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Assessing County and Regional Habitat Conservation Plan Creation: What Contributes to Success?

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SUMMARY

Habitat conservation plans (HCPs) are a means for private landowners to comply with the Endangered Species Act. It has become increasingly common for county and regional governments to create region-wide HCPs that cover development from multiple projects in the entire region. Local governments recognize that these plans can increase economic certainty for residents, increase development, and potentially increase conservation. However, region-wide plans are time and resource intensive, and they sometimes are not completed.

What factors and processes lead to the successful completion of an HCP at the regional and county level? This paper presents the results of five case studies on county or regional HCPs. It finds that several factors contribute to successful HCP creation: (1) a cooperative relationship between the county or region and the U.S. Fish and Wildlife Service (USFWS) and between the local governing body and the USFWS; (2) local community and political involvement, especially early stakeholder engagement; (3) determination of the covered species by a scientific advisory committee or a consultant; (4) primary funding through USFWS Section 6 grants; and (5) utilization of the county or region's own reserve lands to most efficiently use mitigation funds and provide the best species habitat. By identifying these factors that contribute to HCP success, this analysis allows stakeholders to anticipate needs and potential barriers, benefitting individuals with diverse interests in counties and regions where a large-scale HCP is possible.

EXECUTIVE SUMMARY

Habitat conservation plans (HCPs) are a means for private landowners to comply with the Endangered Species Act. Historically, the plans are created on a case-by-case basis, but it has become increasingly common for county and regional governments to create region-wide HCPs that cover development from multiple projects in the entire region. Local governments recognize that these plans can increase economic certainty for residents, increase development, and potentially increase conservation. However, region-wide plans are time and resource intensive, and they sometimes are not completed.

HCP legal, academic, and policy experts, who acted as a focus group for this research, stated that few analyses have considered the "human" side of HCP creation—that is, HCP process design and management. Such information may be useful to conservationists and developers in counties and regions where a large-scale HCP is possible. Therefore, this analysis sought to identify the factors that lead to the successful completion of an HCP at the regional and county level.

This paper presents the results of case studies of county or regional HCPs in Benton County, Oregon; Coachella Valley, California; East Contra Costa County, California; Pima County, Arizona; and Williamson County, Texas. The primary sources of information were individuals knowledgeable about the county or regional government's perspective on the HCP process. Each interviewee was asked about the initiation process for the plan, the extent to which other organizations and agencies as well as the community supported the plan, staff capacity for and opinion about HCP creation, determination of covered species and mitigation strategy, and plan funding.

Variation was notable regarding support for HCP creation and staff capacity, suggesting that neither is absolutely necessary for county and regional HCP creation. The factors that do contribute to successful HCP creation are (1) a cooperative relationship between the county or region and the U.S. Fish and Wildlife Service (USFWS) and between the local governing body and the USFWS; (2) local community and political involvement, especially early stakeholder engagement; (3) determination of the covered species by a scientific advisory committee or a consultant; (4) primary funding through USFWS Section 6 grants; and (5) utilization of the county or region's own reserve lands to most efficiently use mitigation funding, whatever its source, and to provide the best species habitat.

Interviewees provided insight into three important factors leading to HCP failure: (1) delays at the regional FWS level due to miscommunication and tensions with the regional or county staff, (2) overly broad HCP scope, and (3) poor project management, for example, lack of responsiveness on the part of consultants to the needs of county or regional staff and of HCP preparers to USFWS input.

By identifying several factors that contribute to HCP success, this analysis allows stakeholders to better anticipate needs and potential barriers, benefitting individuals with diverse interests in counties and regions where a large-scale HCP is possible. It finds that a county or region considering an HCP should ensure it has the support and commitment of its region's USFWS office, and if it does not, it should consider hiring a consultant with significant HCP experience. Whether the HCP is advocated as an economic asset, a means for conservation, or both, the support of the local community is critical. Additionally, because habitat conservation is most effective, both in terms of cost and provision of species habitat, at the county or regional scale, plan preparers, or those considering a plan, need to consider whether county or regional lands are available for HCP implementation. The biggest lesson from HCP failures to date is that HCP preparers should keep the scope of the species they cover narrow, even at a landscape level.

INTRODUCTION

Habitat conservation plans (HCPs), a means for private landowners and other non-federal actors to comply with the Endangered Species Act, have the potential to provide conservation in an economically efficient manner, especially when completed at the regional or county level. As Secretary of Interior Sally Jewell stated, "It really does take a village to keep a community sustainable…Habitat conservation plans are a way to get together and say, 'What do we have in this landscape? Where are the areas where we really have an opportunity to develop, that help keep our communities vibrant and our economy strong? What are the areas that should never be developed?'" (Simons 2014). But because HCPs are a tool for achieving these multiple goals, they are faced with "addressing the conflicts and paradoxes inherent in integrating conservation and economic decision making" (Ostermeier et al. 2000, 166).

Conversations with HCP legal, academic, and policy experts in the summer and fall of 2014 revealed that few of the many studies on the scientific effectiveness of HCP conservation efforts have examined the "human" side of HCP creation or what Ostermeier et al. define as "HCP process design and management" (166).

Because many county or region-wide HCPs are never completed, developers are forced to undertake them. This task is likely cost prohibitive for small developers (Sam Baraso, personal communication, March 13, 2015). Moreover, the resulting patchwork of mitigation efforts is likely not ideal from a conservation standpoint. Broader, landscape-level, multi-species habitat plans can better address habitat connectivity and therefore often are of higher ecological value than the habitat lost as a result of development (Callihan et al. 2009, iii). Thus, research into factors that may lead to the successful creation of plans at the county and regional level will be beneficial to individuals with diverse interests in counties and regions where a large-scale HCP is possible.

Habitat Conservation Plans and the Endangered Species Act

In 1973, Congress enacted the Endangered Species Act (ESA) to protect both individual species and the ecosystems on which they depend. In 1982, the act was amended to authorize an increased variety of activities, including activities that promote or enhance species survival and those that affect a species incidental to some other activity. The latter type of permit, dubbed an incidental take permit, is often applied for by individuals, communities, and other non-federal entities when an otherwise lawful action such as site development could affect a species.

To receive this type of permit, a permittee must prepare a habitat conservation plan (HCP) that specifies:

- The impact which will likely result from such taking;
- The steps the applicant will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps;
- The alternative actions to such taking the applicant considered and the reasons why such alternatives are not being utilized; and
- Such other measures that the Secretary may require as being necessary or appropriate for purposes of the plan (16 U.S.C.§1539(a)).

The U.S. Fish & Wildlife Service (USFWS), which oversees the management of terrestrial and freshwater aquatic species, may reject any permit applications with what it judges to be an inadequate HCP (Watchman 2001, 351).

The HCP process is generally conducted on a case-by-case basis, e.g., when a developer decides to build a new housing project on an endangered species' habitat, it must draft an HCP and apply for a permit from USFWS. Less frequently, county governments take the lead on developing county-wide HCPs that

cover multiple development projects. These larger-scale HCPs "provide substantial benefits for the business community, providing millions of dollars in savings through reduced uncertainty, time delay, and compliance costs" (Economic & Planning Systems 2014, 2). These county-wide plans are time and resource intensive, necessitating a difficult decision: create a county-wide HCP or leave the permitting process up to developers. Even when the decision to pursue a county-wide plan is reached, the plan is sometimes not completed.

To aid in the completion of these plans, the USFWS offers a Cooperative Endangered Species Conservation Fund grant, under Section 6 of the ESA, to states and territories for species and habitat conservation actions on non-federal lands. To receive these grants, a state or territory must currently have, or enter into, a cooperative agreement with the Secretary of the Interior (USFWS 2013a). Additionally, the grants require a 25% match of the estimated project cost (USFWS 2014). Even with a Section 6 grant, development of a regional or countywide HCP remains a complex, expensive, and uncertain undertaking.

