

CR	Puerto Rican Amazon <i>Amazona vittata</i>
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Key facts	
Current IUCN Red List category	Critically Endangered
Family	Psittacidae (Parrots)
Species name author	(Boddaert, 1783)
Population size	33-47 mature individuals
Population trend	Increasing
Distribution size (breeding/resident)	180 km ²
Country endemic?	Yes
Links to further information	
- Additional Information on this species	

**Justification**

Once numbering only 13 birds in the wild, this parrot has been saved from extinction. Conservation action has increased the population since 1975, but it remains Critically Endangered because the number of mature individuals remains tiny. If more released birds successfully breed in the wild and numbers remain stable or increasing, the species may warrant downlisting in the future.

Taxonomic source(s)

del Hoyo, J.; Collar, N. J.; Christie, D. A.; Elliott, A.; Fishpool, L. D. C. 2014. *HBW and BirdLife International Illustrated Checklist of the Birds of the World*. Barcelona, Spain and Cambridge UK: Lynx Edicions and BirdLife International.

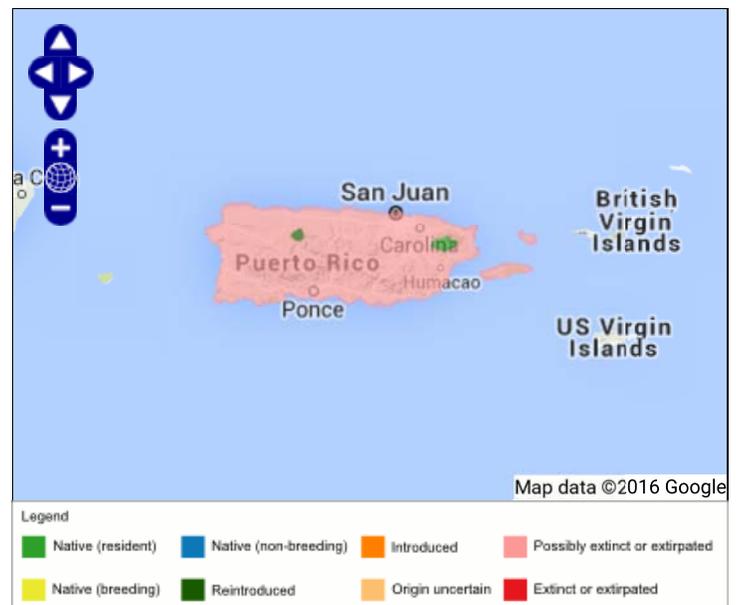
Identification

30 cm. Green parrot with red forecrown, white eye-ring and blue two-toned primaries. **Similar spp.** Introduced Hispaniolan Parrot *A. ventralis* has white forehead, maroon belly and blue in wing extends on to secondaries. Red-crowned Parrot *A. viridigenalis* has more extensive red on crown and red-orange wing-patch, but is very local around the coast and unlikely to occur sympatrically. **Voice** Noisy. Wide variety of squawks and screeches. Bugling flight call.

Distribution and population

This species is endemic to **Puerto Rico (to U.S.A.)**, and once occurred throughout the forested parts of the island. An endemic subspecies *gracilipes* occurred on Culebra, but became extinct in 1912. Once abundant, there has been a drastic decline, which reduced the population to c. 2,000 by the 1930s and an all-time low of 13 birds in 1975. It has been confined to the Luquillo Mts (El Yunque National Forest) since the 1960s, and the present occupied range of 16 km² represents only 0.2% of its former distribution (Snyder *et al.* 1987). Conservation action has prevented the species's extinction, although recovery has been slow and the population remains tiny.

