

**Sonoran Joint Venture
Bird Conservation Plan
Version 1.0**



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Executive Summary

The Sonoran Joint Venture Bird Conservation Plan (Plan) provides the biological foundation for the activities of the Sonoran Joint Venture (SJV). The Plan summarizes the status of avian species, prioritizes these species, provides habitat discussions and conservation recommendations, and lists Focus Areas for conservation action. This Plan will be a blueprint for regional bird conservation. It will guide the SJV staff, Board, and committees in their actions and inform SJV partners of beneficial activities. Finally and most importantly, this Plan demonstrates and emphasizes the need for conservation action and for the resources to achieve the SJV's biological objectives.

There are approximately 740 species documented in the SJV area. Of those, about 667 occur regularly. An avifaunal analysis that assesses the status and prioritizes the birds found in the SJV area is one of the main purposes and unique features of the Plan. At a continental level 155 species are considered Concern Species that merit conservation attention. In addition, there are 152 Regional Concern Species.

The SJV is divided into four ecological Regions, each of which has unique habitats, birds, and conservation issues. Each Region is discussed separately as a chapter of this Plan. Continental Concern Species, assessed at the binational scale, are listed for each Region. Species found in each Region are assessed separately for the Regional Concern level. Stewardship Responsibility Species (i.e., species for which the Region has a large percent of those species' populations and thus a high degree of "responsibility" to conserve) are also presented. Concern Species are listed and ranked in Habitat Tables according to need and population objective. The habitats found within each Region have plant community, biological/physical characteristics, and threat descriptions as well as conservation actions and opportunities listed.

The Arid Borderland Region primarily comprises Mojave, Sonoran, and Vizcaino Desertscrub and the many wetland and island habitats associated with approximately 2,000 miles of coast line. In this Region there are 88 Continental Concern Species, 83 Regional Concern Species, and 20 additional Stewardship Responsibility Species. The primary habitats containing Concern Species are desertscrub, mesquite bosque, riparian, and fresh/coastal wetlands.

The Californian Coast and Mountains Region is known for coastal scrubland, chaparral, and various forest types found in the sharply rising mountains. There are also critically important coastal wetlands and breeding bird islands in this Region with several islands having distinct species and subspecies in considerable peril. Eighty-two Continental Concern Species, 41 Regional Concern Species, and 12 additional Stewardship Responsibility Species were identified. In addition to wetlands and breeding bird islands, the coastal scrublands and chaparral host a number of Concern Species.

The Mexican Highlands Region is characterized by high elevations and complex topography, where various forest types are interdigitated with desert grasslands, desertscrub, and thornscrub. There are 71 Continental Concern Species, 60 Regional Concern Species, and 30 additional Stewardship Responsibility Species. The majority of the Concern Species are found in pine-oak and mixed conifer forests, riparian, and grasslands.

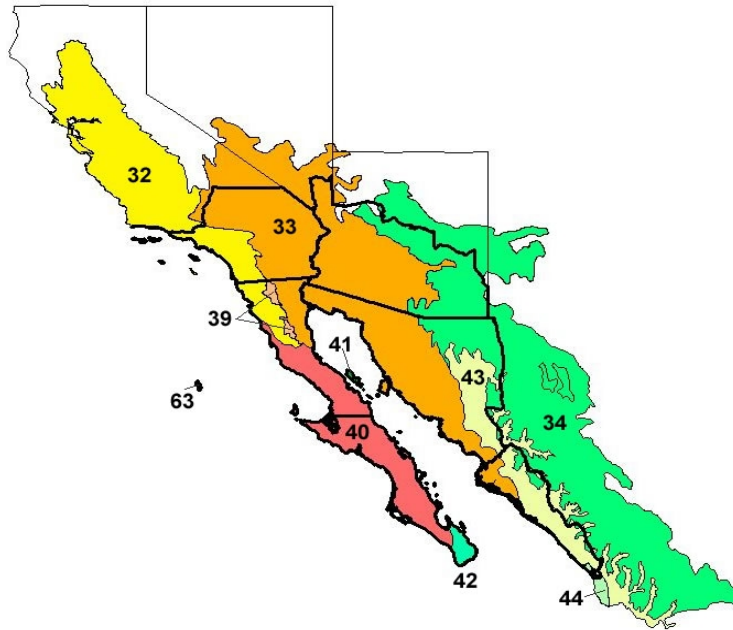
The Pacific Lowlands Region is primarily an area of thornscrub, tropical deciduous forest, and coastline where several continentally important wetlands are found. There are 88 Continental Concern Species, 51 Regional Concern Species, and an additional 11 Stewardship Responsibility Species. Most Concern Species are found in tropical deciduous forest and the various coastal wetlands.

