 breeding pairs considering the sex-ratio of 0.61 [22]. Later, other studies documented the extinction of tens of populations [23] and an average annual decline of 3.9% has been estimated for 92 Spanish localities surveyed between 2004 and 2015 [18], together with a significant range contraction (ca. 40%, [24]) and a loss of genetic variability [25]. Moreover, a recent study revealed that the extreme snowstorm "Filomena", which occurred in Spain in January 2021, led to a 66.5% average decline in seven populations monitored the year before and after the snowstorm, which may have also had a great impact on the population dynamics of the species [26]. Although the declining status of the species is well described, the current population size and magnitude of the downward trend for the whole Spanish population are unknown. Moreover, the declining process is not homogeneous through the species' distribution range, with larger declines and local extinctions occurring more often in peripheral populations, while in the core area population size and distribution range trends seem to be more stable [16,18,27]. Indeed, it has been recently predicted that the species could be suffering a process of centripetal contraction due to insufficient connectivity in the most isolated and peripheral populations [24]. Recently, [24] estimated a probability of extinction in 20 years of app. 84% for the whole Spanish metapopulation, and therefore

there is an urgent need for an updated and rigorous assessment about the current situation of the species.

In a context where species' threat classifications consider both the status of the populations and the species distribution, as the main criteria at a national and UICN level, it is important to analyze both aspects together to evaluate the status of the species. Thus, in this study, we aim to gather and analyze the most updated information available on the population size and distribution of the Dupont's lark in Spain, both at a provincial, regional (i.e., per autonomous community) and national level, aiming to update the current status of the species. Here, we present the most updated data of population size and distribution range in Spain, accompanied by an updated cartography that aims to promote the conservation of the species. More specifically, we aim to: (i) evaluate the change in the estimated number of territorial males between the II National Census (2004–2007) and the current period (2017–2022), and to (ii) evaluate present day and changes in the distribution range. We have also performed a gap analysis aiming to (iii) assess the effectiveness of the current national protected area network in protecting the populations of the Dupont's lark.

## 2. Material and Methods

### 2.1. Data Collection

The Dupont's lark censuses data from the II National Census (II NC; hereinafter) were obtained from 2004 to 2007 depending on the studied province (see [21] for details) and were accessed by the work team. For this work, a re-estimation of the data from Suárez 2010 has been carried out in order to reunify the criteria between the past and the current status of the Dupont's lark. Recent data (hereinafter Current Status, CS) were compiled from the Autonomous Communities regional governments where the species is present (1), or by performing species-specific censuses during the breeding period (2). In both cases, CS Dupont's lark data were gathered between 2017 and 2022, except for Aragón, for which 2016 data were also included, because around 5000 ha with the presence of the species were not censused after 2016. Only 106 out of 223 population localities known to date in Aragón were censused in the period 2016–2022 (47% of the localities, representing 64% of the known area). Since 2017, data have only been available for 99 localities (44%) representing 60% of the area. Thus, we decided to include 2016 in the CS in the case of Aragón to avoid considering as absences of Dupont's lark almost 5000 ha censused that year. Despite this, there are still 41 localities that have not been surveyed since 2007 or earlier (18% of known locations, representing 14% of the area), which is indicative of the need to increase the monitoring effort in this region. This dataset comprises information for all the autonomous communities inhabited by the species [28]. Updated cartographic data of special protection areas (SPAs) [29] were used to estimate the current population and range included within the Natura 2000 network.

### 2.2. Census Methodology

The birds were counted by linear transects (500 m inner belt width) or by territory mapping, with both methods reaching similar population estimates [30]. All censuses were carried out during the hour before dawn, the period of maximum singing activity [31] and were always performed under adequate weather conditions (e.g., no rain, low wind) and at constant speed. The length of transects (mean  $\pm$  SD) during the II NC was longer than in the CS (II NC:  $2638.6 \pm 1461.2$  m, CS:  $1809.3 \pm 491.3$  m). In the following, the results obtained by both census methods will be referred to as the number of territorial males.

### 2.3. Subpopulation and Population Definition

Following the classification proposed by [28], all territories separated by less than 5 km were considered to belong to the same subpopulation. Those subpopulations separated by less than 20 km were classified to be part of the same population (see [28] for more information on criteria for the definition of subpopulations and populations).