In 1989, Hurricane Hugo cut the wild population from 47 to about 23. By the beginning of 1992, there were a minimum of 22-23 parrots in the wild and 58 in captivity, with a record fledging success in July 1992 taking the wild total to 39 or 40. In 2000, the parrot



numbered 40 wild birds, plus 10 recently re-introduced birds and 100 in captivity, held in two aviaries (Davis 2000, T. White *in litt.* 2012). In 2001, thieves broke into an aviary and stole a number of captive adults. In 2004, the wild population was 30-35 individuals (Arendt 2000), and in 2006, 20 birds were released in the Rio Abajo State Forest marking the beginning of a second population in the wild (Velez-Valentin and Boyd 2006): a further 26 birds were released here in December 2007 and 19 more were released in December 2008, with the first two successful nests recorded in the wild at Rio Abajo in 2008 (T. White *in litt.* 2005, 2008, 2012). As of 2011, the population numbered c.50-70 wild individuals spread over two areas, and about 280 captive individuals (Breining 2009, T. White *in litt.* 2012). In 2013 there were 64-84 wild birds and 16 chicks at Rio Abajo and 15-20 wild birds at El Yunque, and the first known natural nest in 42 years was recorded in Rio Abajo (V. Anadon *in litt.* 2013, Coto 2013). There were also reportedly nearly 400 captive birds in 2013 (Coto 2013), including a record 107 chicks produced in captivity (Anon. 2013a). In the same year, at least three captive bred birds that were released in the Rio Abajo Forest were found to be flocking with approximately 150 Orange-winged Amazons *Amazona amazonica* away from the original release site (Anon. 2013b). In May 2014, two young birds were discovered in a natural nesting hole outside the boundary of a national park (Anon. 2014).

Population justification

As of 2011, the population numbered c. 50-70 individuals spread over two areas, roughly equivalent to 33-47 mature individuals. In 2013, this had increased to c. 80-100 individuals in the wild (64-84 at Rio Abajo and 15-20 at El Yunque). However, since released birds are not counted as mature individuals until they have bred successfully in the wild (IUCN 2011), and the entire Rio Abajo population is derived from released birds, the total number of mature individuals is uncertain but may well still be fewer than 50, therefore the 2011 estimate of mature individuals is maintained here.

Trend justification

An increase of 1-19% is estimated to have occurred over the last ten years, based on regular counts of the total wild population.

Ecology

Historically, it occurred in montane and lowland forest, and mangroves. It is now restricted to forest at elevations of 200-600 m. It breeds between late February and July, when it nests in large, deep tree-cavities and lays 3-4 eggs (Raffaele *et al.* 1998, Arendt 2000). Since 2001, all known nesting in the wild has occurred in artificial cavities (White *et al.* 2006).

Threats

There has been an almost total loss of suitable forest habitat. Hunting for food and pest control, and the cage-bird trade have had crippling effects in the past (T. White *in litt.* 2012). The principal threats are now competition for nest-sites, loss of young to parasitic botflies, predation and natural disasters such as hurricanes (Raffaele *et al.* 1998, Arendt 2000). Red-tailed Hawks *Buteo jamaicensis* predate parrots and hamper releases of captive-bred individuals. Predator-aversion training pre-release has improved the survival of captive-reared birds after release into the wild (White *et al.* 2005); nevertheless raptor predation claimed 21% of all released individuals between 2000 and 2002. It formerly suffered from competition for nesting cavities with Pearly-eyed Thrasher *Margarops fuscatus* but this has been significantly reduced by specially designed artificial nesting cavities (T. White *in litt.* 2012). Predation by alien invasive mammals is also having a serious impact upon productivity, with six fledglings taken by Small Indian Mongooses *Herpestes auropunctatus* and one nest failure from Black Rats *Rattus rattus* during 2000-2003 (Engeman *et al.* 2006). Although predation events have not been documented, feral cats (*Felis catus*) are also common in parrot habitat in El Yunque National Forest, and are well-documented around the world as devastating bird predators, and represent another invasive mammal threat. Parrots regularly disappear without identification of a cause and cats and mongooses are capable of inflicting unidentifiable losses (R. M. Engeman *in litt.* 2012). It has been suggested that hurricanes are the most serious limiting factor preventing population recovery, and climate change may cause the frequency of hurricane events to increase. Furthermore, rainfall hampers the recovery programme, as chicks that fledge either during or before a major rainfall event have a much higher mortality rate than chicks that fledge during drier periods (Breining 2009).