WHAT IS THE SONORAN JOINT VENTURE?

The Sonoran Joint Venture (SJV) is a partnership of diverse organizations and individuals from the southwestern United States and northwestern Mexico that share a common commitment to bird conservation. The mission of the SJV is to protect, restore, and enhance bird populations and habitats in the southwestern United States and northwestern Mexico through collaborative partnerships. A science-based, dynamic process of adaptive conservation planning and delivery guides SJV activities. The SJV prides itself on being an active, dynamic group of partners that views bird conservation based on habitats and bird populations without regard to borders or jurisdictions.

INTRODUCTION

The Sonoran Joint Venture is unique in many ways, geographically, biologically, and in the make up of its partnership. The SJV area covers in whole or part 10 Bird Conservation Regions (BCR) developed by the North American Bird Conservation Initiative (NABCI) (Figure 1). Elevation in the SJV area ranges from below sea level at the Salton Sea (-97 m), to sea level coast line and islands, to relatively flat desert areas, to high plateaus, and mountain ranges (3,200 m). The climate is largely deserts with extremely low rainfall occurring in high-intensity, late-summer storms or during low-intensity, winter storms. The topography and climate produce a diversity of habitats, including deserts scrub, riparian, Madrean pine-oak, mixed conifer, chaparral, pinyon-



juniper, desert grasslands, tropical deciduous forest, desert thornscrub, palm oases,

Figure 1. Geographic scope of the Sonoran Joint Venture including BCRs and state boundaries.

freshwater wetlands, coastal dunes, coastal shrublands, mangroves, estuarine, brackish and salt water wetlands, coastal lagoons, rocky islands, and halophytic brushlands. Of these, desert shrublands and grasslands, Madrean pine-oak, tropical deciduous forest, coastal scrub, chaparral, arid riparian, and the various coastal wetland environments are continentally the most unique biotas.

The avifauna is diverse with more than 740 documented bird species breeding in, wintering in and/or migrating through the SJV area (Appendix A). This represents about two-thirds of all bird species that occur in northern Mexico, the United States, and Canada. There are 25 endemic or near endemic resident or breeding species, including birds such as: Xantus's Hummingbird, Gray Thrasher, Belding's Yellowthroat, Rufous-wing Sparrow, California Gnatcatcher, Black-vented Shearwater, Least Storm-Petrel, Yellow-footed Gull, Elegant Tern, and Craveri's Murrelet (Appendix B). Additionally, there are several endemic subspecies such as Grasshopper "Arizona" Sparrow, Savannah "Large-billed" Sparrow, American "San Lucas" Robin, Yellow-eyed "Baird's" Junco, Dark-eyed "Guadalupe" Junco, and Northern "Cape" Pygmy-Owl (see Appendix B for complete lists of endemic species). There are three species that are presumed extinct but need further surveys: Guadalupe Storm-Petrel and Guadalupe Caracara from Isla Guadalupe and Imperial Woodpecker from the Sierra Madre Occidental.

Threats to the area's ecology are as diverse as the avian species found there. Land use in the SJV region is varied and long-standing. Humans have been using the area for at least 10,000 years. Vegetative species composition and successional progression have undergone significant, large-scale changes, especially due to impacts from grazing and mining from the late 1800s to the early 1900s. Since the early 1900s significant effects on the biota have come from urbanization and agriculture. Specific impacts are loss and degradation of habitat due to urban and agricultural development, ground water pumping, surface-water diversion, unsustainable grazing, non-native plant invasions, aquaculture, and recreational pressures.

Challenges for conservation are varied, but so are the opportunities. The strength of the opportunities lies in the partnerships that are developing in the SJV. The SJV is a binational partnership and is the first and only Joint Venture that was originally conceived as a binational effort. A goal of the SJV is equal representation from the United States and Mexico in all of the Joint Venture's efforts. The partnership is also multi-cultural. There are many indigenous groups in Mexico and Native American tribes/nations in the United States in the SJV area. Conservation efforts of the SJV include these groups in the partnership.

PLAN PURPOSE

The Sonoran Joint Venture Bird Conservation Plan (Plan) provides the biological

foundation for the bird conservation activities of the SJV. The Plan summarizes the status of avian species, prioritizes these species, provides habitat discussions, conservation recommendations, and lists Focus Areas for conservation action. This Plan will be a blueprint for regional bird conservation. It will guide the SJV staff, Board, and committees in their actions and inform SJV partners of actions beneficial to the Concern Species. It is not the SJV's intent that this Plan will replace existing or developing conservation plans. Instead, it summarizes elements from those plans relevant to bird conservation in the SJV area. This Plan will be revised and amended as new and more complete information becomes available, especially as monitoring and evaluation provides feedback to biological planning and thus to the assessments, objectives, and recommendations.