### 2.4. Range Distribution

The locations of Dupont’s lark males during both the II NC and the CS were mapped in grids of 1 × 1 km. When a grid cell included two different provinces (or autonomous communities), we considered the species to occur in both provinces, so the sum of the grid cells at the province or autonomous community level may be slightly greater than the total number of cells occupied at the national level.

### 2.5. Statistical and Gap Analyses

We used the same approach as [26] to estimate the population change between the two periods. The average annual population change was estimated following the formula:

$$\text{Annual population change} = \left( \frac{Np}{Ni} \right)^{\frac{1}{\text{Year}}} - 1 \tag{1}$$

where *Np* is the estimated population size (number of territorial males) in the CS, *Ni* is the estimated population size in the same area during the II NC, and *Year* is the number of years elapsed between both periods. We then multiplied the estimate by 100 to yield growth rates in percent.

To determine the annual population change at a province level, we calculated the number of years between the II NC and the CS for each monitored population. To estimate the current population size of the Dupont’s lark, we used the most recent data (Supplementary Table S1). When (sub)populations of the same province were counted in different years, we employed the median year of census or, when just two years were censused, we considered the one with the largest number of populations monitored (Supplementary Table S1). The interval of years that elapsed between the II NC and the CS per Autonomous Community was estimated by averaging the interval of years of the provinces of each autonomous community (Table 1).

**Table 1.** Number of Dupont’s lark territorial males estimated per Autonomous Community during the II National Census and the Current Status. The last columns indicate the annual and total population change between periods and the interval of years elapsed between the I NC and the CS.

Autonomous Community	II National Census	Current Status	Annual Population Change (%)	Total Population Change (%)	Interval of Years
Andalucía	30	11	−6.47	−63.33	15
Aragón	1541	695	−5.94	−54.9	13
Castilla—La Mancha	677	508	−2.18	−24.96	13
Castilla y León	877	1023	1.03	16.65	15
Cataluña	-	2	-	-	18
Comunidad Foral de Navarra	57	35	−3.98	−38.6	12
Comunidad Valenciana	47	11	−8.19	−76.6	17
Región de Murcia	38	4	−13.94	−89.47	15
Spain	3267	2289	−2.34	−29.94	

The percentage of change for population size, distribution range and change in grid cells included within the protected areas (gap analysis) was estimated following the formula:

$$\text{Percentage change} = \frac{(\text{Current value} - \text{Initial value})}{\text{Initial value}} \tag{2}$$

where *Current value* is the data from the CS and the *Initial value* is extracted from the II NC. This value was multiplied by 100 to yield the growth rates in percent. This formula was

used to calculate the percentages of change at the provincial, autonomous community and national levels.

To carry out the gap analysis, we considered both SPAs in general and SPAs that considered the Dupont's lark as a conservation target species. This was carried out for both the number of males and the number of grid cells ( $1 \times 1$  km). We considered a grid cell to occur in protected areas when at least 30% of the grid surface was within an SPA (for a similar approach, see [32]).