Objectives

HCP legal, academic, and policy experts who acted as a focus group for this research in the summer and fall of 2014 suggested that the success of regional and county-level HCPs depends on the length of the process, financial capacity, political will, and the relationship of the plan preparer with the USFWS. This analysis sought to assess the role of each of these and other factors:

- Plan initiation process and preparer
- Logistical and administrative support from other organizations and agencies
- Level of local and political support
- Staff capacity at the time of HCP creation
- Staff opinions, at the time of HCP creation, about whether the HCP would provide additional funding for conservation, increase economic certainty for residents, and provide an efficient means for development on protected habitat
- Determination of species to be covered by the HCP
- Funding for plan creation
- Determination of mitigation strategy
- Funding for plan implementation

METHODS

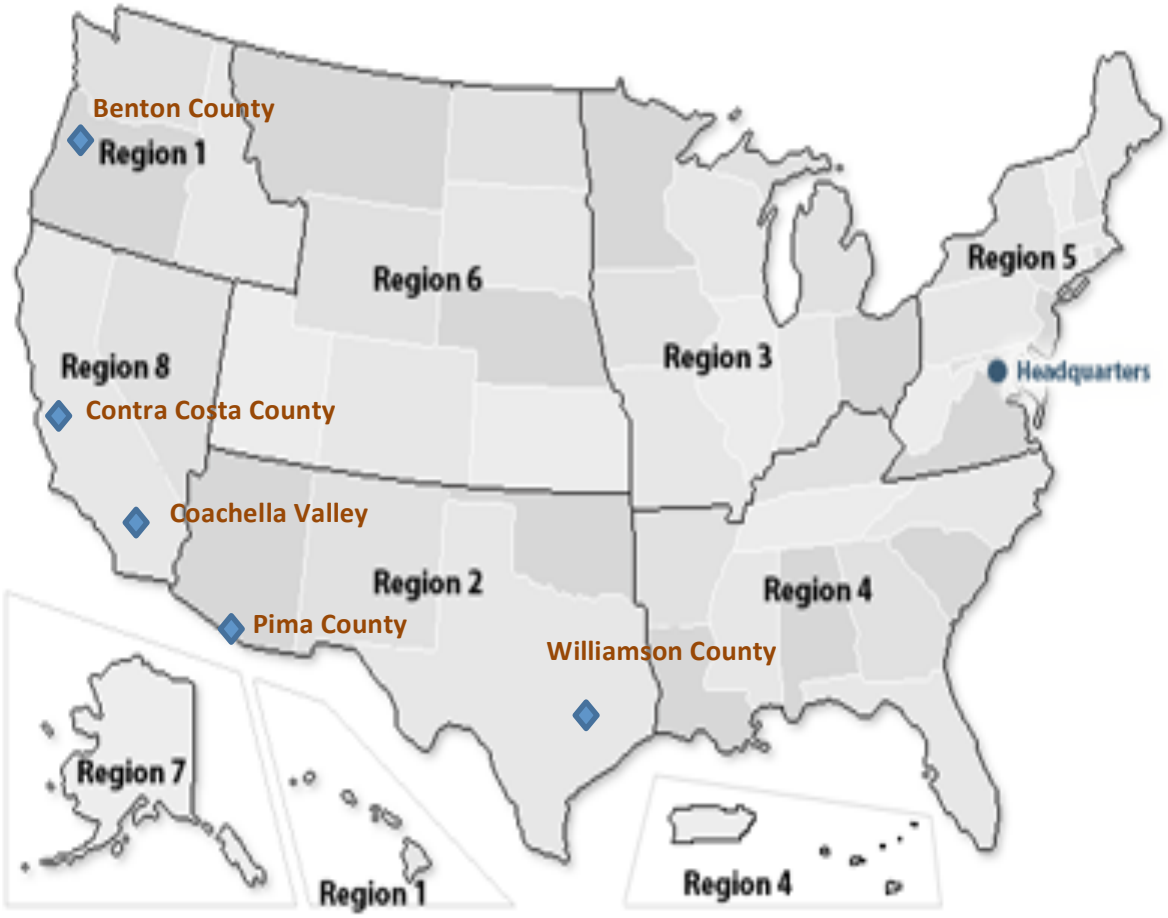
This study adopted a modified case study approach. Case studies are well suited for "how" or "why" research questions about contemporary events over which the researchers had no control (Yin 2014, 14). Case study research utilizes multiple sources of information to describe in detail the processes and factors leading to an outcome or event. This analysis relied on interviews and plan documentation, i.e., publicly accessible drafts of HCPs and final HCPs.

This report includes four case studies of regional and county-level HCPS completed from 2006 to 2015 and one case study of an HCP that is expected to be approved in 2016 (Figure 1). All case studies in this analysis are located in the West and Southwest. Owing to a variety of species distribution, population density, and other factors, the West and Southwest are home to nearly all completed regional or countywide HCPs in the last decade (Kevin Connally, personal communication, May 12, 2015). Table 1 shows that the plans vary in terms of plan area, county or region population, local land uses, and number of covered species. Unlike most HCPs, which address impacts of single development projects, these plans address impacts of multiple projects. However, they are representative of the range of approved county and regional plans.

For each case study, semi-structured interviews were conducted with at least three individuals who worked on the HCP. Survey questions (see Appendix A) were based on issues that the focus group experts highlighted as important. Figure 2 shows the professions of the interviewees, who were chosen for their ability to speak to the local government's perspective. Because of the difficulty of accessing interviewees, and because case studies do not aim for representativeness in sampling, the research design was purposive and utilized snowball sampling (O'Leary 2005, 94–95). Specifically, interviewees were not randomly chosen; those who could be contacted were interviewed, and they offered the names of others who should be interviewed. All answers to open-ended questions were transcribed.

Interviewees who had worked on or were knowledgeable about multiple HCPs were asked about the reasons that HCPs fail. Their responses are provided in the discussion section of this paper.

Figure 1. Case study counties shown in their USFWS regions

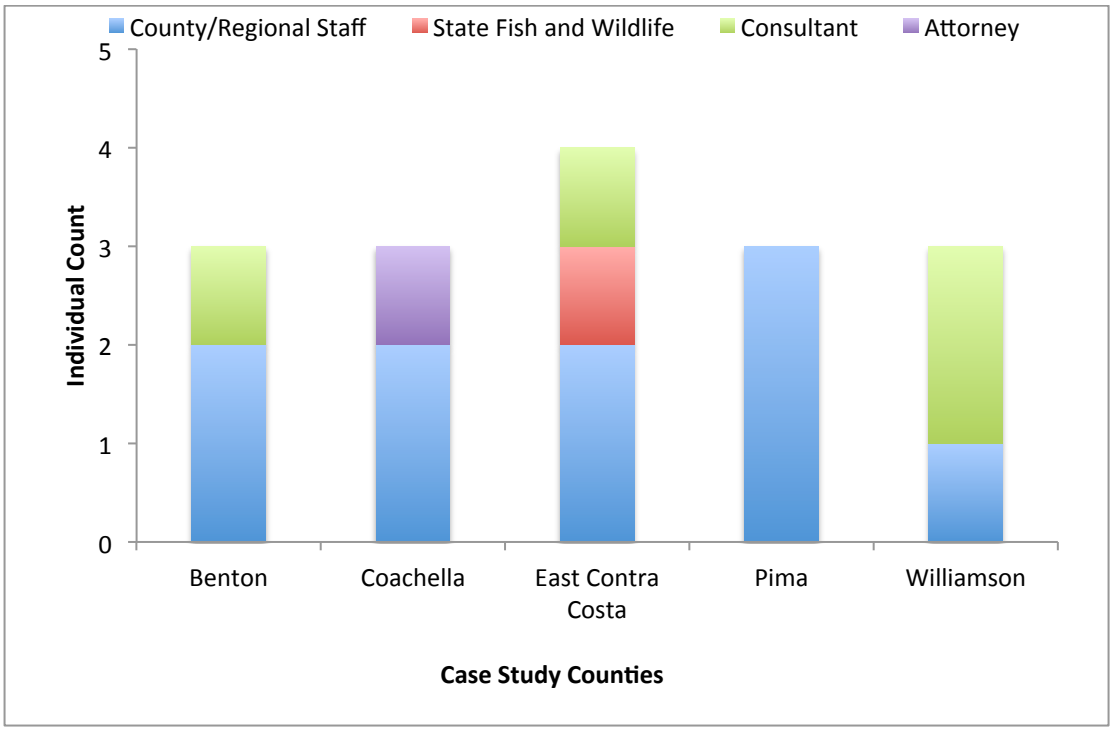


Source: http://www.fws.gov/Endangered/regions/index.html.