One of the main purposes of the Plan is to provide an avifaunal analysis that assesses the status and prioritizes the birds found in the SJV area for conservation action. One process that evaluates all bird groups and was acceptable for use for both U.S. and Mexican species was the Partners in Flight (PIF) Species Assessment Process used in the North American Landbird Conservation Plan (for Canada and the United States). The process has also been approved by the Mexican North American Bird Conservation Initiative Committee (see <http://www.rmbo.org/pubs/downloads/Handbook.pdf> for a complete description of the assessment process). The PIF Species Assessment Process assesses vulnerability factors at two spatial scales (continental and regional) for each species in the SJV area. It also includes rule sets for selecting priority species. Priority species from other bird initiative (i.e., shorebirds, waterbirds, and waterfowl) plans are also included when the species are found in the SJV area (see Appendices C, D, and E). The assessment process results in tables of SJV Continental and Regional Concern Species.

Another main purpose is to provide useful conservation information about Concern Species. After Concern Species are determined by the avifaunal analysis they are sorted into habitat types, habitat characteristics necessary for survival and reproduction are described, appropriate habitat management actions are suggested, and population objectives are provided. This information is presented in a "user-friendly" manner that relies on Concern Species Lists and habitat tables for quick reference.

One of the important aspects of this Plan is that it places SJV species and habitats in a continental context. The process of assessing status and prioritizing bird species considers both the hemispheric and regional levels (the process is explained later in the Plan). This focuses the SJV's efforts on the highest priority species and actions that are needed for overall biodiversity and provides an ecological landscape perspective rather than a perspective based on political boundaries.

There are a few subjects not included in this Plan that often appear in other similar conservation plans. Quantitative habitat objectives are not included (i.e., number of acres of different habitats, habitat conditions, and locations). This is one of the next phases of the SJV's bird conservation planning process and will require specific funding and expertise. The population objectives that are given provide the direction and magnitude

of the conservation need for each species and are measurable. Habitat and other needs for successful reproduction and survival (limiting factors) and recommendations to achieve these needs provide information to reverse declines or maintain populations. The habitat information included will allow effective conservation to proceed until habitat objectives can be quantified. Habitats are not prioritized by any specific analytical tool. There are priority bird species living in each of the habitat types discussed. However, the SJV has a large percentage of the world's extent of Sonoran-Mojave desertscrub, chaparral/coastal scrub, Madrean pine-oak forests, arid riparian and tropical deciduous forest, as well as globally significant coastal wetlands and breeding bird islands. These are therefore considered important habitats in the SJV area.

Accountability and measurement of progress is an important component of the SJV's work. This Plan does not include monitoring or evaluation metrics. They are viewed as part of the next planning phases. The SJV Technical Committee, which advises the SJV on scientific aspects, is currently (2006) developing a Monitoring and Evaluation Plan, which will include priorities, protocols, ways to coordinate efforts, and methods by which new information will be used in Conservation Plan updates, thus providing the adaptive management feedback loop to improve our objectives and recommendations.

Some elements of the Monitoring and Evaluation Plan will be:

Needs Assessment.

Baseline data development.

Long-term monitoring program.

Effectiveness monitoring.

National and international monitoring programs coordination.

Use of data repositories and the Avian Knowledge Network.

Creation of a system to compile progress toward meeting objectives.

Focus Areas are specific locations/sites where conservation work can have a significant impact. The Focus Areas listed in this Plan are a combination of Important Bird Areas as designated by the California and Arizona IBA programs and the Áreas de Importancia para la Conservación de las Aves en México. Descriptions of Focus Areas can be found at <http://ca.audubon.org/IBA.htm> for California, <http://www.tucsonaudubon.org/azibaprogram/index.htm> for Arizona, and <http://conabioweb.conabio.gob.mx/aicas/doctos/aicas.html> for Mexico. Focus Areas are currently listed by state and BCR for each Region. Summaries for the 164 Focus Areas will appear at a later date on the SJV website and/or as an addendum to this Plan. The summaries will include priority avifauna and important conservation needs and actions.

Finally, and most importantly, this Plan demonstrates and emphasizes the need for conservation actions and the resources to implement the recommendations and achieve the objectives set forth within the Plan.