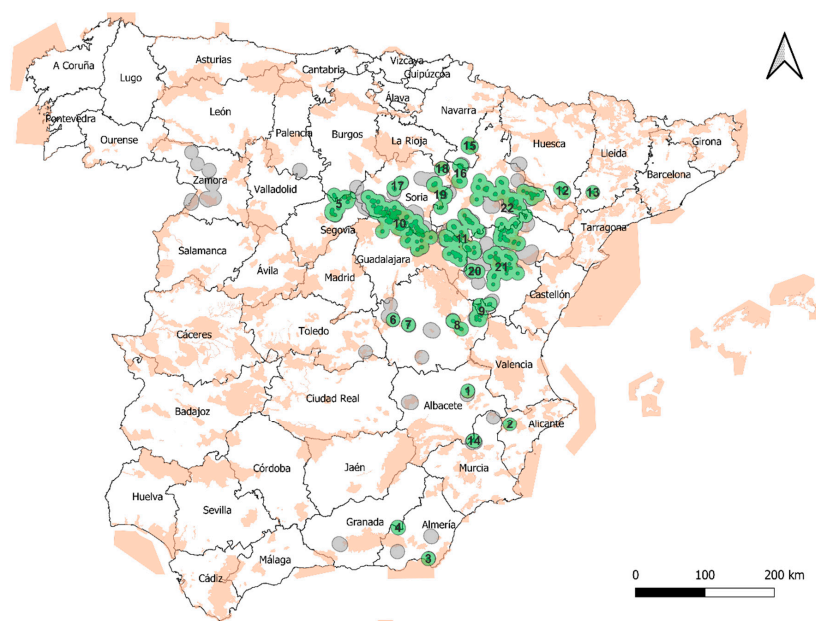
### 3. Results

#### 3.1. Population Size and Change

The estimated current male population size of the Dupont's lark in Spain is (a minimum of) 2289 territorial males. This CS estimation means a decrease of 29.9% from the 3267 territorial males estimated during the II NC (Table 1), and a 2.3% annual population decline. At the regional level, the main population of the Dupont's lark in Europe has changed from being in Aragón during the II NC to Castilla y León currently. Considering the male-biased adult sex ratio, the estimated overall current effective population size should be between 608 (0.79 sex ratio [33]) and 1463 breeding pairs (0.61 sex ratio [22]).

At a regional level, the regressive trend of the species was the maximum in the Región de Murcia with almost 90% of the decline, Comunidad Valenciana with 77%, Andalucía with 63% and Aragón with 55% of the decline (Table 1). In Cataluña, no territorial males were recorded during the II NC (Table 1) when the species was considered extinct. In 2015 a "recolonization" event occurred and up to 7–8 males were estimated for the period 2017–2019, but this drastically reduced to only 2 males in 2022 after the Filomena snowstorm. In Castilla y León, the population of the species showed slight positive annual growth of around 1% between both periods.

At the province level, the Dupont's lark seems to have become extinct in Zamora, Palencia and Toledo (Figure 1); and almost extinct in Burgos, Cuenca, Albacete and Granada (Figure 1). In contrast, there seems to be an attempt of (re)colonization in the province of Alicante, since one male was detected between 2020 and 2022. A detailed table showing the annual and total population change between periods at the province level can be found in Supplementary Table S2.



**Figure 1.** Current distribution of the 22 populations of the Dupont's lark. The grey circles identify populations extinct between the II National Census and the Current Status. Numbers correspond to the population id as shown in Table 1.

### 3.2. Distribution Range and Change

The CS distribution of the Dupont's lark is restricted to 624  $1 \times 1$  km grid cells. This means a range contraction of 36.4%, since the species was distributed over 981 grid cells during the II NC. The updated cartography of the current range distribution of the species in a  $1 \times 1$  km grid cell can be found in GitHub at <https://doi.org/10.5281/zenodo.8172291> (accessed on 21 July 2023). From an administrative point of view, the species is restricted to eight Autonomous Communities, but with an extremely constrained distribution (<20  $1 \times 1$  km grid cells) in five of them: Cataluña, Comunidad Valenciana, Región de Murcia, Andalucía and Comunidad Foral de Navarra (Table 2).

**Table 2.** Number of  $1 \times 1$  km grid cells with the presence of the Dupont's lark during the II National Census and the Current Status. Last column indicates the percentage of change in the number of  $1 \times 1$  km grid cells occupied between periods. The same interval of years as Table 1 was used.

Autonomous Community	II National Census	Current Status	Percentage Change (%)
Andalucía	14	7	−50.00
Aragón	463	235	−49.24
Castilla—La Mancha	176	152	−13.64
Castilla y León	307	220	−28.34
Cataluña	0	1	-
Comunidad Foral de Navarra	16	18	12.50
Comunidad Valenciana	12	4	−66.67
Región de Murcia	16	4	−75.00
Spain	981	624	−36.39

At the regional level, the decline in distribution range follows a similar pattern to the one described for the population size, with this decline being particularly high in Región de Murcia (75.0%, Table 2), Comunidad Valenciana (66.7%, Table 2) and Andalucía (50.0%, Table 2). A detailed table showing the distribution and change rate per province can be found in Supplementary Table S3.

According to the criteria proposed by [28], the CS distribution of the Dupont's lark covers 22 populations (Table 3, Figure 1) and 95 subpopulations (Supplementary Table S4).

