

## Azores bullfinch *Pyrrhula murina*

### Implementation Report 2004-2009

#### Coverage

This report evaluates the implementation of the EU Species Action Plan<sup>222</sup> for the Azores bullfinch *Pyrrhula murina* from 2004 to 2009. It covers the entire population of the species limited to the Eastern part of the São Miguel Island, Azores, Portugal.

#### Status

The Azores bullfinch is included in Annex I of the EU Wild Birds Directive and its native habitats, the Laurel forests of Madeira, are listed as a priority habitat in Annex I of the EU Habitats Directive (45.61 to 45.63 *Macaronesian Laurel Forests*). This species has an extremely small population and is restricted to a small range on one island, within which habitat quality is declining due to the spread of alien invasive plants. For the above reasons in 2005 the species was listed as Critically Endangered on the Red List (BirdLife, 2009).

The current breeding population is certainly larger than at the time of writing the 1996 EU action plan but it is difficult to distinguish the real increase from the improved accuracy of the counting methods due to limitations of the available census data, available for statistical analysis. The area of occupancy has clearly grown in the most recent years and it is easier now to find birds in areas where they were not seen in the past decades. Implemented conservation measures contributed for this recovery although it is difficult to quantify to what extent each of the measures has contributed.

**Table 60 Trend in the size of the population of the Azores bullfinch**

Country	Population in current SAP (individuals)	Year	1 <sup>st</sup> review of the SAP (2004) (individuals)	Year	2 <sup>nd</sup> review of the SAP (2009) (individuals)	Most recent estimate (Year)
Portugal	120 - 400	1993	238	2002	1000-1600	2008

#### Targets

To increase the Azores bullfinch population to 150–200 pairs by the year 2010 and to extend the area of Laurel forest by 80 ha, reversing its continuing large-scale deterioration through the invasion of exotic flora.

#### Evaluation against target

Both targets have been achieved and exceeded.

<sup>222</sup> Ramos, J. (1995) Action Plan for the Azores bullfinch *Pyrrhula murina*. Adopted by the EC ORNIS Committee in 1996.

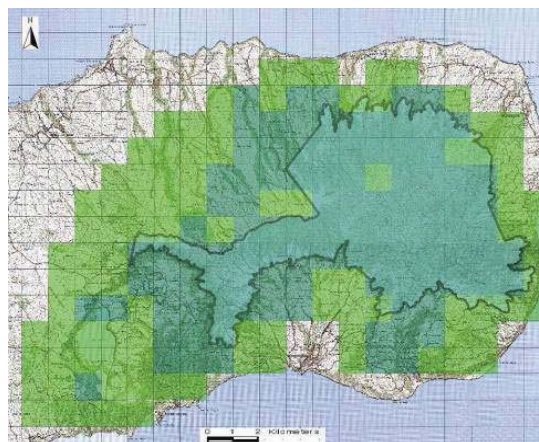
After the implementation of conservation projects (particularly the LIFE Priolo 2003-2008) it was possible to recover more than 230 ha of native forest and plant more than 60,000 native plants in the SPA, this certainly contributed to promote an increase of the population size mainly since 2006. The distribution area also showed an increase, crossing the limits of the Special Protection Area. Even if the numbers of the population were slightly underestimated between the 1990s and 2004 (due to lack of access to the core areas and some constraints of the census methods) it is certain that the Azores bullfinch population has recovered in the last three to four years.

#### Population size and trend

According to the transects made in a standard way (annual census) the population size seems to be higher in the period from 2006-2008, in spite of the apparent decrease in 2007, when comparing to 1991-1996 and 2002-2005. Thus it is very unlikely that the population should now be facing a decline.

Based on the resighting probabilities of marked birds, the number of adult Azores bullfinch in the population was calculated for 25 months. Monthly abundances varied between 296 individuals in June 2006 and 6983 individuals in January 2007; however, apart from these two outliers, the estimates ranged from 500 to 2000 individuals in all other months, and overall, the mean population size (mean  $\pm$  SE) was  $1608 \pm 326$  individuals, i.e. 804 pairs considering an unbiased sex-ratio.

In 2008 the first Priolo Atlas was organised in order to fully assess the extent of occurrence and the total area of occupancy of the Azores bullfinch, as well as to estimate population size using distance sampling methods. This study presented a population size estimate of 1064 (608-1824) individuals (95% Confidence Intervals). An improved annual monitoring scheme began in 2009 based on the same point counts stations from the Priolo Atlas. The Atlas study will be repeated every four years, for monitoring the trend of the population and range size. The distribution area also increased spreading outside the limits of the SPA.