SCOPE

This Plan considers in its analyses all bird species that regularly breed or use the SJV

region in the nonbreeding period. In the United States, this includes species from the five bird initiatives: waterfowl, waterbirds, shorebirds, landbirds, and resident game birds. Introduced species are assessed and recommendations may be given. Subspecies and populations of regional importance are also considered. A complete list of regularly occurring species and subspecies recorded in the SJV area is found in Appendix A.

Geographically, the SJV area includes southern Arizona, southern California, and the Mexican states of Sonora, Sinaloa, Baja California, and Baja California Sur, as well as the Gulf of California and Pacific Ocean islands (Figure 1). SJV boundaries were determined by partners in the U.S. and Mexico. However, the avifaunal analysis has been conducted for entire BCRs because data used for the avifaunal analysis are available only by BCRs. Aligning SJV boundaries to BCR lines might be an option in the future in order to include the entire ranges of endemic bird species. The following BCRs, as described by the NABCI, are included in whole or part within the SJV boundaries.

Coastal California – BCR 32
Sonoran and Mojave Deserts – BCR 33
Sierra Madre Occidental – BCR 34
Sierras de Baja California – BCR 39
Desierto de Baja California – BCR 40
Islas del Golfo de California – BCR 41
Sierra y Planicies de El Cabo – BCR 42
Planicie Costera, Lomeríos y Cañones de Occidente – BCR 43
Marismas Nacionales – BCR 44
Isla Guadalupe - BCR 63

Because of the large number of BCRs (10) in the SJV area, BCRs were combined into four “Regions” to facilitate use of this Plan, take advantage of existing data, and provide an ecological base. The Regions chosen were used in the Northwestern Mexico Species Assessment Workshop, held in Culiacan, Sinaloa, in 2004. They were also chosen to include entire habitats into single Regions. For example, the majority of the desertic habitats are combined into the Arid Borderlands Region. The following lists the groupings of BCRs into the four Regions:

The Arid Borderlands Region includes: Sonoran and Mojave Deserts (BCR 33), Desierto de Baja California (BCR 40), Islas del Golfo de California (BCR 41), Sierra y Planicies de El Cabo (BCR 42).

The Californian Coasts and Mountains Region includes: Coastal California (BCR 32) and Sierras de Baja California (BCR 39), and Isla Guadalupe (BCR 63).

| The Mexican Highlands Region includes: the Sierra Madre Occidental (BCR 34).

The Pacific Lowlands Region includes: Planicie Costera, Lomeríos y Cañones de Occidente (BCR 43) and Marismas Nacionales (BCR 44).

FORMAT OF THE CONSERVATION PLAN

This section discusses the general outline of the Plan and the information the reader can expect to find therein. There are four Regional Chapters—one for each of the Regions listed above. If the reader is interested in only one geographical region, then they can quickly focus on the appropriate chapter. Each Regional Chapter has a list of SJV Technical Committee members who worked on the Chapter, a descriptive introduction, an avifaunal analysis, habitat discussions and recommendations, and a Focus Area list. The analyses have been conducted and the habitats are discussed for the SJV area in its entirety without regard to jurisdictions or national/state borders.

Avifaunal Analysis:

With over 700 bird species occurring in the SJV area, an avifaunal assessment and analysis was performed that presents the species of highest priority for conservation. The assessment process looks at vulnerability and stewardship responsibility. The following factors are measures of different components of vulnerability that were assessed for each species: population trend, breeding and nonbreeding distributions, threats during the breeding and nonbreeding periods, population size, and relative density. Where data were not available, an expert workshop was convened to score each vulnerability factor. Stewardship Responsibility is the concept of taking conservation action for species that have a large percentage of their entire population in the SJV area. The relative density of each species in each Region provides a surrogate for stewardship responsibility (which will be calculated later as percent of a species' population occurring in the SJV area). Conservation actions for Stewardship Responsibility Species can take three forms: planning for the long-term maintenance of the species, monitoring its population trends, and informing land managers about the unique situation of having a stewardship species. The following are two examples of actions for Stewardship Responsibility Species. First, the SJV area supports 100% of the world's population of Gray Thrasher. While this species is not at risk (i.e., vulnerable) at this time, it is the SJV's "responsibility" to ensure that Gray Thrasher does not slip into a concern category, monitor the species, and to make land owners/managers aware of this unique "responsibility". In the situation where the SJV area supports a large percentage of the population of a species that is experiencing many threats, declining trends, etc. (i.e., the species is both a Concern Species and a Responsibility Species), it is the SJV's "responsibility" to respond with appropriate and often urgent conservation actions.