**Table 3.** Current population size (number of males) of the 22 European Dupont's lark populations, all restricted to Spain. They are shown in alphabetical order of province. The id label identifies each population as shown in Figure 1.

id	Province	Population Name	Current Population Size
1	Albacete	Hoya Gonzalo	3
2	Alicante	Villena	1
3	Almería	Cabo de Gata	5
4	Almería, Granada	Sierra de Baza	6
5	Burgos, Segovia	Hoces y Corcos	118
6	Cuenca	Uclés—Saelices	2
7	Cuenca	Zafra de Zancara	3
8	Cuenca	Carboneras de Guazaón—Cardenete	12
9	Cuenca, Teruel, Valencia	Ademuz	37
10	Guadalajara, Soria	Sistema Ibérico Oeste	1103

Table 3. Cont.

id	Province	Population Name	Current Population Size
11	Guadalajara, Teruel, Zaragoza	Sistema Ibérico Este	316
12	Huesca	Bajo Cinca	9
13	Lleida	Alfés	2
14	Murcia	Cieza	4
15	Navarra	Bardenas	35
16	Navarra, Zaragoza	Ablitas—Campo de Borja	33
17	Soria	Golmayo	28
18	Soria	Moncayo—Gómara Norte	4
19	Soria, Zaragoza	Moncayo—Gómara	53
20	Teruel	Pozondón	14
21	Teruel	Altiplano	90
22	Zaragoza	Valle del Ebro—Altiplano	411

### 3.3. Gap Analysis

The percentage of males currently located within SPAs was 39.2%, of which 90.5% were found in SPAs whose conservation plan includes the Dupont's lark (Table 4). The percentage of males located within SPAs during the II NC was 52%, of which 93.7% were within SPAs with Dupont's lark as a target species. Therefore, the total percentage of males within SPAs has decreased between the II NC and the current period. The decline is greater within SPAs than outside in some communities, such as Aragón (67.5% decline within and 39.9% outside, Table 4) or Castilla—La Mancha (48.4% within, 5.9% outside, Table 4).

**Table 4.** Number and percentage of Dupont's lark territorial males located within SPAs (with Dupont's lark as a conservation species target or not) by Autonomous Community and in Spain (total), and the percentage change (%) between the II NC and CS in and out SPAs, both in the II National Census and the Current Status.

	II National Census				Current Status				Percentage Change (%)	
	SPAs		SPA Target		SPAs		SPA Target		Within SPAs	Outside SPAs
	N	%	N	%	N	%	N	%		
Andalucía	4	13.33	4	100.00	5	45.45	5	100.00	25.00	−76.92
Aragón	837	54.32	837	100.00	272	39.14	272	100.00	−67.50	−39.91
Castilla—La Mancha	304	44.90	197	64.80	157	30.91	78	49.68	−48.36	−5.90
Castilla y León	521	59.41	521	100.00	453	44.28	447	98.68	−13.05	60.11
Cataluña	0	-	0	-	2	100.00	2	100.00	-	-
Comunidad Foral de Navarra	0	0.00	0	0.00	0	0.00	0	0.00	-	−38.60
Comunidad Valenciana	34	72.34	34	100.00	8	72.73	8	100.00	−76.47	−76.92
Región de Murcia	0	0.00	0	0.00	0	0.00	0	0.00	-	−89.47
Total	1700	52.04	1593	93.71	897	39.19	812	90.52	−47.24	−11.17

The current number of occupied  $1 \times 1$  km grid cells included within SPAs at a national level was 257 out of 624 (41.2%), while it was 447 out of 981 (45.6%) during the II NC. The decline in the species' distribution range was greater within SPAs than outside in some autonomous communities such as Murcia (−100.0% within, −73.3% outside), Valencia (−77.8% within, −33.3% outside), Castilla la Mancha (−43.7% within, 15.7% outside) and Aragón (−54.8% within, −44.26% outside). To see the distribution range and change per SPA and Autonomous Community, see Supplementary Table S5.