**Figure xxiii Study area of the 2008 Priolo Atlas over *Pico da Vara/Ribeira do Guilherme* SPA boundaries. Dark-green is the colour for the square units where Azores bullfinches were detected.**

## Objectives Evaluation

### *1. Policy and Legislation*

The species is protected under the Portuguese law and regional specific legislation in the Azores. *Pico da Vara/Ribeira do Guilherme* has been designated as a Special Protection Area, and this was enlarged to 6,067 ha in 2005, including all the range known from the data available till 2003 (beginning of the LIFE Priolo).

*Pico da Vara/Ribeira do Guilherme* SPA has been included in the *Parque Natural de Ilha de São Miguel* (Decreto Legislativo Regional n.º 19/2008/A, 8th June) the new regional framework for protected areas. Beyond the SPA, the active raised bogs area of Planalto dos Graminhais and the hydrological basin of Furnas Lake, were also included in this natural park, and constitute two adjacent areas to the SPA which recently have been identified as important areas for the Azores bullfinch population. Specific management of this area is now under the responsibility of Secretaria Regional do Ambiente e do Mar, the official governmental agency for Environment in the Region.

A new legislation for the use of alien invasive species in the Region is being finalized and will be probably published in 2010.

A SPA management plan was created and implemented along with the LIFE Priolo project (2005-2010) and it will be revised and incorporated in the future *São Miguel Natural Park* management plan.

### *2. Species and Habitat protection*

Conservation actions have been possible due to the implementation of LIFE projects (with support from regional authorities), and some smaller grants. Exotic plant control was the main actions of the LIFE projects carried out in the SPA. As a result around 230 ha were restored in the last 5 years. A new LIFE project, Laurissilva Sustentável, was launched in 2009 and is about to recover more 50 ha of suitable habitat in the next four years.

More than 60,000 plants of several native species were planted since 2003 which were produced by the Regional Forestry Services. The new project is establishing nurseries for production of native species and will be an important contribution for continuous growing of available plants for habitat restoration.

Other actions developed by the LIFE Priolo project included the plantation of orchards with traditional fruit trees at lower altitudes, the conversion of a 14 ha area of *Cryptomeria* forest into native forest, testing of chemical methods for the eradication of **Hedychium gardnerianum** and training of workers in the different duties related to the process of removing exotic vegetation and plantation of native species.

Artificial feeding was tested but proved to be unnecessary and no effective as seeds deteriorated quickly and were not used by birds other than chaffinches.

### ***3. Monitoring and Research***

As referred above the first complete geographic range evaluation took place in 2008 (1<sup>st</sup> Priolo Atlas), involving 48 volunteers surveying all suitable habitat in a single day. Bird ringing and observations of ringed birds were done from 2006 to 2008 resulting in population estimates.

Annual census will be continued in the framework of the Preventing Extinctions campaign of BirdLife International, with the financial support of private donors. An improved annual monitoring scheme will be conducted from 2009 onwards and future changes in Azores bullfinch range will be monitored. Every four years the Priolo Atlas will be repeated for evaluating changes and update the distribution range of the species.

Monitoring of the native forest and exotic plants have been conducted by the LIFE Priolo team by mapping the main vegetation types in the SPA and with more detail for the core area of the Serra da Tronqueira. These vegetation maps will provide a useful tool to follow up the spread of the main invasive plants. Other research has taken place on the impact of invasive alien species allowing the production of PhD and MSc theses in subjects like food-webs, vegetation mapping, native plants production, etc.

Genetic studies were conducted over the last two years to gather taxonomic information on the genetic variability of the species. Results will be published in 2010 and confirm the Azores Bullfinch as full species and its genetic variability processes.

### ***4. Public Awareness and Training***

Several activities were implemented mostly by the LIFE Priolo project. More than 100 activities were directed to schools; more than 3000 people visited the SPA with the conservation team; dozens of articles were published in regional, national and international media; a comprehensive website, CD-ROM, brochures and school kits were made available, and through collaboration with the regional Tourism Director information about the Priolo at nature fairs and tourist offices were also made available. A study evaluating the social and economic benefits of the project and the ecosystem services offered by the protected area, etc. were a crucial tool for having decision makers and public aware of the importance of the investment on projects for protecting the Priolo.

The more important one was the establishment of an interactive Environmental Interpretation Centre with displays about the species, native laurel forest and the threats that both face. This Centre, developed by SPEA with support from the Azores government opened to the public in the end of 2007, works with students, tourists and local visitors.