All species were scored for the above factors at both the hemispheric and regional scales, and rule sets were applied to produce Continental and Regional Concern Species lists, respectively, as well as Stewardship Responsibility Species lists. Waterfowl, waterbird, and shorebird priority species from those initiatives' plans were added to the Concern lists if they were not included based on the Species Assessment Process (all priority landbirds and gamebirds are included because the assessment process originated by Partners in Flight). A comparison of the priority designations of the waterfowl, waterbird, and shorebird plans with the SJV priority designations is found in Appendices C, D, and E.

Continental Concern Species are species that score high for many factors in the entirety of their range in the North American hemisphere. They should be considered priorities anywhere they occur unless they have a low percent of their population (<1%) in the area of concern. Regional Concern Species are those that have moderate continental scores but have high threats and declining trends specifically in the SJV area. All of the scores are kept in the SJV Species Assessment Database. The SJV Technical Committee chose to use the rules that were used to determine the PIF Watch List species so that the SJV will be consistent with the North American Landbird Conservation Plan and the emerging Mexican landbird plan.

Continental and Regional scores for landbirds in the U.S. and Canada have recently been reviewed and updated and hemispheric and regional scores for Mexico are currently under review. The SJV Technical Committee and Management Board decided that it was important to proceed with the Plan and thus to use the Mexican draft scores on a provisional basis for this version of the Plan. This will necessitate an update of the SJV's Species Assessment Database when the Mexican scores are finalized and will possibly require some changes in the SJV Continental and Regional Concern Species lists. Also, a new methodology for assessing Stewardship Responsibility is being applied for all species in the U.S., Canada, and Mexico, which might change some of the responsibility species. Any changes in the Concern or Stewardship Responsibility Species will be posted on the SJV website and/or in an addendum to this Plan. All Concern Species and Stewardship Responsibility Species are listed in Appendix A, as well as Arizona Game and Fish Department's Species of Greatest Need and the U.S. Fish and Wildlife Service's Focal Species.

The SJV's goal is to return to population levels of about 30 years ago and the Plan's population objectives reflect this goal. This is also based on the fact that the best data source of population trends, the Breeding Bird Survey (BBS), has just over 30 years of data. In areas where BBS data are lacking, expert opinion was used to estimate the population trend. Population objectives are based on trends and are calculated in the following manner: (1) if a species' population has declined by >50% in the last 30 years, the objective is to increase the population by 100% (Double); (2) if a population has declined by 15-49% in the last 30 years, the objective is to increase the population by 50% (Increase by 50%); (3) if the population trend is highly variable or lacks sufficient data, the objective is to maintain the population while the species' trend is being determined (Maintain/Determine Status); and (4) if the population is stable, the objective is to maintain the population (Maintain). (There are no priority species with increasing population trends.) Because of the large number of species found in the SJV area and in many cases lack of specific information, population objectives for all species are currently determined in the manner described above without taking individual species' life histories or other circumstances into account. These objectives will be refined when additional or new data are found or the proposed SJV monitoring program determines that species specific objectives can be generated.

The 30-year timeframe for achieving these objectives is a long range vision. Incremental interim steps to achieve the stated objectives will be created by the Technical Committee to assist in measuring progress. In all cases with declining species the first priority is to stabilize the decreasing population trend and then work toward achieving the population increases that would meet the objective. The SJV should work on stabilizing species that have a “Double” objective (i.e., have declined by 50% in the last 30 years) as a first priority. Secondly, the SJV should work both on stabilizing species in the “Increase by 50%” category and determining trend for species in the “Maintain/Determine Status” category as some of those species may actually have severely declining trends that have yet to be revealed. The population objectives are meant to be determined purely based on scientifically derived information and should be interpreted as the best case scenario for reestablishing bird populations. However, in some situations it is recognized that some habitats these species rely on may be permanently destroyed and/or are incapable of being restored, as in the case of urban/suburban development and lowering of water tables as a result of the increasing human population in the area.

While the species population objectives are considered to be part of the avifaunal analysis, they are found in the Habitat Discussion sections in each Regional Chapter. The population objectives that are provided apply to the entire species’ range in all habitats in which it occurs in that Region. If the species is found in the SJV area only during the nonbreeding season, the population objective is derived from the continental breeding season population trend. The objective should be interpreted as “a winter population that would support a breeding population of “Double, Increase by 50%, Maintain/Determine Status, or Maintain” the current population”.