#### 4. Discussion

Here, we provide the most exhaustive and updated information on the population size and distribution range of the European population of the Dupont's lark. We also provide a gap analysis showing the percentage of males included in protected areas. Our results highlight the dramatic decline of this threatened species. However, the described decline is lower than that previously described by [23] (mean annual decline rate of 5.6% between 1997 and 2005 and 2005 and 2013) and [18] (mean annual decline rate of 3.9% between 2004 and 2015) after monitoring 33 and 92 localities, respectively. The lower decline found here is likely explained by a higher sampling effort during the current period in our study (see the next paragraph). Our results also showed the low number of Dupont's lark territories located within protected areas, which highlights the worrying conservation situation of the species. Indeed, the percentage of territories included within the special protection areas might be even lower considering that the sampling effort made within protected areas was probably greater than in unprotected ones, and therefore there is a higher chance of undetected territories in unprotected areas.

The species has suffered a strong decrease in population size and distribution range at both a regional and national (European) level between the two considered periods. That decline is not homogeneous among regions, showing a larger decrease in the peripheral regions, such as Andalucía, Comunidad Valenciana and Región de Murcia, than in the core area, i.e., the Iberian System, where populations remain more stable (see the populations extinct between periods in Figure 1). The last census carried out in the three cited regions was conducted following the snowstorm Filomena, which provoked a decrease of around 66.7% in the number of males between the year before and following Filomena [26], which may also partly explain these larger declines. In this sense, in those populations for which we do not have post-snowstorm Filomena data, the estimates of the current status of the Dupont's lark may be overestimated. Therefore, the male and effective population may even be lower than the one calculated in this work. Nonetheless, the data considered in that study for these three regions are among the most updated ones, and therefore are representative of the current situation of the species in these peripheral areas. Indeed, the further the location of a province from the core of the Iberian distribution, the larger the decline (−83.16% for peripheral provinces; −12.92% for core provinces; see Supplementary Table S2). These results agree with the ones described by [34], who proposed that the Dupont's lark suffers a centripetal process of contraction and isolation following habitat fragmentation. The larger decline in peripheral populations is likely related to a greater degree of isolation among patches and, usually, smaller population size than in the core area [24]. Individual displacements from the declining peripheral populations towards areas with a larger population size due to social attraction in the species may also play a minor role in population dynamics [35,36].

Surprisingly, the number of Dupont's larks in the Autonomous Community of Castilla y León increased between both periods, although it is likely related to the increase in sampling effort during the current period. During the years 2017–2021 several populations of Castilla y León were intensively monitored during the LIFE-Ricoti project (LIFE15-NAT-ES-000802) while the rest of populations were subject of a species-specific regional census carried out in 2019 [37]. In both cases, the line transects performed during the current period were shorter than those carried out during the II NC (see census methodology section), which may increase the probability of detecting the vocalizing males during its period of maximum activity, which is very time restricted (ca. 30 min, see [32]). Likewise, the use of autonomous sound recorders was also employed during the current period in several regions (e.g., Castilla—La Mancha, Castilla y León, Valencia, Andalucía), which has contributed to the discovery of around 20 previously unknown populations [38]. This suggests that the described decline might be considered as a minimum due to the higher sampling effort carried out during the current period, much higher than during the II NC. On the contrary, the large decline detected in Aragón could be partially explained by the reduced sampling effort during the recent period, as many areas were censused for the last



time in the year 2015, and therefore not considered in the current study, while others have not been counted since the II NC (2007).

Our results show a range contraction of 36.4% between both periods considered, since it varied from the previous estimations of 981 km<sup>2</sup> occupied by the species during the II NC to just 624 km<sup>2</sup> during the current period. Indeed, the amount of habitat occupied by the species would have been even lower if applying more conservative criteria to consider a grid cell to be occupied by the species. For instance, [39] clipped the 1 × 1 km grid cells with suitable habitat and slope layers to build the final layer.

During the II NC more than half of the territories (52.04%, Table 4) were within SPAs, decreasing to a 44.7% in 2019 [39]. Currently, only 39.2% of the remaining territories of Dupont's lark are within SPAs, despite that more than 90% of these males being included in SPAs whose management plans consider this species as a conservation target. Similar results have been found for other grassland species, such as the little bustard in Spain [32]. This result suggests that inadequate management is being carried out in these areas, or that protected areas have been declared reactively in already threatened or fragmented areas or where natural predation is exceptionally high [40], so that their populations would be experiencing a greater decline at the moment of the declaration (see for example [41]). Something similar occurs with the range distribution (see Supplementary Table S5).