Table 1. Descriptive statistics/attributes of examined HCPs

Region/county	Population	Area (acres)	Primary land use	Species number
Benton, OR	85,581	432,640	Forest, agriculture	7 prairie species: 2 butterflies, 5 plants
Coachella Valley, CA	418,300	1,100,000	16% is cities and 84% is unincorporated; 53% of plan area is public and private conservation lands	27 total: 5 plants, 2 insects, 1 fish, 1 amphibian, 3 reptiles, 11 birds, 4 mammals
East Contra Costa, CA	1,094,205	>435,000	Residential, commercial, agriculture, open space	28 total: 2 mammals, 4 birds, 4 reptiles, 3 amphibians, 4 invertebrates, 11 plants
Pima, AZ	996,500	5,879,669	Tribal-owned, state and federal land, private property	44 total: 4 plants, 7 mammals, 8 birds, 5 fishes, 2 amphibians, 6 reptiles, 12 invertebrates (mollusks)
Williamson, TX	422, 649	715,712	83% rural (unincorporated), made up of agriculture, ranches, and homes; remainder is incorporated towns and cities	4 total: 2 karst invertebrates, 2 bird species (but also addresses additional species)

Figure 2. Professions of case study interviewees



FINDINGS

The presentation below of synthesized findings begins with a comparative analysis of HCP attributes and factors surrounding HCP creation. Specifically, it reviews the influence of logistical and administrative support, local and political support, staff capacity, staff views, species inclusion processes, and mitigation and funding strategies. Reasons for HCP failure are also explored. Each of the five HCP case studies can be found in Appendix B.

Comparative Analysis of HCP Attributes

The primary research question this analysis addresses is this: what factors and processes lead to the successful completion of a habitat conservation plan at the regional and county level? This comparative analysis brings together the findings of all the case studies to make generalizations about the "human-side" of the HCP process. Findings from interviews with staff of county and regional government or individuals knowledgeable about that level of governmental as well as relevant information in the HCPs were grouped into themes on the basis of important issues elicited from the focus group interviews conducted prior to the case study research.

This paper's Logistical and Administrative Support section addresses the involvement of the U.S. Fish and Wildlife Service and state fish and wildlife agencies in HCP planning. The Local and Political Support section addresses the importance of local actors, both citizens and politicians, in the HCP process. The Staff Capacity and Opinions section addresses the number of full-time staff needed to complete each HCP and staff opinions, at the time of HCP creation, about whether the HCP would provide additional funding for conservation, increase economic certainty for residents, and provide an efficient means for development on protected habitat. The aim was to gauge staff interest in and motivation for creating the HCPs. The Determining the Covered Species section discusses how plan preparers decided which species to include in the HCPs. The Funding for Drafting the Plan section explains how plan preparers paid for the resources need to write the plan, and the Mitigation Strategy and Funding for Implementation section addresses how the plan would be implemented—for example, what lands and what funds the county or region planned to use to mitigate impacts on species.

Logistical and Administrative Support from Other Agencies

In four of the five cases, the relationship between the plan preparers and the USFWS was positive—that is, a majority of interviewees agreed or strongly agreed that they were willing to work with the USFWS to complete the HCP. The exception was Williamson County, where there was confusion over the listing of a salamander species and misunderstanding of expectations for the listing in the 30-year permitting period covered by the HCP.

Table 2 outlines the ways in which USFWS contributed to the HCP process. With the exception of one case, Pima County, staff stated in their interviews that the USFWS assisted them with the Section 6 grant application process and in most cases that the USFWS also was responsible for informing them about this funding. In the Pima County case, USFWS staff played an active role on the scientific advisory committee. In all cases but Williamson County, the USFWS assisted with biological assessments of the species and helped determine which species and activities to cover. Additionally, most of the interviewees in all of the cases said that the USFWS helped coordinate efforts with other governmental agencies so that all regulatory requirements were met. The USFWS actually helped write the Coachella Valley Regional HCP; it only suggested or mandated edits for the other HCPs.

Table 2. USFWS assistance

USFW assistance	Benton	Coachella	East Contra Costa	Pima	Williamson
Informed county, region, or HCP preparers about funding	X		X		X
Assisted with Section 6 grant application funding	X	X	X		X
Played role on a scientific advisory committee				X	
Assisted with biological assessments	X	X	X	X	
Helped determined covered species	X	X	X	X	
Coordinated with other governmental agencies to ensure all regulations met			X	X	X
Helped write (not edit) plan		X			

Note: Xs indicate that the USFWS helped in the manner described in that row.

These findings reinforce the idea that the creation of regional HCPs requires a large USFWS role. However, the many iterative interactions between the local USFWS office and HCP preparers means that the HCP process takes a long time. For example, in two of the cases, it took at least 15 years. Several interviewees said that duration is a major issue with HCP creation (Table 3). To streamline the HCP process by reducing dependence on the USFWS, the USFWS could provide guidance on how permittees can move forward on their own with planning rather than relying on often over-taxed resources of local USFWS offices.

Table 3: Staff capacity information

	Full-time equivalent staff requirements for HCP	Length of HCP process (years)	Sufficient time in schedule for HCP creation?
Benton	1.5–2.5	4–5	No
Coachella Valley	4	15	Yes
East Contra Costa	1.5	5	1 yes, 1 no
Pima	NA	15	Yes
Williamson	2	4-5	Yes

Note: One to four interviewees per case study provided an estimate of the full-time equivalent number of staff needed to complete HCPs. In Pima County, where HCP planning took more than 15 years, interviewees found it impossible to provide an estimate.

The USFWS National Conservation Training Center offers conservation planning approximately two times a year, which includes HCP training.[1] However, there is no direct link to information about this

[1] Information about this training program can be found at http://training.fws.gov/courses/programs/policy-planning/.

training on the Endangered Species section of the USFWS website, where it would best serve HCP preparers, and there is little information available online. In an independent evaluation of the HCP program, Callihan (2009) suggested that the USFWS decrease dependence on the USFWS by

- Clarifying the allocation of applicant and USFWS roles and responsibilities
- Carefully explaining the criteria for approving mitigation strategies
- Providing realistic expectations about the timeline and cost of HCP development
- Providing a pre-defined dispute resolution mechanism

In the HCP process, the state agencies played varying roles, ranging from full engagement in California to an obligatory seat at the table in Texas. Additionally, in two cases, Benton County and East Contra Costa County, the local water council played a role in HCP creation because an endangered species fell under that agency's jurisdiction. In Benton County, the local water council went as far as helping educate private landowners about the HCP process.

Local and Political Support

For all of the plans, local and political involvement, especially early stakeholder engagement, was key to success of the plan. In some cases, local support was motivated by conservation and quality-of-life considerations, and in other cases, by a desire to maintain open lands and ranching and to profit from the rapid expansion of urban areas. In three of the five cases (Benton, Coachella, and Pima counties) local support, for example, from local universities, came in the form of a scientific advisory committee that created a robust conservation strategy for the region. Political support emerged when an endangered species hindered completion of a major project (a shopping mall in Williamson County and an interstate highway system in the Coachella Valley).

Staff Capacity and Opinions

With respect to one HCP, interviewees stated that success was due to county-level staff efforts. For the plans that took the shortest amount of time—five years—the approximate number of full-time county-level staff working on them was two (Table 3). Opinions varied about the adequacy of time to dedicate to HCP creation, but the majority of staff said that they had sufficient time for the task (Table 3). Also varying were views about whether the HCP, at the time of creation, would increase funding for conservation, increase residents' economic certainty, and increase the efficiency of development near protected habitat. Variation within cases was possibly due to the multiple junctures at which staff became involved in HCPs that took more than a decade to complete.

Determining the Covered Species

The Coachella Valley MSHCP and the Pima County HCP used a scientific advisory committee, primarily made up of academic researchers and species experts, to decide which species to include in the plan. East Contra Costa County and Williamson County hired a private consultant, and Benton used a scientific advisory committee as well as a non-profit consultant to complete its plan.

This research revealed that it is typically the USFWS that narrows the number of species that the plan covers. It is not uncommon for USFWS staff to respond that the number of species is too high. A USFWS Region 2 biologist stated that the number is often reduced for several reasons:

- The USFWS is unsure whether the applicant can appropriately mitigate take for the species; sometimes, species require habitat so specific that mitigation is impossible.

- Take for the species is likely for only very specific activities or in certain areas of the county or region, making handling on a case-by-case basis more appropriate than handling through a county- or region-wide plan.
- More broadly, data on the species impacts or related data are insufficient (Anonymous Interviewee 6A, April 17, 2015).