Habitat Discussions and Recommendations:

Most of the Plan’s users are very familiar with the habitat types they manage, whether the user is a natural resource agency, a non-governmental conservation organization, a private landowner, or a local community. The habitat type nomenclature in this Plan is regularly used and easily identifiable by landowners and managers in the SJV area. In addition, information is given to assist Plan users in further identifying habitats of interest, including location, dominant plant species, and physical and biological descriptions of the habitats. Generally, all habitat or community descriptions follow Brown (1994), which covers about 90% of the SJV area.

The priority species list generated by the avifaunal analysis for each Region is given in three tables: Continental Concern Species, Regional Concern Species, and Stewardship Responsibility Species. Those species are then sorted into the habitats that occur in each Region (Table 1). This produces habitat tables that also present the species’ Conservation Action category, Habitat Needs, and Population Objective (discussed above). Conservation Action Categories are also used to help identify the highest priorities by Region and habitat type (see discussion in each Regional Chapter). Information in the Habitat Discussions sections also includes threats, opportunities for cooperation, and primary conservation needs or actions. The habitat tables can be used to design projects that benefit the most Concern Species and specifically address their habitat needs.

Table 1. Habitat types found in each Regional Chapter.

Regional Chapter/ Habitat Types	Arid Borderlands Region	Californian Coasts and Mountains Region	Mexican Highlands Region	Pacific Lowlands Region
Forests				
Tropical Deciduous	X		X	X
Pine-Oak	X	X	X	X
Mixed Conifer			X	
Woodlands				
Mesquite Bosque	X		X	
Pinyon-Juniper	X		X	
Shrublands				
Desertscrub	X		X	
Coastal Scrub (Matorral Costero)		X		
Californian Chaparral		X		
Interior Chaparral	X		X	
Grasslands				
Desert Grasslands	X		X	X
Wetlands				
Riparian	X	X	X	X
Freshwater	X	X	X	X
Coastal	X	X		X
Islands	X	X		X
Off-Shore/Pelagic	X	X		X
Other				
Cliff/Rock	X	X	X	X
Urban	X	X	X	X
Agriculture	X	X	X	X

In this version of the Plan habitat objectives have not been quantified based on the amount of existing or potential habitat and its condition. However, the Plan describes actions that can be taken to increase the amount and/or improve the condition of habitat to support the levels of birds suggested by the population objectives. In addition, information is provided on potential actions that are not habitat-based, such as preventing human disturbance of breeding colonies and reducing capture for the pet trade. The following is a general description of the actions that could be taken in regard to habitat that will achieve each of the four population objective categories in this Plan:

Population Objective of Maintain: protect existing habitat, no net loss of habitat (allowing for natural- and human-caused successional changes). This objective rarely means a “hands off” approach. Existing habitat often must be actively protected and/or managed by one or several means.

Population Objective of Maintain/Determine Status: same actions as Maintain while creating and implementing a program to determine the population trend, threat, distribution, and relative density of the species.

Population Objective of Increase by 50%: protect existing habitat while increasing the amount of suitable habitat such that the population of the target species increases 50%, and/or increasing the carrying capacity of existing suitable habitat such that the population of the target species increases by 50%. Increasing the carrying capacity of an area usually involves rehabilitating a degraded habitat. Increasing the carrying capacity of potentially suitable habitat may be achieved by addressing the limiting factors for the target species (e.g., increasing snags, creating river flows that germinate undergrowth species, protecting areas from wildfire in certain cases, prescribing fire in others, etc.).

Population Objective of Double: protect existing habitat while increasing the amount of suitable habitat such that the population of the target species increases by 100%, and/or increasing the carrying capacity of existing suitable habitat such that the population of the target species increases by 100%. Increasing the amount of suitable habitat can mean recreating a lost natural system or restoring a degraded one. In some situations this is relatively easy if the seed bank has not been destroyed. In other situations it may mean intense recontouring, replanting, and other costly measures.

The goal of increasing the carrying capacity or amount of suitable habitat should always be increasing the populations of the Species of Concern for that Region and habitat. Regardless of the technique used or resulting habitat achieved, the number of birds in the resulting created or enhanced habitat is the goal and should be estimated and compared to the number before the project commenced. In the future, models will be created that will delineate the amount and condition of existing habitat and the densities of birds in those habitats in order to produce population estimates, locate potential restoration areas, measure population increases, etc. Until these models are created, estimates of percent increases in bird numbers will be used to measure SJV successes.

