Yellow-shouldered blackbird (*Agelaius xanthomus*) Recovery Plan
U.S. Fish and Wildlife Service (USFWS). 1996. Yellow-shouldered blackbird revised recovery plan. Caribbean Ecological Services Field Office, Boquerón, PR. 75 pp.

Original Approved: May 25, 1983
Revised Approved: November 12, 1996
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AMENDMENT 1

We have identified the best available information that indicates the need to amend the recovery criteria for the endangered *Agelaius xanthomus* (yellow-shouldered blackbird or "mariquita") that have been in place since the recovery plan was completed and subsequently revised. In this modification we synthesize currently available information, identify amended recovery criteria, and present the rationale supporting the recovery plan modification. The modification is shown as an addendum that supplements the revised recovery plan (USFWS 1996), superseding only Part II A page 40 of the revised recovery plan. Recovery plans are a non-regulatory document that provides guidance on how best to help recover the species.

For
U.S. Fish and Wildlife Service
Atlanta, Georgia

Approved: _____
Acting **Regional Director, U.S. Fish and Wildlife Service**

Date: 9/24/19

METHODOLOGY USED TO COMPLETE THE RECOVERY PLAN AMENDMENT

The amendments to the recovery criteria are based on information from our files, field surveys and information from species experts. This information was analyzed by U.S. Fish and Wildlife Service (Service) biologists and managers in the Caribbean Ecological Services Field Office to develop the delisting criteria for the yellow-shouldered blackbird (hereafter, YSBL).

ADEQUACY OF RECOVERY CRITERIA

Section 4(f)(1)(B)(ii) of the Endangered Species Act (Act) requires that each recovery plan shall incorporate, to the maximum extent practicable, "objective, measurable criteria which, when met, would result in a determination…that the species be removed from the list." Legal challenges to recovery plans (see Fund for Animals v. Babbitt, 903 F. Supp. 96 (D.D.C. 1995)) and a Government Accountability Audit (GAO 2006) also have affirmed the need to frame recovery criteria in terms of threats assessed under the five listing factors.

Recovery Criteria

See previous version of criteria in Yellow-shouldered blackbird (*Agelaius xanthomus*) Recovery Plan on page 40.

Synthesis

The yellow-shouldered blackbird is endemic to Puerto Rico and the adjacent Mona and Monito islands. The species was once common in the coastal forests, but during the early 20th century the majority of Puerto Rico's coastal forests were destroyed for the establishment of sugar cane plantations. Following the demise of the sugar industry, most of these former plantations were subsequently developed for housing or converted into livestock pastures. Currently, the YSBL is mainly limited to four areas: Mona and Monito islands, where a subspecies apparently developed (*A. x. monensis*); and three small disjunct populations in eastern, southern and southwestern Puerto Rico (Liu 2015, USFWS 2018). These populations use up to eight distinct nesting habitats: mud flats and salt flats, offshore red mangrove (*Rhizophora mangle*) cays, black mangrove (*Avicennia germinans*) forests, lowland dry coastal pastures, suburban areas (including buildings), coconut (*Cocos nucifera*) plantations, and coastal cliffs (Lewis et al. 1999, Falcon et al. 2000, USFWS 2018). However, according to Reitsma (1998) and Lopez-Ortiz et al. (2008), YSBLs show an apparent preference for nesting in either black mangroves or palms, particularly coconut palms and Puerto Rican palmettos (*Sabal causiarum*). Although non- migratory, some individuals of the main island populations are known to move inland from coastal areas during the non-breeding season to forage. While largely an arboreal insectivore, the YSBL will also consume arachnids, small mollusks, fruits, seeds, and nectar from various plant species. YSBLs have also been known to feed on exposed or discarded human food, dog food, and livestock feed (USFWS 2018), an attribute which may expose individuals to increased risk of predation from introduced mammalian predators (e.g., mongoose, housecats). According to USFWS (2018), the primary threats to the species at this time are habitat loss and degradation due to development and human recreational activities (Factor A), predation by other species (e.g., rats, feral cats, raptors; Factor C), and nest parasitism by the invasive shiny cowbird (*Molothrus bonariensis*; Factor E).