In all of the cases, the counties and regions either included, or at least considered including, species that were not listed but that were candidates for listing. Because case study HCPs last at least 30 years, the plan preparers wanted to act proactively. If they covered a candidate species that was then listed during the permit time, they would not need to submit a plan amendment, which would take additional time and resources and potentially affect other projects. Moreover, by including species that were candidates, the counties and regions could potentially help those species recover to the point that they would never be listed, again saving money and other resources.

This study also assessed the affect on HCPs of designated critical habitat, or "a specific geographic area that contains features essential to the conservation of an endangered or threatened species and that may require special management for protection," and species recovery plans, which "identify site specific management actions, that, if completed, could lead to a less critical status" (USFWS 2013b, 2015). Some HCP preparers did not know whether species in their HCPs had recovery plans and designated critical habitat; others said recovery plans were key to the success of the HCP. In Williamson County, the recovery plans for karst invertebrates were thought to be invaluable for plan success (SWCA Consultants 2008, 5–8). The scale of the recovery plans was a concern of one interviewee in California who noted that state-wide recovery plans can be unhelpful because they are not sufficiently specific (Anonymous Interviewee 3A, February 19, 2015).

Funding for Plan Drafting

Every county or region used a USFWS Section 6 grant to write its HCP—an important finding for policymakers given that other research reveals considerable challenges to acquisition of funding for area-wide HCPs, particularly those that promote conservation beyond the mitigation of the direct take of planned development (Camacho 2015, 42).

Mitigation Strategy and Funding for Implementation

When determining their preferred mitigation strategy, counties must first consider mitigation method:

- Leave mitigation up to developers and other private landowners who want to be included in the permit.
- Let the county sponsor mitigation, which could include acquisition, protection, and enhancement of conservation lands, and fund that mitigation with taxpayer funds, a participation fee for those who want inclusion in the plan (developers and private landowners), or both.
- Let the county purchase endangered species mitigation credits from a private-party habitat conservation bank, which is an "area of habitat that has been conserved and managed for the conservation of identified natural resource values" (Ruhl 2005, 26).

Two other important considerations are mitigation timing—before or after development—and mandatory or voluntary plan participation. If the mitigation is completed after development, and it is managed by the county, it is often through an "in-lieu fee" funding mechanism; that is, the developer will sign onto the permit, and depending on the details of the plan and the specific "take" to which the developer will commit, the county will charge the developer a plan inclusion fee. That fee goes toward the cost of mitigation.

Table 4 provides an overview of the mitigation strategies that the counties and regions pursued. They all chose to manage their own reserve lands for mitigation, which they determined to be the most cost-effective way to complete mitigation. With the exception of Williamson County, which purchased credits from a bank in a neighboring county to meet some of the mitigation requirements for its expected development, none of the plans utilized conservation banks. In a few cases, a private landowner or developer was allowed to select its own mitigation strategy.

Table 4. Comparison of mitigation and funding mechanisms for five cases

	Lands available for conservation	Expected private development covered by plan	Mitigation funding mechanism	Voluntary participation for private developers?
Benton	500 acres of prairie habitat	1.41 acres	100% public funds	Yes
Coachella Valley	Approximately 587,000 acres made up of existing conservation lands protected by local, state, or federal agencies or by non-profit conservation organizations	Unspecified	Varies by participating party, but plan states that return on endowment investments (public funds) is the primary source of implementation funding	No
East Contra Costa	23,800 acres; potential to cover 30,000 acres	13,000 acres	Public pays 57% and new development pays 43% under "initial urban development scenario"; development will pay through fees on covered activities (required for permit coverage under the plan)	No
Pima	County already has lands under its jurisdiction or is leasing lands to meet the need for 116,000 acres	36,000 acres	Primary source is from county (general obligation bonds and a flood-control district tax levy); participation fee for developers	Yes
Williamson	Roughly 1,830 acres for 2 species; unspecified for 2 other species; county will purchase some species credits for covered avian species	18,000–26,000 acres	Primary source is from developers (participation fees); secondary source is from county (return on endowment investments)	Yes

The mitigation ratios (acres conserved to acres affected) varied for each plan; their selection was based on the quality of the affected habitat, the quality of the habitat used for mitigation, and the conservation status of the land used for mitigation. In Pima County, mitigation ratios were as low as 2 to 1 and as high as 5 to 1, depending on the habitat type and land use. The 2 to 1 ratio is for impacts that occur on agricultural in-holding and other lands outside the county's Conservation Lands System, and the 5 to 1 ratio is for "biological core management areas," "special species management areas," and "important riparian areas" (Pima County 2012, 39). In this HCP, the county will utilize lands already put under conservation easement in a previous conservation plan as well as lease lands to achieve mitigation on 116,000 acres.

The funding mechanism for mitigation in each case also varied (Table 4). In three cases, taxpayers paid some of the cost. East Contra Costa County used a fair-share analysis to determine how to divide that cost between the public and developers.[2] In Pima County, taxpayers fund most of the mitigation, primarily in the form of general obligations bonds, but private developers who volunteer to participate in the HCP also pay a participation fee. Williamson County's HCP is also voluntary for private developers. Williamson interviewees emphasized that funding needed to come from developers because the county could not convince the public to use taxpayer dollars to support a plan to save "cave bugs." In contrast to the Pima County HCP, the Williamson County HCP states that it gets its funding primarily from a participation fee and a tax-benefit financing scheme whereby monies are derived from the change in property tax value that occurs when the land is developed.

Benton County is the only county that fully funded the mitigation, even on private lands, but the anticipated scale of take from private development in that county is much less than the expected scale of impact in the other four counties and regions (Table 4). On private land, the Benton HCP covers only home, farm, and construction activities in forests that affect one species. One interviewee emphasized that Benton chose not to cover the development of subdivisions on private property—plan preparers did not want to use county funds to support construction of multiple residences on a given property. Due to the rural nature of the area, the county tended to cover take on private land when a family was building a single home (Anonymous Interviewee 1C, February 11, 2015).

Interviewees for the Pima County and Benton County HCPs said those HCPs are funded primarily by taxpayers because the plans endorse a conservation ethic already present in the area. The Pima County HCP is based on the Sonoran Desert Conservation Plan, which was the basis for the HCP's robust mitigation ratios. An interviewee stated that Pima County wanted to set an example for conservation in the region.

Reasons for HCP Failure

This study did not thoroughly investigate the factors leading to HCP failure. However, at the end of the interviews, several participants from several counties and regions, some of whom have worked on multiple HCPs, were asked the reasons that HCPs fail to be completed.

Several interviewees at the local government level mentioned insufficient resources; staff cannot complete the process because time or money are lacking. One interviewee said that interpersonal dynamics can make the process tiring, and that "ease of cooperation" varies from office to office (Anonymous Interviewee 5B, March 17, 2015).

The scope and goals of the HCP influence required time and effort. One interviewee in Pima County said the reason that the county's HCP process has taken 15 years is that the county is aiming for landscape-level conservation and that that the USFWS has little experience with HCPs of that scope (Anonymous Interviewee 2A, February 9, 2015). Another interview stated that the plans he has seen fail "are too broad; they cover too many species, they cover too much land, they just are too big…they are too ambitious." He added that landscape-level conservation is important but is sometimes complicated by "a tendency to try to fold everything into it…to wrap too many regulations into it, like clean water compliance…and while that's a great goal, it bogs the plan down… it's just too complex." He concluded by saying that a large scale requires a small focus—for example, a small number of species (Anonymous Interviewee 3C, March 5, 2015). Another interviewee had a different perspective on scope: "Wildlife agencies want to make [HCPs] better…but better doesn't mean it should be longer…and I worry that ours was a fast one

[2] This analysis considers the amount of open space that will be acquired for habitat protection relative to the amount of development before and after plan adoption, under the premise that both the public and future developers should be responsible for plan funding.

and it took five years, and that's a long time." He alluded to the difficulty of maintaining momentum during the plan editing process, stating that "perfect is the enemy of the good in the HCP process…you end up with a morass of tangled and contradictory provisions" (Anonymous Interviewee 3D, March 2, 2015).