To determine the amount of additional habitat needed for each of the Species of Concern to meet the population objectives, the amount of habitat they currently occupy and the density at which they occupy it needs to be known. With the capacity and funding for an appropriate GIS, the amount of habitat needed for many species can be determined. For some locations in the SJV area, field work may also be needed to determine the densities of the Species of Concern. The amount of habitat restored and enhanced and the densities of birds thus achieved will be tracked by the SJV (activities directly funded or granted to the SJV) and partners so the results of the SJV's successes can be compiled. Estimates of population increases can then be calculated at the locations the SJV has influenced. When the funding and capacity have been secured to determine current population estimates and the increases necessary to meet the population objectives and the habitat acres to do so, the percentage increase of past projects' accomplishments can be determined, as well as what is needed in the future.

Not all population objectives can be reached by protecting, restoring, and/or enhancing habitat. There are cases where threats such as cowbird brood parasitism, pollution, small population dynamics, capture for the pet trade, and disease must be addressed. These factors are identified in the Habitat Discussion section tables for each applicable species. The above discussion on habitat objectives should also be complemented by work on these types of threats.

Restoring or enhancing a habitat can meet the population objectives for multiple species. Providing for overlapping habitat requirements of the Species of Concern is anticipated and will be implemented as often as possible to optimize expenditures. One example of this is in Pine-Oak Forest, where protecting/restoring/enhancing the forest can happen in a way such that the following components are recreated or enhanced: acorn producing trees for Wild Turkeys, grassy understory for Montezuma Quail, and trees old enough to provide large snags for Thick-billed Parrots, and small cavities for Flammulated Owls.

Focus Area Lists:

Species and habitat priorities allow the SJV to identify specific locations important for conservation work. To begin the process of identifying these locations, combinations of AICAs and IBAs in Mexico and the U.S. were used. Focus Areas designated by these two programs are areas that are known to have high numbers of priority birds. Areas that may not currently have priority birds but which have high restoration potential will be added at a later time. Additional Focus Areas will undoubtedly be needed because the habitat contained in all the listed Focus Areas is not likely to meet the population objectives of all of the priority species. Lists of the Focus Areas are found in each Regional Chapter by state and BCR. Focus Area summaries will be provided later as an Addendum to this Plan and/or on the SJV website.

GENERAL GOALS, OBJECTIVES, AND TASKS

The following provides an outline for accomplishing the biological objectives and recommendations found in this Plan. The Goals, Objectives, and Tasks will be implemented by a combination of the Management Board, the Technical Committee, and other appropriate partners. Many of the tasks below are partner-oriented and can not be achieved without their participation.

Goal 1: Maintain and enhance coordinated and cooperative working relationships to benefit the scientific basis for conservation of avian resources and their habitats.
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| | Objective: Provide a forum to bring together private and public partners that have an interest or role in avian conservation. |
| | Task: Continue to convene the SJV Technical Committee. |
| reach | Task: Hold SJV Technical Committee meetings at various locations to reach new partners. |
| | Task: Communicate with the SJV Technical Committee through the SJV website and listserv. |
| | Task: Invite new participants to the SJV Technical Committee. |

Objective: Encourage incorporation of the goals, objectives, and recommendations of this Plan and bird conservation in general into existing and developing conservation programs.

Task: Disseminate the Plan to potential partners through staff, Technical Committee, Board, SJV website, and discussions with potential partners about opportunities to incorporate bird conservation into their activities.

Task: Develop Land Managers Guides for certain habitat types.

Objective: Foster cooperation across a larger audience.

Task: Provide other forums for exchange and coordination of conservation efforts such as meetings, conferences, and symposia.

Task: Coordinate with other JVs and efforts adjacent to SJV boundaries.

Objective: Identify, facilitate, and foster partnerships that create opportunities to fund the goals and objectives laid out in the SJV Bird Conservation Plan.

Task: Coordinate with partners regarding funding opportunities.

Task: List funding sources on the SJV website.

Goal 2: Continue to gather species data and establish a coordinated program to survey, inventory, and monitor the status and distribution of bird species in the SJV area.

Objective: Develop and maintain a database of the bird species in the SJV area.

Task: Develop the database using the Partners in Flight databases as the basis.

Task: Update and add to the SJV Bird Conservation Plan as new information becomes available, including monitoring information and expert workshop results.

Task: Incorporate other information such as habitat associations, seasonal occurrence, limiting factors, etc. into the SJV database.

Task: Use updates to the database to modify the priority species.

Objective: Determine the distribution, population trend, and habitat use of priority and stewardship species.

Task: Determine the level of monitoring needed for each priority and stewardship species.

Task: Assess ongoing monitoring efforts.

Task: Coordinate monitoring to fill information gaps.

Task: Create a feedback mechanism that uses information from monitoring to improve the database and Plan and inform habitat management actions.