Although the total numbers of YSBL have shown a slight increase over the past 25 years, the size of individual disjunct populations continues to remain relatively low and with high interannual variability (USFWS 2018). According to the most recent (2011-2016) surveys of three of the four extant populations (USFWS 2018), greatest numbers of YSBL occur in the southwestern population, ranging annually from approximately 400-1,000 individuals. This is followed by the Mona Island population, with approximately 150 individuals. The southern population of YSBL ranges annually from approximately 20-80 individuals. Although no systematic surveys or monitoring of the eastern population have occurred since 2004, recent (July-September 2018) field surveys and counts have detected at least 8-10 YSBLs in the eastern population (USFWS, unpubl. data). Finally, results of a rapid assessment of the southwestern population following hurricane María in September 2017, suggest that YSBL survived this catastrophic natural event. However, accurate estimates of post-hurricane numbers have yet to be obtained, particularly for the three other populations (i.e., Mona Island, southern, eastern). While some modest improvements in total population size and management efforts have occurred over the past 25

years, the overall resiliency, redundancy and representation of this species nevertheless remain low.

Although the YSBL currently shows no signs of inbreeding at the individual level, the species nevertheless exhibits significantly lower allelic diversity, heterozygosity and effective population size than continental populations of the related red-winged blackbird (*A. phoeniceus*)(Liu 2015). Moreover, Liu (2015) asserted that ultimately achieving effective population size may be impossible with this species, and if so, then the conservation objective should be to prevent further declines in effective population size. Thus, given these findings and the current small size of the individual disjunct populations, attention should be given to maintaining current genetic diversity and evolutionary potential (Liu 2015, USFWS 2018).

The revised recovery plan did not incorporate delisting criteria, and established only non-measurable criteria to reclassify the species to threatened status, which are no longer based on the best available information. Based on the best available information, recovery efforts should focus on conservation of extant genetic diversity (through increases in productivity and individual population sizes) and the establishment of additional populations in historically occupied or other suitable habitat. Increasing both the number of individuals within populations and the number of populations would enhance species' resiliency, representation, and redundancy; and ultimately, the likelihood of long-term persistence.

AMENDED RECOVERY CRITERIA

Recovery criteria serve as objective, measurable guidelines to assist in determining when an endangered species has recovered to the point that it may be downlisted to threatened, or that the protections afforded by the Act are no longer necessary and the YSBL may be delisted. Delisting is the removal of a species from the Federal Lists of Endangered and Threatened Wildlife and Plants. Downlisting is the reclassification of a species from an endangered species to a threatened species. The term "endangered species" means any species (species, sub-species, or DPS) which is in danger of extinction throughout all or a significant portion of its range. The term "threatened species" means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Revisions to the Lists, including delisting or downlisting a species, must reflect determinations made in accordance with sections 4(a)(1) and 4(b) of the Act. Section 4(a)(1) requires that the Secretary determine whether a species is an endangered species or threatened species (or not) because of threats to the species. Section 4(b) of the Act requires that the determination be made "solely on the basis of the best scientific and commercial data available." Thus, while recovery plans provide important guidance to the Service, States, and other partners on methods of minimizing threats to listed species and measurable objectives against which to measure progress towards recovery, they are guidance and not regulatory documents.

Recovery criteria should help indicate when we would anticipate that an analysis of the species' status under section 4(a)(1) would result in a determination that the species is no longer an endangered species or threatened species. A decision to revise the status of or remove a species from the Federal Lists of Endangered and Threatened Wildlife and Plants, however, is ultimately

based on an analysis of the best scientific and commercial data then available, regardless of whether that information differs from the recovery plan, which triggers rulemaking. When changing the status of a species, we first propose the action in the *Federal Register* to seek public comment and peer review, followed by a final decision announced in the *Federal Register*. We provide new delisting criteria for the YSBL, which will supersede those included in its revised recovery plan. The recovery criteria presented below represent our best assessment of the conditions that would most likely result in a determination that delisting of the YSBL is warranted as the outcome of a formal five-factor analysis in a subsequent regulatory rulemaking. Achieving the prescribed recovery criteria is an indication that the species is no longer threatened or endangered, but this must be confirmed by a thorough analysis of the five factors.

Amended Delisting Recovery Criteria

The amended delisting criteria for the YSBL are as follows:

1. The two (2) existing populations of YSBLs in southwest Puerto Rico and Mona Island demonstrate a stable or increasing trend, as evidenced by natural recruitment, and multiple age classes (addresses Factor A, C and E).

2. Establish two (2) additional YSBL populations on lands protected by a conservation mechanism on Puerto Rico or its satellite islands that show a stable or increasing population trend, evidenced by natural recruitment and multiple age classes (addresses Factors A, C and E).