Another interviewee who works for a state wildlife agency attributed HCP failure to weak commitment of the public and poor management. He said that failure is often due to the county "using consultants that aren't willing to be responsive to agency input and submit products that aren't helpful or aren't responsive to agency concerns." He added that consultants sometimes try to downplay the impacts and skimp on the conservation (Anonymous Interviewee 3B, February 23, 2015).

CONCLUSIONS

Despite differences in scope of the covered development, local political climates, and other factors, the five case studies illuminated several contributors to successful HCP creation. The first is a cooperative relationship between the county or region and the USFWS. Because the HCP creation process is iterative and initially has an indeterminable completion date, any county or region considering an HCP should ensure it has the support and commitment of its region's USFWS office, and if it does not, it should consider hiring a consultant with significant HCP experience.

A second contributor to success is plan preparers' understanding of the requirements necessary for USFWS Section 6 grants, which were the primary source of funds in the cases in this analysis.

A third contributor to success is the support of the local community and local politicians, whatever their motivation. In communities concerned more about economic development than conservation, the county or region can emphasize that a large-scale HCP will increase the efficiency of development. Some research has stressed that a hierarchy of stakeholders must be established and that the efforts of plan supporters must be coordinated to ensure that contributions and suggestions do not lengthen the HCP process to the point that it collapses (Camacho 2015, 28).

A fourth contributor to success was use of the county or region's own reserve lands for mitigation. This strategy was more efficient than utilizing conservation banks or allowing developers to create their own mitigation strategy. Therefore, governments must think about whether they own or manage or can purchase or lease land appropriate for mitigation. They must consider the amount of land required to fulfill their plan's mitigation ratios, which depend on factors such as the quality of the affected habitat and the quality of the habitat used for mitigation. Future research could investigate how county and regional staff determine mitigation ratios.

In addition to contributors to success, the case studies highlighted three important issues. The first is delays at the regional FWS level due to miscommunication and tensions with the regional or county staff. The second is HCPs of overly broad scope, whether too large an area, too many species, or both. The third is poor project management and HCP preparers who are not responsive to USFWS input. Additional case studies could investigate the reasons that HCPs at the regional scale fail to secure final approval by the USFWS. However, identifying HCPs that were never implemented will be difficult because they are referenced in no national database.

APPENDIX A: SURVEY ABOUT THE HCP PROCESS

The following survey was administered to anonymous interviewees between January and April 2015. Interviewees read the survey on their computer screen while they provided answers over the phone.

Support in the HCP Process

1. How did you first hear about HCPs relevant to your municipality/county?

    a. Consultant
    b. State Fish & Wildlife Office
    c. USFWS
    d. Other. If chosen, please describe this process that spearheaded the creation of this HCP:

2. Please check off the ways in which USFWS staff contributed to this HCP:

    a. FWS staff did not play a role in this HCP.
    b. FWS biologists assisted with assessments or information that were required for this HCP.
    c. FWS staff assisted with the grant application process.
    d. FWS staff supported the development of the scope, covered species, and covered activities.
    e. FWS staff helped guide the conservation strategy.
    f. FWS staff helped draft (write) the HCP itself.
    g. FWS staff facilitated outreach to additional partners.
    h. FWS staff coordinated so that all regulatory requirements were met with other governmental agencies.
    i. FWS staff contributed in a way not listed here. Please describe: _____

3. Did your office receive assistance from any other nongovernmental agencies or governmental agencies in the creation of this HCP? (Examples: U.S. Forest Service, local conservation organization, etc.).

    a. Yes
    b. I don't know

If yes, was this collaboration required, for example, because the species is present on land that falls under that agency's jurisdiction?

    a. Yes
    b. I don't know

4. How many staff members at your office worked on the development of this HCP? _____

5. What was the approximate level of full-time employment on the HCP (e.g., two people working part-time would equal one full-time employee)? ____

6. Please indicate the extent to which you agree or disagree with these statements; 1 means you strongly agree, and 5 means you strongly disagree.

Support for the HCP process	(1) Strongly Agree	(2) Agree	(3) Neutral	(4) Disagree	(5) Strongly Disagree

a. Staff in my office received support from political leaders before and during the HCP process.

b. Regardless of my availability, I was generally interested in working on this HCP.

c. During its creation, I believed this HCP would provide additional funding in my county for conservation.

d. During its creation, I believed this HCP would increase economic certainty for residents.

e. During its creation, I believed this HCP would provide an efficient means for development on protected habitat.

f. I felt I had adequate time available in my schedule to work on this HCP.

g. I was willing to work with the Fish and Wildlife Service to complete this HCP.

Financial Questions

7. What sources of financial support were used for the completion of this HCP? Check all that apply.

a. The incidental take permit applicant's own funding
b. Fish and Wildlife Service grant
c. Private entity
d. Foundation
e. NGO/non-profit
f. Federal agency
g. State agency
h. Other (please specify): _____

8. How did you find out about sources of funding?

Species-Related Questions

9. How did the group decide which species and habitats to include in the HCP?

10. Did the species having a designated habitat, a recovery plan, or both facilitate the creation of the HCP? How?

Mitigation-related Questions

11. Please check all the mitigation alternatives that your group considered:

a. Permittee-sponsored mitigation (i.e., the developers are responsible for mitigation)
b. County-sponsored acquisition, protection, enhancement
c. Third party-sponsored habitat banking

12. Why did the group choose the mitigation strategy it did?

13. How did the group working on this HCP decide who will pay for the mitigation?

14. Please check all that apply regarding both the potential for offsite mitigation and the availability of mitigation opportunities.

a. Land was available for acquisition by the applicant for mitigation purposes.
b. Land was already under the applicant's jurisdiction but required enhancement.
c. Land was already under the applicant's jurisdiction and only needed a guarantee of conservation permanence (i.e., conservation easement, no enhancement necessary).

Timing

15. To the best of your knowledge, how long, from the beginning of the HCP process, to submittal of the HCP to the Fish and Wildlife Service, did this HCP planning period take?

a. < 1 year
b. 1–2 years
c. 3–4 years
d. 4–5 years
e. > 5 years

Concluding Remarks

16. Please describe what you believe the biggest factors were regarding the successful completion of this HCP.

Appendix B: Expanded Case Study Discussion

Benton County, Oregon HCP, 2010

Table A1. Demographic and HCP information for Benton County

USFWS region	1
Population	85,581 (U.S. Census Bureau 2015)
County area	432,640 acres (U.S. Census Bureau 2015)
Plan area	329,266 acres
Planning Unit One: Prairie habitat owned, managed, or both by certain non-federal public agencies and conservation organizations	11,700 acres
Planning Unit Two: Privately owned + include Fender's blue butterfly habitat	317,566 acres
Primary land uses	Forest, agriculture (Benton County Comprehensive Plan 2007, 16–2)
Number of covered species	7 prairie species: 2 butterflies and 5 plants
Mitigation	—Must occur on publicly owned site or protected land —Mitigation ratios (conservation: impact) vary from 1:1 to 5:1, depending on quality of affected site, quality of mitigation site, mitigation site status, and timing of mitigation
Implementation funding	County funding, general obligation bond, local property tax option levy, potential federal grant sources
Other regulatory requirements the plan meets	State of Oregon ESA, the Migratory Bird Treaty Act, the Clean Water Act, and other state and local legislation
Length of HCP creation process	4–5 years
Permit duration	50 years

Plan Overview

Benton County, Oregon, in Region 1 of the USFWS jurisdiction, is located in the southern portion of the Willamette Valley ecoregion (Kaye, Menke, Michaud, Schwindt, Wisehart 2010, 1). Much of the habitat loss that has already occurred in the region is due to conversion of land for agricultural crops and urbanization (Kaye et al. 2010, 1). One interviewee noted that of all the HCPs she has worked on in the region, this was one of the fastest to be completed (Anonymous Interviewee 1C, February 11, 2015).

The seven species covered by the HCP are those that reside in wet or upland prairie habitat in Benton County; one butterfly is the only species covered on private lands, and it is only covered for those properties that fall within the mapped potential habitat, the "Fender's Blue Zone." The plant species are all covered on county lands and those managed by the City of Corvallis, Oregon State University, and the Oregon Department of Transportation; the other butterfly is covered only on county lands (Kaye et al. 2010).