### ***Financial support***

LIFE Projects (European and Regional Funding):

- 2003-2008 by the LIFE Priolo project “Recovery of Azores bullfinch’s habitat in the Special Protection Area of *Pico da Vara/Ribeira do Guilherme*” (LIFE NAT/P/000013), with a total budget of 2.843.728 €.
- 2007-2009 funding from the Azores Government to the establishment and maintenance of the Priolo Interpretation Centre with a total budget of 150.000 €.
- 2007-2008 LEADER funding for the displays and equipment to the Interpretation Centre.
- 2009-2012 by the LIFE Laurissilva Sustentável project “Recovery, conservation and sustainable management of priority habitats in *Serra da Tronqueira/Planalto dos Graminhais*” (LIFE NAT/P/000630), with a Community contribution of 2.186.607 €.

Private funding:

- Species Guardian (SPEA) funding by the 2007 & 2008 British Birdwatching Fair (Species Guardian: SPEA; Species Champion: BIRDWATCH magazine) and funding by LUSH in 2008
- BES Biodiversidade conceded commendations by the judges for its work restoring Bullfinch habitats on the Azores and won a prize of 3.000 €.
- RSPB-08-03 project “Final countdown: Priolo world census”, corresponding to an appliance for the Priolo Atlas 2008 was awarded by Disney Worldwide Conservation Fund with an amount of 11.274 € (\$ 17.500).
- Additional fund-raising was promoted by BIRDWATCH magazine at the site [www.justgiving.com/priolo](http://www.justgiving.com/priolo).

### **Conclusions**

The increase of the national implementation score from 2.00 (in 2004) to 3.13 reflects some of the significant progress made to achieve the targets established for the SPA. Both targets (population and habitat) were clearly exceeded largely due to the implementation of the LIFE projects and many other supporting actions and smaller projects. Implemented conservation measures, and possibly a better adaptation of the species to the surrounding environment, contributed for the recent increase of the species total population numbers and distribution area. However, it must be stressed that areas where invasive species were removed have to be continuously prevented from re-invasion otherwise they will deteriorate quickly.

The SPA has been increased from roughly 2,000 ha to 6,000 ha and includes now most of the distribution range known until 2002 and most of the favourable habitat still existing in the region. A management plan was created and implemented under the LIFE Priolo project.

Although the targets were achieved, some actions such as more strict legislation for the use of invasive alien plants and the long-term sustainability of the Natural Park and SPA, are still unaccomplished. It is expected that these actions will be completely implemented till the end of 2010 with the establishment of a Park's management body, a management plan, adequate regulations and continued funding. This will be most crucial due to the degree of threats to the Priolo's survival. Long-term habitat conservation will be needed because of the huge level of exotic vegetation invasion at the SPA and at the island.

Without the contribution of the LIFE funding from the EC since 1994 most of these results would have been impossible to reach.

Since the previous evaluation in 2008 new important biological data have been obtained and a 500-800 pair population is now accepted as species' global estimate. Known current breeding population is larger than at the time of previous evaluation. Also, the area of occupancy has basically grown and population trend is now considered not to be under a decline. Therefore, a Red List Criteria re-evaluation may be needed for this species.

#### **Contributors**

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Appendix: Table 61 Azores bullfinch SAP Implementation scores (2008)

OBJECTIVES And actions	Priority Score (PS)	Implementati on score (IS)	Progress with implementation	What part of the population was affected?	What was the response of the population to this measure?	Action priority index (API)
<b>1. POLICY AND LEGISLATIVE</b>						
<b>1.1. To ensure the adequate legal protection of the Azores Bullfinch and its habitat</b>						
1.1.1 <i>Increase the area of the Natural Forest reserve and Special Protection Area</i>	2	4	The total area of the SPA increased from ca. 2000ha to ca. 6000ha, including all the range known from the data available till 2003 (beginning of the LIFE Priolo). The SPA was included in 2008 in the new São Miguel Natural Park.	Near 100% (recent data shows that the distribution area is now larger than the present SPA, but is probable that all the individuals use the SPA area)	This action will have direct effect in the future with the implementation of the Natural Park management plan and the increase of suitable habitat	<b>0.00</b>

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1.1.2. <i>Legislate on the planting of exotic species</i>	3	2	The publication of the Azores Natura 2000 sectoral plan included some points about controlling the use of exotic species. It almost concluded a new legislation to control the use and import of invasive alien species. The future management plan to the São Miguel Natural Park will need to include specifically the areas to recover and the areas suitable for production. This plan will be implemented in 2010.	N/A	This action will have direct effect in the future with the implementation of the Natural Park management plan and the increase of suitable habitat after forest cutting	<b>2.00</b>
1.1.3. <i>Incorporate Species Recovery Plans into regional and national legislation</i>	1	2	The future management plan to the São Miguel Natural Park will need to include specific conservation actions included in the Azores Bullfinch Action Plan	N/A	This action will have direct effect in the future with the implementation of the Natural Park management plan and the increase of suitable habitat	<b>0.67</b>