Conservation Actions Underway

CITES Appendix I. A recovery programme for the species has involved a partnership between the U.S. Fish and Wildlife Service, U.S. Forest Service and the World Wildlife Fund in conjunction with the Puerto Rico Department of Natural and Environmental Resources (White *et al.* 2012). Major intervention to preserve the species began in 1968, involving provision of highly successful artificial nest sites, control of nest predators and competitors, and captive breeding and reintroduction. The success of newly fledged parrots is monitored using radio telemetry (Meyers 1996). All remaining habitat is protected in the El Yunque National Forest (formerly the Caribbean National Forest) (Snyder *et al.* 2000) and the Rio Abajo Commonwealth Forest (T. White *in litt.* 2012). The population is monitored to help inform management decisions. Controlling exotic mammalian predators (trapping and toxic baiting) has been shown to be a highly cost-effective way of conserving the species (Engeman *et al.* 2006, R. M. Engeman *in litt.* 2012). Trapping data has shown the Luquillo Forest to have among the highest black rat densities studied in the world, and optimal rat baiting strategies have been devised for application during nesting. Economic

analyses based on empirical production costs for captive-bred parrots showed very high benefit-cost ratios for predator management, estimating that the prevention of one parrot loss every 4-12 years more than offsets all forms of predator management (for all species) in the intervening time (R. M. Engeman *in litt.* 2012).

There are two captive-breeding centres, one at El Yunque which was first established in 1973 with a new facility constructed in 2007 and one at Rio Abajo constructed in 1989 with the first birds transferred from El Yunque to Rio Abajo in 1993 (White *et al.* 2012). Around 280 birds are currently held in captivity at Rio Abajo and El Yunque (T. White *in litt.* 2012). The captive birds are being managed to preserve as much genetic diversity as possible. A release technique known as "precision release" was trialled with six birds in 2008. This involves releasing a small number of captive-reared subadult parrots at each active nest site immediately following the fledging of the chicks, and aims to promote immediate and close interaction between the wild parrots and released birds (T. White *in litt.* 2005, 2008). Nearly 100 birds have been released from the Rio Abajo aviary in an attempt to establish a second population, which may be aided by lower annual rainfall at the site, lower levels of predation and a change in management techniques (T. White *in litt.* 2012). Although post-release mortality remains high, successful breeding has been recorded and the size and range of the flock is increasing (Breining 2009, Valentin 2009, T. White *in litt.* 2012). The newly establishing population at Rio Abajo is located around the site of the Rio Abajo aviary and it is thought that the presence of the captive birds has encouraged the released birds to establish their population nearby (White *et al.* 2012). Forty individuals were released at El Yunque between 2000 and 2004, eight in 2008 and six birds in 2010 (Vélez-Valentín 2011). In 2013 plans were made to establish a third population on the island in the Maricao State Forest (western Puerto Rico) (Anon. 2014).

Conservation Actions Proposed

Continue to monitor population trends. Track the fate of released birds. Maintain the integrated conservation management programme. Improve synchronisation of breeding of wild and captive birds to increase the number of captive-bred chicks that can be fostered by wild parents (Thompson 2004). Integrate exotic mammalian predator trapping (black rats, small Indian mongooses, feral cats) into the existing conservation management programme, and monitor predator populations to study the efficacy of these measures (R. M. Engeman *in litt.* 2012).

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Further web sources of information

Alliance for Zero Extinction (AZE) species/site profile. This species has been identified as an AZE trigger due to its IUCN Red List status and limited range.

[Click here for more information about the Alliance for Zero Extinction \(AZE\)](#)

Detailed species account from the Threatened birds of the Americas: the BirdLife International Red Data Book (BirdLife International 1992). Please note taxonomic treatment and IUCN Red List category may have changed since publication.

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[Explore HBW Alive for further information on this species](#)

[Recovery Programme](#)

[Recuento detallado de la especie tomado del libro Aves Amenazadas de las Americas, Libro Rojo de BirdLife International \(BirdLife International 1992\). Nota: la taxonomía y la categoría de la Lista Roja de la UICN pudo haber cambiado desde esta publicación.](#)

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