As written in the HCP, covered activities include (1) ground-disturbing activities necessary to allow home, farm, and forest construction; (2) management of public and conservation organization lands; and 3) activities providing essential public services in the county (e.g., transportation and water system

management and utilities construction and maintenance) (Kaye et al. 2010, 43–44). The HCP cooperators and others who are eligible to obtain coverage for their activities are: (1) City of Corvallis, (2) Oregon DOT, (3) Greenbelt Land Trust, (4) Pioneer Telephone Cooperative, (5) NW Natural, and (6) private landowners seeking a county permit or agricultural building authorization for work in the Fender's Blue Zone (Kaye et al. 2010, xiii).

Interviewees

One interviewee was working with the Natural Areas and Parks Department, one was in the Community Development Planning Division in Benton County, and one was a consultant from the Institute for Applied Ecology.

Plan Preparers and Initiation of HCP Process

USFWS informed the county that it should consider doing an HCP. The Institute for Applied Ecology, a 501(c)(3) nonprofit specializing in restoration, research, and education, wrote the HCP.

Logistical and Administrative Support from Other Organizations and Agencies

USFWS both informed the county about Section 6 funding and assisted with the grant application process. FWS staff supported development of the scope, covered species, and covered activities and more generally guided the conservation strategy. FWS biologists assisted with assessments or information that was required and also helped coordinate efforts with other governmental agencies to ensure that all regulatory requirements were met. All three interviewees also "strongly agreed" that they were willing to work with USFWS staff during this HCP process. As one interviewee stated, "They came to a lot of meetings; they would be there at strategy sessions and planning meanings and things like that so they were helpful all along the way" (Anonymous Interviewee 1A, January 22, 2015). Two respondents said that this administrative support, along with grant money, was key to the HCP's success. One respondent also stated that FWS staff helped draft the HCP and facilitated outreach to additional partners.

Other governmental agencies, such as the Oregon Department of Agriculture, and nongovernmental organizations, such as the Institute for Applied Ecology, assisted with the plan. For the state agencies, this collaboration was required because a species fell under the agency's jurisdiction. One respondent noted that the local consultant, the Institute for Applied Ecology, was one of the biggest factors in the success of this plan because of both its technical and public involvement and communication (Anonymous Interviewee 1A, January 22, 2015).

Local and Political Support

All three strongly agreed that county staff received political support during the HCP drafting process. They said that support from the local government, particularly the support of three Benton County commissioners who have a strong land use ethic, were key to completion of this plan. Two of the three respondents said that support from the local community was also key; one described the community as having "a fair degree of acceptance," and the other said that the community was "open to this sort of process" (Anonymous Interviewees 1A, January 22, 2015, and 1B, January 27, 2015).

One respondent also mentioned the importance of two subcommittees, a stakeholder committee as well as a technical advisory committee, which included people who had particular knowledge of prairie species and botany. Some of the members were with the Oregon Department of Transportation and others were scientists from Oregon State University in Corvallis. There were also independent consulting biologists. At the county's request, many of these contributors met once a month or once a quarter for a couple years (Anonymous Interviewee 1B, January 27, 2015). The local watershed council also played a major role in contacting private landowners and educating them about the HCP.

Staff Capacity

County staff estimated that the full-time equivalent of county staff working on this project was between 1.5 and 2.5 full-time individuals. All interviewees either agreed or strongly agreed that regardless of their availability, they were interested in developing the HCP; however, both the county staff interviewees did said they had inadequate time in their schedule to work on the HCP.

Staff Opinion

Three of the survey's Likert scale questions gauged staff opinion about the potential for the HCP to improve conservation and to increase economic certainty for either the residents or developers. All three agreed that the HCP would increase development potential in areas with protected habitat. Interestingly, they did not agree that the plan would increase additional funding for conservation of the species, and only two agreed that they the plan would increase economic certainty for residents.

Determining the Covered Species

Academic researchers and USFWS staff were key contributors in deciding which species to include in the plan, and they did so by assessing where county-regulated actions intercepted endangered species habitat. For example, they included species that roadside management would affect. A federal wildlife refuge a few miles north of Corvallis meant that local USFWS staff and citizens already a lot of knowledge about endangered species in the area—knowledge that aided the decision process.

Interviewees had some trouble recollecting the importance of species recovery plans and designated critical habitat to HCP creation. One interviewee who seemed to have the best memory of this particular issue stated that recovery plans for these species were completed right after creation of the HCP and therefore could not play a helpful role (Anonymous Interviewee 1C, February 11, 2015). The critical habitat, however, was released right after species listing, so it did help identify areas that were important to the species.

The Mitigation Strategy

When the group writing the HCP was determining the mitigation strategy, it considered permittee-sponsored mitigation (i.e., the onus falls on the private landowner) as well as county-sponsored acquisition, protection, or enhancement. One interviewee said that third-party-sponsored habitat banking was also a consideration, at least at the beginning. All three interviewees stated that land was available for Benton County to acquire for mitigation purposes, but there was some confusion over whether land was already under the county's jurisdiction at the time of plan creation.

All three interviewees emphasized that Benton County chose county-sponsored mitigation because it wanted to maximize species protection. After much debate, said one interviewee, the county decided on county-sponsored acquisition of land because it "felt that if the onus and the cost was put on the property owners, there would be a certain percentage who would not go through the process or would try to hide the fact that there was habitat or preemptively destroy the habitat" (Anonymous Interviewee 1B, January 27, 2015). Another stated that people typically see HCPs as a means for enhancing development, but that they wanted to change this perception and show that the HCP was the best option for the species and the habitat.

Section 6 of the HCP stated that mitigation for impacts on non-federal, public lands must occur at prairie conservation areas, which include more than 500 acres where habitat is suitable for the introduction of covered species or where the covered species already exist. Alternatively, mitigation can occur on site. For impacts on private lands (on the one butterfly species that is covered on private lands), Benton County will implement mitigation at designated butterfly conservation areas; otherwise, the private landowner must work directly with the USFWS to implement mitigation (Kaye et al. 2010, 96).

The plan's mitigation ratios (conservation: impact) vary from 1 to 1 to 5 to 1, depending on the quality of the affected site, the quality of the mitigation site, the status of the mitigation site, and the timing of mitigation (Kaye et al. 2010, 93). Lower mitigation ratios apply to sites that are under permanent deed restriction or conservation easement. The HCP lists places where mitigation is planned or may be planned and describes the quality of this habitat (Kaye et al. 2010, 96).

Funding for Plan Drafting

Funding for the plan primarily was in the form of two USFWS Section 6 habitat conservation planning assistance grants. Two respondents said this monetary support from USFWS was key to the success of this plan. Benton County also contributed its own funds to plan drafting, as required by Section 6.

Two respondents also stated that a state agency provided funding for HCP drafting, and one of the respondents said that a nonprofit contributed financially. One interviewee noted that the Oregon Watershed Enhancement Board both provided money and discussed funding options (Anonymous Interviewee 1B, January 27, 2015).

Funding for Implementing the Plan

To decide who would pay for the mitigation fees, two respondents noted the involvement of the community in determining the mitigation strategy, though they each provided different perspectives. One said that the endangered species were a community value, so residents felt that the mitigation costs could be spread across the community through the fees the county would have to pay to acquire land (Anonymous Interviewee 1C, February 11, 2015). The other said that at a public meeting, the idea of having developers pay a fee on a land use application was not well received, so the county commissioners decided to pursue a strategy whereby the county would bear the cost (Anonymous Interviewee 1B, January 27, 2015).

Section 8 of the Benton County HCP addresses funding for plan implementation. The plan states that administrative costs as well as mitigation costs for Fender's blue butterfly habitat restoration, enhancement, monitoring, and outreach will be borne by several sources: (1) local county funding from the Benton County Natural Areas and Parks, Community Development, and Public Works departments; (2) undesignated county funds; (3) a general obligation bond; (4) a local property tax option levy; and (5) potential federal grant sources.