<b>OBJECTIVES And actions</b>	<b>Priority Score (PS)</b>	<b>Implementati on score (IS)</b>	<b>Progress with implementation</b>	<b>What part of the population was affected?</b>	<b>What was the response of the population to this measure?</b>	<b>Action Priority Index (API)</b>
1.1.4. <i>Review international and national legislation in light of taxonomic research</i>	2	4	The Azores Bullfinch is included in Annex I of the EU Wild Birds Directive. Laurel forest, the habitat of this species, is listed as a priority habitat in Annex I of the EU Habitats Directive (45.61 to 45.63 Macaronesian Laurel Forests). Listed in National Red Book.	100%		<b>0.00</b>
1.2 <i>To ensure an adequate framework for the management of the Natural Forest Reserve</i>	3	3	Conservation actions have been possible due to the implementation of LIFE projects (with support from regional authorities), and some smaller grants. The new Natural Park will have a management body, a management plan, adequate regulations and funding. A first SPA management plan was made included in the LIFE Priolo project.	Near 100% (recent data shows that the distribution area is now larger than the present SPA, but is probable that all the individuals use the SPA area).	This action will have direct effect in the future with the implementation of the Natural Park management plan and the increase of suitable habitat.	<b>1.00</b>

OBJECTIVES And actions	Priority Score (PS)	Implementati on score (IS)	Progress with implementation	What part of the population was affected?	What was the response of the population to this measure?	Action Priority Index (API)
<b>2. SPECIES AND HABITAT PROTECTION</b> 2.1. <i>To control the expansion of exotic flora and promote the regeneration of Laurel forest</i>	4	3	Exotic plant control constituted the main actions of the LIFE projects carried out in the SPA. As a result around 230 ha were controlled in the last 5 years. A new LIFE project, Laurissilva Sustentavel, started this year and intends to recover more 50ha of suitable habitat in the next four years.	The recovered area is the core of the species' distribution. A very significant proportion of the population uses this area along the year.	The habitat response was very significant. Several important plant species (part of the Bullfinches diet, like <i>Ilex</i> and <i>Prunus</i> ) showed a major recuperation that was measured in area covered and seed production. This result is directly link to the recent increase of the Bullfinch population but difficult to say to which extent.	1.33

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<i>2.2. To protect and increase the population of plants that provide key food sources</i>	4	3	More than 60,000 plants of several species were planted in the since 2003. These plants were produced by the Regional Forestry Services. These will continue with the LIFE Project and by other actions of the local authorities and the new plant nurseries being established by SPEA.	The recovered area is the core of the species' distribution. A very significant proportion of the population uses this area along the year.	There was a increase of the food availability for the Bullfinches. Several important plant species (part of the Bullfinches diet, like <i>Ilex</i> and <i>Prunus</i> ) increased their density and area covered. This result is directly link to the recent increase of the Bullfinch population but difficult to say to witch extend.	1.33
<i>2.3. To provide supplementary feeding</i>	3	4	The feeders were established but monitoring studies conducted showed that Bullfinches don't used this kind of structures so they were removed.	0%	action abolished as unnecessary and non effective	0.00
<i>2.4 To supplement the wild population with captive bred individuals</i>	1	0	This isn't an option for the moment according to all entities and experts consulted			1.33

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<b>3. MONITORING AND RESEARCH</b>						
<i>3.1. To continue the monitoring of population size and reproduction</i>	3	3	Annual census since 2002. 1 <sup>st</sup> Atlas done in 2008. Census will be continued with the support of The Species Champions initiative of BirdLife International. Missing breeding success.	Total		<b>1.00</b>
<i>3.2. To study the large-scale invasion of the Laurel forest by exotic flora</i>	<b>2</b>	<b>3</b>	Some work done, including a PhD about food webs and the impact of habitat restoration, vegetation maps, and techniques to control exotic vegetation.			<b>0.67</b>
<i>3.3. To promote studies of taxonomy</i>	2	4	At least three separated studies were done for clarifying this subject. They all show the significant difference between Azores and Iberian Species. We are now awaiting the publications.			<b>0.00</b>

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<b>4. PUBLIC AWARENESS AND TRAINING</b> <i>4.1. To provide information about the Azores Bullfinch and its habitat to the local people of São Miguel and to visitors</i>	<b>2</b>	<b>4</b>	Public awareness actions promoted by local authorities and SPEA during and post- the LIFE Priolo project. The Priolo Interpretation Center was built and opened in 2007 by SPEA with support from the Azores government.	100%		<b>0.0</b>

**National Implementation Score (NIS) 3.13**

**NIS=SUM(PS\*IS)/SUM(PS)**