## 5. Conclusions and Management Implications

Our study corroborates the worrying status of the Dupont's lark in Europe. As a consequence of this decline, the species has recently been declared "Endangered" in Spain (BOE Orden TED/339/2023), which commits the competent administrations to draw up and approve a recovery plan for the species in a relatively short period of time. Since the Spanish population is the only one in Europe, the Dupont's lark should be re-categorized as "Endangered" also at a European level.

The declining trend of the species, both in population size and distribution range, highlights the urgent need for the effective conservation and management of the Dupont's Lark and its habitat. Habitat loss and habitat transformation, owing to human activity, such as ploughing steppe habitats, wind farm development within and around occupied sites and afforestation are among the main drivers behind the declining status of the species [13,16,18]. However, the steep decline in extensive grazing, mainly by sheep [17], seems also to have strong consequences by decreasing the habitat quality [42]. Thus, increasing both the habitat quantity (through restoration measures) and quality (by the promotion of extensive grazing and tree/shrub clearance) is critical for the species conservation.

In the case of populations located in peripheral areas, i.e., in the southern Iberian range, isolation by distance seems an additional driving factor for extinction [43]. If no additional conservation measures are urgently adopted, we predict a near-future distribution restricted to the current metapopulation core in the Iberian System and the Ebro valley (Figure 1, ids: 11, 12, 22, 23 and 24). The lack of viability of the peripheral populations suggests the possibility of urgently undertaking population reinforcement measures, which should be complemented with active habitat management to improve the quality of the steppes.

The current network of SPAs is insufficient for the effective conservation of the species, since the percentage of territories within protected areas decreases; in addition, during the current period there are an additional 120,000 ha of protected areas in Spain than in 2006 [29]. However, that increase has not improved the conservation status of semi-natural open habitats and, therefore, of steppe birds. Conservation and management measures implemented within the protected areas are not adequately correcting the main conservation problems of the Dupont's lark. Traditional activities that may favor the settlement of the species, such as tree-cutting, stubble-burning, grass and shrub reduction by grazing, etc. could be limited within protected areas, partly explaining the large decrease found in these areas.

SPAs declaration must be accompanied by active management to maintain the quality of the shrub steppes habitats. This type of action has already been implemented in com-

munities such as Castilla y León, Castilla—La Mancha, Andalucía, Valencia and Aragón, although a pre- and post-monitoring has not been carried out in all of them to evaluate the effectiveness of the measures. Since there is little published information on the success of the conservation measures already implemented for the species, it is clearly limiting to carry out evidence-based management actions [41]. Therefore, future studies should focus on analyzing the effectiveness of conservation measures for the steppes and the study species (see [44]). In this sense, a greater effort is needed from public administrations to conserve the Iberian steppes in a good condition and protect the biodiversity they hold, as stated in the recently approved National Strategy for the Conservation of Steppe Birds and their habitats.

Currently, the conservation of Dupont's lark and steppe habitats in general is facing a particularly important challenge due to the massive implementation of renewable energy facilities, especially wind farms [45]. Given the abundance of individuals outside SPAs, the selection of preferential areas for the implementation of renewable energy (Go-to areas; [46]) cannot be based on avoiding SPAs, but specific monitoring should be carried out to avoid irreversible effects on this and other endangered species.

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/d15080928/s1>, Table S1: Interval of years between the II National Census (2004–2007) and the data used for the Current Status (2017–2022) for the Dupont's lark. The asterisk (\*) indicates those cases where data were collected in different years for each province; Table S2: Number of territorial males per province and population change between the II National Census and the Current Status. Number of years elapsed between both periods is shown in Supplementary Table S1. The last column indicates those provinces further from the core of the Iberian distribution. Table S3: Number of 1 × 1 grids with a presence of the Dupont's lark during the II National Census and the Current Status per province. The last column indicates the percentage change in 1 × 1 grids. Table S4: Extant subpopulations for the Current Status of the Dupont's lark. They are shown in alphabetical order of province. Table S5: Number and percentage of Dupont's lark occupied 1 × 1 km grid cells located within SPAs (with Dupont's lark as conservation species target or not) by Autonomous Community and in Spain (total), and the percentage change (%) between de II NC and CS in and out SPAs, both in the II National Census and the Current Status.

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