Coachella Valley, California Regional HCP, 2007 (Major Amendment in 2014)

Table A2: Demographic and HCP information for the Coachella Valley

USFWS Region	8
Population	418,300 (U.S. Census Bureau 2015)
Area	1,100,000 acres (U.S. Census Bureau 2015)
Plan area	1.1 million acres (Dudek 2014, ES–3)
Conservation area protected under plan	746,100 acres (the majority is federal) (Dudek 2014, ES–8)
Maximum area of development covered by plan	Unspecified
Primary land uses	—16% is made up cities; 84% is unincorporated —53% of plan area is public and private conservation lands (Dudek 2014, ES-3, 2–4)
Number of covered species	27: 5 plants, 2 insects, 1 fish, 1 amphibian, 3 reptiles, 11 birds, and 4 mammals
Mitigation	Dependent on the individual jurisdictions, although the regional governing body (CVAG) has already designated conservation areas
Implementation funding	Local development mitigation fee, trust funds, regional road projects mitigation, regional infrastructure mitigation, transfer from the endowment for the earlier HCP it subsumed, interest on investments (Dudek 2014, ES-16)
Other regulatory requirements the plan meets	California Endangered Species Act, Natural Community Conservation Planning Act, Section 2810 of the California Fish and Game Code (NCCP) (Dudek 2014, ES-1)
Length of HCP creation process	15 years
Permit length	75 years

Plan Overview

Coachella Valley is a broad, low-elevation valley in the westernmost limits of the Sonoaran Desert, in the eastern portion of Riverside County, which is approximately 100 miles east of Los Angeles (Dudek 2014, ES-2). The Coachella Valley Multi-Species HCP (MSHCP) is the only regional HCP in this study, and it covers an area much vaster than the other plans because the plan preparers wanted to maximize inclusion of the Coachella Valley Watershed (Dudek 2014, ES-2). This HCP subsumes one of the country's first HCPs, the Coachella Valley Fringe-Toed Lizard HCP, which was approved in 1986 (Dudek 2014, ES-10). On a national scale, this plan is unique because it is an HCP combined with a Natural Community Conservation Planning (NCCP) plan, the document necessary for California's Endangered Species Act compliance. California has its own robust Endangered Species Act, which the California Department of Fish and Wildlife interprets as more robust than the federal act, because it helps recover species (Cambacho et al. 2015, 7). Thus, counties and regions in California often write HCPs and NCCPs together. MSHCP is also unique because several federal agencies, the USFWS, the Bureau of Land Management, the U.S. Forest Service, and the National Park System, have signed onto it (Dudek 2014,

ES-1). In 2014, the plan was amended to allow one of the cities that originally not approve it to become a permittee, along with a water district (Dudek 2014, ES-1).

Covered activities are broad, including activities such as development permitted by the permittees and public facility construction, but they do not include agricultural activities (Dudek 2014, ES-25). Some of the most important covered activities are several interchange projects, which occur inside and outside of the conservation areas (Dudek 2014, ES-26). The plan covers 27 species, including five plants, 2 insects, 1 fish, 1 amphibian, 3 reptiles, 11 birds, and 4 mammals (Dudek 2014, ES-6).

Interviewees

One of the interviewees for this case study works for the Coachella Valley Association of Governments (CVAG), which is the primary governing agency for this HCP. The other two interviewees worked for Riverside County. Riverside County makes up a large percentage of the plan area, and without its staff's participation, one interviewee said the plan would never have come to fruition (Anonymous Interviewee 4A, February 11, 2015).

Plan Preparers and Initiation of HCP Process

Two of the interviewees for this plan referred to the Coachella Valley Fringe-Toed Lizard HCP as the way they first heard about HCPs. One said the idea was first presented to her when she met with federal agencies to address the presence of an endangered species in an area where the road department wanted to construct a highway overpass. CVAG contracted with a non-profit, the Coachella Valley Mountains Conservancy, to complete the HCP.

Logistical and Administrative Support from Other Organizations and Agencies

All three interviewees mentioned that the USFWS played a big role in the drafting of the HCP; its biologists assisted with assessments, helped decide which activities and species to cover, and provided advice on the conservation strategy. Two of the interviewees said the USFWS facilitated outreach to additional partners. Notably, they also said that the USFWS helped write the HCP. One of the three interviewees said the USFWS helped coordinate efforts with other governmental agencies so that all regulatory requirements were met. The USFWS also informed CVAG about Section 6 funding, assisted with the grant application process, and ultimately provided a grant.

A Project Advisory Group, made up of representatives of Parties to the Planning Agreement, other public agencies, private sector groups such as the Building Industry Association, and non-profit groups such as the Sierra Club held public forums so that potentially affected landowners could offer input to the planning process. A scientific advisory committee, which included several well-known conservation biologists, provided technical expertise to address biological issues. All of the interviewees stated that the lengthy HCP creation process was due to the number of parties involved.

Local and Political Support

All interviewees agreed that local and political support were key to the plan's successful completion. Two felt that the local community supported it because it would streamline the development process or the construction of highway systems. Another stated that the more important factor was the local community's desire to maintain its quality of life through conservation; she said the valley had an environmental ethic.

This case study was not the first to illustrate that the success of the HCP process for Coachella Valley was highly dependent on local and political cooperation. In fact, a prior case study of the plan found that the plan was challenged by a lack of "political clout to mobilize powerful regional allies, the administrative authority to compel its constituent municipalities, or a clear strategy to move the MSHCP past its political

hurdles…" (Alagona 2008, 9). This study on the Coachella Valley MSHCP makes two primary suggestions for regional HCPs. First, define clear process management, for example, a description of how collaborative decision making will take place. Attorneys and consultants familiar with HCPs can help achieve this goal. Second, ensure that the plan is supported by a regional body with political clout and not only by a voluntary organization like the CVAG (Alagona 2008, 10).

Staff Capacity

One staff member said the contribution of two staff members at Riverside County was minimal. The other said that one full-time person from that county was working on the HCP during 5 of the 15 years it took to complete the plan. At CVAG, four staff members worked on the HCP. All three interviewees were interested in working on the HCP and said they had adequate time in their schedules to work on it.

Staff Opinions

At the time of plan completion, only one interviewee believed the plan would provide an efficient means for development near protected habitat, but all said it would bring economic certainty for residents. Two interviewees said it would increase funding for conservation.

Determining the Covered Species

As the plan states, 52 species were considered for inclusion; ultimately, the scientific advisory committee reduced the number to 27 (Dudek 2014, ES-6). One interviewee noted that the USFWS had veto authority and made the final decision when determining which species to cover (Anonymous Interviewee 4B, February 25, 15).

An interviewee said that species were removed from the list if they were already covered by an umbrella species or if information about their status was lacking. Nevertheless, the interviewee said that they wanted to provide protection not only for listed species, but also unlisted species that were threatened or might be heading toward listing (Anonymous Interviewee 4A, February 11, 2015).

As for the relevance of designated critical habitat and recovery plans, the CVAG staff member said that having designated critical habitat was helpful for some species but that it was little referenced because the scientific advisory committee generated habitat models for each species that were used to determine where the conservation areas were. She also said, "All of the conservation planning was designed to be consistent with the recovery plans," although not all the species had recovery plans (Anonymous Interviewee 4A, February 11, 2015). Another interviewee said she thought that the USFWS will sometimes wait to release designated critical habitat and recovery plans until after HCPs are created because it knows the HCPs will address issues (Anonymous Interviewee 4C, April 8, 2015).

Mitigation Strategy

The CVAG interviewee stated that the group based the mitigation for the Coachella MSHCP on the earlier Fringe-Toed Lizard Habitat Conservation Plan because everyone was familiar with how the latter worked. Thus, they made the MSHCP a fee-based mitigation program whereby developers pay a fee in exchange for the right to develop on their property. She said they wanted to "give the local jurisdictions, the local city and county, the authority to make a decision about what mitigation or what development would be allowed, of course that was consistent with the multiple species plan" (Anonymous Interviewee 4A, February 11, 2015). She also pointed out that in regional HCPs, the governing agency, which in this case is the CVAG, does not have the authority to acquire lands, except through charging a fee. But in this case CVAG could put conservation easements on many lands available through NGOs (Anonymous Interviewee 4A, February 11, 2015).

Through the plan, CVAG established a reserve system made up of 21 conservation areas that protect the habitats of the covered species. The system is made up of approximately 587,000 acres of existing conservation lands protected by local, state, or federal agencies or non-profit conservation organizations. The plan also promises to acquire or otherwise conserve additional conservation lands, a minimum of 129,690 acres, through state and federal acquisitions. Additionally, there will be permittee contributions (Dudek 2014, ES-8–ES-10).

Funding for Drafting the Plan

Both county staff interviewees stated that some funds came from the county to pay for development of the HCP. USFWS provided Section 6 funding, and the state provided funding because this was a combination of an NCCP (required for endangered species in California) and an HCP.