3. Threat reduction and management activities (e.g., control of nest parasites and predators) have been implemented to the extent that the species will remain viable into the foreseeable future (address Factor C and E).

Justification

Justification for criterion 1: As indicated above, the YSBL exhibits lower allelic diversity, heterozygosity and effective population size than other similar species, and although it does not currently show signs of inbreeding, reaching a safe effective population size may not be possible. So, the conservation of the species should aim to prevent further declines. Therefore, this criterion aims to increase the species' resiliency and representation by ensuring the perpetuation of the two largest YSBL populations: southwest Puerto Rico and Mona Island. Increasing or at least maintaining the current representation of the species will help the YSBL to adapt to environmental changes and most importantly, to continue dealing with its most imminent threat, nest parasitism by the shiny cowbird.

Justification for criterion 2: The establishment of two new YSBL populations in protected coastal areas on Puerto Rico or its satellite islands where threats from habitat loss and degradation are not present will provide the species the chance to increase its resiliency and redundancy. Also, by increasing the geographic range of YSBL, we help reduce the chance that the species as a whole is adversely affected by a catastrophic event (e.g., hurricane). In addition, this strategy aims to eventually have interconnected populations that would also increase the

species representation.

Justification for criterion 3: The YSBL's primary threats include predation by other species (e.g., rats, feral cats, raptors), and nest parasitism by the invasive shiny cowbird. Therefore, continuous management and control of predators, management of nests to remove cowbird eggs, and cowbirds trapping during YSBL nesting season needs to continue at least until the southwestern population reaches self-sustainable levels as defined above. Although small in numbers, the eastern and southern YSBL populations still thrive without any type of management. Therefore, increased monitoring of those populations should be conducted to determine what management actions need to be implemented in order to improve their status. Other threats to the YSBL that need to be reduced are the impacts from habitat modification in coastal areas. This threat can be reduced through the development and implementation of protocols for cutting and pruning vegetation, and through agreements with landowners for the implementation of conservations actions that benefit YSBL. The implementation of this criterion is vital to future viability of the species.

Rationale for Amended Recovery Criteria

The recovery criteria reflect the best available and most up-to-date information on the biology, ecology and distribution of the YSBL. The current disjunct populations of the YSBL have relatively low numbers of individuals and are vulnerable to stochastic events and loss of evolutionary potential (Liu 2015, USFWS 2018). In order to maintain the genetic integrity of the species and to increase representation and redundancy throughout the species range, the recovery criteria have been designed to protect and manage the known populations and to establish new self-sustainable populations to ensure long-term viability of the species.

Our amended recovery criteria takes into account the most recent findings and recommendations, and ultimately aim to: 1) increase the size of individual populations; 2) reduce loss of genetic diversity and evolutionary potential; and 3) increase geographic distribution of YSBL in Puerto Rico. Given the widely recognized likelihood of an increasing frequency of intense hurricanes in the region (e.g., Elsner et al. 2008, Bender et al. 2010), coupled with the inherently hurricane-vulnerable coastal habitats occupied by the species, any increase in the geographic distribution of YSBL in Puerto Rico would reduce the total proportion of the species that would be adversely affected by any given storm. Together, these actions would thereby increase species resiliency, redundancy and representation and contribute to long-term viability of the species.

ADDITIONAL POPULATION SPECIFIC RECOVERY ACTIONS

Current efforts to reduce egg and chick predation, as well as nest parasitism, at YSBL nests (see Miller et al. 2016, USFWS 2018) should continue. This action should be combined with additional efforts to improve the efficiency of artificial nest structures, with the overall goal of increasing fledging success (Lopez-Ortiz et al. 2002, Miller et al. 2016). Because post-fledging survival has also been identified as a critical determinant of YSBL population viability (Miller et al. 2016); efforts should be undertaken to identify and control juvenile mortality factors. Further, the provision and protection of sufficient foraging habitat for adult YSBLs during the peak breeding season when energetic demands are highest, should also be encouraged. Together, these

recovery actions would increase probability of achieving "self-sustaining" YSBL populations (*sensu* Medina-Miranda et al. 2013). These recovery actions are also consistent with recommendations B(1), B(2) and B(3) of the revised recovery plan (USFWS 1996; see pp. 41-44), and should be coordinated with the Puerto Rico Department of Natural and Environmental Resources and private entities to achieve stated objectives.

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