Task: Create an information feedback mechanism from monitoring data to on-the-ground users and planners.

Task: Use volunteer work force when appropriate.

Task: Train professional and “para” professionals in monitoring.

Task: Use standardized monitoring protocols across regional, national, and international borders to enable compilation.

Task: Coordinate with trilateral monitoring programs such as Coordinated Bird Monitoring and Avian Knowledge Network.

Task: Conduct monitoring at selected sites to determine effectiveness of recommendations and actions.

Task: Conduct monitoring at large scales to determine region-wide trends.

Goal 3: Gather and assess habitat data necessary to quantify objectives and provide recommendations.

Objective: Determine the amount and quality of habitat needed for meeting species objectives.

Task: Perform habitat assessments (in priority order).

Task: Acquire spatial habitat data.

Task: Determine the number of acres needed in each of defined habitats.

Task: Calculate population estimates of each species using density and acreage data.

Task: Calculate the amount and condition of habitat needed to meet population objectives.

Objective: Analyze ability to meet habitat objectives in targeted areas.

Task: Map Focus Areas.

Task: Determine if Focus Areas meet habitat objectives established in the Objective above.

Task: Analyze area outside of Focus Areas for meeting objectives.

Task: Identify new Focus Areas based on the analysis.

Task: Prioritize Focus Areas and other areas for meeting objectives.

Goal 4: Encourage applied research to provide guidance in the development of management projects and conservation plans.

Objective: Determine priority research needs.

Task: Identify and prioritize research needs of priority species and habitats.

Task: Encourage partners to investigate SJV research priorities.

Task: Create information feedback mechanism from researchers to land managers.

Objective: Determine effects of land use practices on priority species.

Task: Compile known information by habitat and/or species.

Task: Identify and prioritize investigations of the impact of land use practices on priority species.

Goal 5: Facilitate implementation of priority actions to achieve population and habitat objectives.

Objective: Determine what actions are needed to meet population objectives (and habitat objectives when they are developed).

Task: Identify conservation actions.

Task: Prioritize conservation actions within habitats and/or geographical/political units.

Objective: Implement conservation projects to meet SJV objectives.

Task: Disseminate information about conservation actions recommended for each habitat type to SJV partners.

Task: Work with partners to design and obtain funding for projects.
 Objective: Provide data to facilitate work on bird conservation issues.
 Task: Use monitoring efforts to inform planning and implementation phases.
 Task: Use monitoring efforts to inform land managers in an easily accessed format.
 Objective: Develop habitat specific management guidance for priority birds and habitats.
 Task: Write Best Management Practices (BMP) for priority habitats.
 Task: Put BMPs on SJV website.
 Task: Coordinate with land management agencies to consider BMPs.
 Task: Use various methods to distribute and discuss BMPs with private land managers.

Goal 6: Gather, develop, and distribute information that promotes conservation of priority birds and habitats. Work with the SJV Education and Outreach Coordinator and Committee to meet objectives. (Details of this goal are addressed in the Outreach and Education Plan.)

Objective: Communicate SJV priorities, information, and expertise to stakeholders.
 Objective: Identify local initiatives, projects, and organizations capable of working as partners to meet objectives.
 Objective: Increase knowledge, awareness, and technical expertise in monitoring, and habitat management for professionals and “para” professionals.
 Objective: Increase the knowledge of youth and educators about avian biology and ecological needs.
 Objective: Increase the knowledge of private and public land managers about the ecological needs of birds
 Objective: Encourage active public participation in bird conservation.
 Objective: Increase policy makers’ knowledge about benefits of conservation and needs of programs to effect conservation.

ASSOCIATED PROGRAM NEEDS TO ACCOMPLISH CONSERVATION GOALS

There are a number of other activities detailed in the SJV Strategic Plan (<http://sonoranjv.org/planning01.html>) that are directly related to the ability and success of meeting the goals, objectives, and recommendations set out in this Plan. All activities, coordination, training (both professional and citizen scientists), outreach, education, landowner/land manager assistance, policy issues, and locating increased funding, are the combined responsibility of the SJV staff, Management Board, and partners.

The Conservation Plan will be amended on a one-year basis if necessary and a detailed review and update will be performed every five years. Additional information of value to SJV partners will continually be developed. This information will be provided via the SJV website and at meetings. Place names, plant names, and habitat descriptions that are given in Spanish in the Plan are places and habitats found only in Mexico or that are commonly accepted Spanish words in English.

REGIONAL CHAPTERS

The following are the four Regional Chapters with their respective avifaunal analyses and habitat discussions.