Funding for Implementing the Plan

One of the interviewees stated that the group decided used an economic study to determine who would pay for mitigation. The group chose "what was politically palatable"—that is, what could yield the most conservation (Anonymous Interviewee 4B, February 25, 2015).

As the primary sources of funding for plan implementation, the plan lists the local development mitigation fee, trust funds, regional road projects mitigation, regional infrastructure mitigation, transfer from the endowment for the subsumed HCP, and interest on investments (Dudek 2014, ES-16). Chapter 5 details these funding sources. It states that the estimated Local Development Mitigation Fee of $5,730 per acre can be revised, "should it be found insufficient to cover mitigation of new development;" it is projected to increase 3.29% annually (Dudek 2014, 5–11).

East Contra Costa County, California HCP, 2006

Table A3: Demographic and HCP information for East Contra Costa County

USFWS region	8
Population	1,094, 205 (U.S. Census Bureau 2015)
County area	> 435,0000 acres (Jones and Stokes 2006)
Plan area	174,018 acres
Range of protected area	23,800–30,000 acres
Maximum area of development	13,000 acres
Primary land uses	West and central areas: residential, commercial, and industrial: East: primarily agriculture and general open space
Number of covered species	28: 2 mammals, 4 birds, 4 reptiles, 3 amphibians, 4 invertebrates, and 11 plants
Mitigation	A preserve network covers 23,800 acres; potential to cover 30,000 acres; restoration or creation of 436 acres of habitat is required for loss of wetlands, riparian woodland, and oak savanna habitat at ratios of 1:1 to 2:1
Implementation funding	Fees on covered activities (required for permit coverage under the plan) and non-fee public funding (only for species recovery, not mitigation)
Other regulatory requirements the plan meets	California NCCPA, Clean Water Act sections 401 and 404, Porter Cologne Water Quality Control Act, and Section 1602 of the California Fish and Game Code
Length of HCP process	5 years
Permit duration	30 years

Plan Overview

The East Contra Costa HCP is also an NCCP. Contra Costa County is located in the San Francisco Bay Area, and land is used for many purposes (Table 5). Although the area is one of the most populated urban areas in the nation, as of 2000, only 25% of the land there was developed (California Contra Costa County 2015). The East Contra Costa HCP is a joint effort between four cities (Pittsburg, Oakley, Brentwood, and Clayton), Contra Costa County, the Contra Costa Flood Control and Water Conservation District, and the East Bay Regional Park District. Secretary of Interior Sally Jewell has hailed the plan as a great example for counties around the nation (Simons 2014).

All of the HCP's planning occurs in the inventory area, located in the eastern portion of Contra Costa County. The inventory area includes lands where impacts and conservation would occur; within the inventory area is the permit area where the county requested take authorization. Several categories of land are included in the permit area: (1) lands that fall within urban limits of the county and cities, (2) lands affected by specific rural infrastructure plans outside city borders, and (3) plan-managed lands acquired in fee title or conservation easement.

The plan covers 28 species: 2 mammals, 4 birds, 4 reptiles, 3 amphibians, 4 invertebrates, and 11 plants (Jones and Stokes 2006, ES-4). Covered activities "include all ground-disturbing activities controlled by

permit holders via their land use planning process," as well as "specific rural infrastructure projects outside these urban boundaries that will support urban growth (e.g., road and flood control projects and maintenance)" (Jones and Stokes 2006, ES-3).

Interviewees

Two of the interviewees were from the Contra Costa County Community Development Department, which acted as the HCPA Coordinating Agency. The third was a consultant from the Jones & Stokes consulting company, and the fourth works at the California Department of Fish and Wildlife.

Plan Preparers and Initiation of HCP Process

The HCP was prepared by Jones & Stokes Associates (which ICF International has now acquired), with help from the Economic & Planning Systems and Resources Law Group. East Contra Costa's Habitat Conservation Plan was driven by the local water district's desire to increase water withdrawal from the local delta, and the California Department of Fish and Wildlife's response that resulting growth would affect endangered species—hence the need for appropriate mitigation through an HCP.

Logistical and Administrative Support from Other Organizations and Agencies

All three interviewees strongly agreed that they were willing to work with USFWS staff on the HCP. The USFWS informed county staff that they should consider drafting an HCP. It assisted with the grant application process and supported the development of the scope, covered species, and covered activities as well as more generally guided the conservation strategy. A consultant on the project stated that the USFWS biologists assisted with assessments required for HCP completion. Most interviewees said that USFWS helped coordinate efforts with other governmental agencies so that all regulatory requirements were met. Additionally, one person said, "They helped create the political support for writing the HCP by going to city council meetings, by meeting with individual elected officials, [and] by meeting with individual staff. Basically they worked the politics, which I think is an important role" (Anonymous Interviwee 3D, March 2, 2015). Another interviewee noted that, at least in the Sacramento office, it was common for the USFWS to engage in group editing of the HCP. He also noted the necessity for HCP consultants to be receptive to USFWS input (Anonymous Interviewee 3B, March 23, 2015).

The California Department of Fish and Wildlife provided guidance throughout the HCP process. One interviewee stated that the practical and strategic involvement of wildlife agencies was key to the plan's completion. For the most part, a single contact person from each agency was available for the entire process.

Local and Political Support

Before and during the HCP process, staff received support from political leaders. One interviewee stated that the support was one of the most important factors in getting the plan completed. Local stakeholders also played an important role; several NGOs, including the Sierra Club, the Greenbelt Alliance, Save Mount Diablo, the Audubon Society, and the California Native Plant Society, were active stakeholders in the HCP process. All of these groups helped champion HCP approval. One interviewee said that "consensus among the stakeholders was the most powerful factor in getting it approved and writing a plan that could be approved" (Anonymous Interviewee 3D, March 2, 2015). Having a facilitated public meeting paid off during periods of political turnover.

Staff Capacity

County staff estimated that 1.5 full-time-equivalent employee worked on the project. On the consulting side, 1 full-time-equivalent employee worked on the plan for five years. All interviewees either agreed or strongly agreed that regardless of their availability, they were interested in developing the HCP, but only one of the two county staff members said that time to work on the plan was adequate.

Interviewees agreed that the success of the HCP was due to staff efforts. As one said, "The completion of this was really about personalities. There was a lot of integrity and a lot of work that went into this." (Anonymous Interviewee 3A, February 19, 2015). One interviewee said that having good consultants on the project was critical to the plan's success (Anonymous Interviewee 3B, February 23, 2015).

Staff Opinions

All three interviewees strongly agreed that the HCP would increase funding for species conservation of as well as increase economic certainty for residents.

Determining the Covered Species

The group considered 154 special-status species existing in the inventory area—species identified with multiple sources outlined in Section 3.3.7 of the HCP. These sources included California-specific resources such as the California Natural Diversity Database, Jones & Stokes research and in-house information, informal consultation with USFWS, and personal communication with local experts. These special-status species "are defined as plants and animals that are legally protected under ESA, CESA, or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing" (Jones & Stokes 2006, 3–40).

The HCP preparers shortened the list of species because the USFWS had required reduction of the 150 species proposed for coverage in its HCP. According to the Jones & Stokes consultant interviewed for this case study, having a HCP that does not spread itself too thin in terms of number of species is key (Anonymous Interviewee 3C, March 5, 2015).

To reduce the number of covered species, the special-status species had to fit four criteria related to range, status, impact, and data availability. To meet the range criterion, the species had to be known to exist or likely to exist within the inventory area. To meet the status criterion, the species had to be currently listed under ESA or CESA or had to be likely to be listed within the permit term (30 years). To meet the impact criterion, the species had to be or likely to be affected by the covered activities. The data criterion ensured that data on the species were sufficient to adequately assess impacts (Jones & Stokes 2006, 3–41).

The group also thought broadly about umbrella species, that is, species whose inclusion in the HCP would cover requirements for other species. It wanted to be as inclusive as possible of the species of concern to wildlife agencies. One interviewee noted that no fish or delta saltwater species were covered so that NOAA, NFMS, and other marine agencies would not become involved (Anonymous Interviewee 3A, February 19, 2015).

The Mitigation Strategy

The HCP preparers developed a conservation strategy, described in Chapter 5 of the HCP, to use for mitigation and to contribute to species recovery. Its primary component is a "system of new preserves linked to existing protected lands to form a network of protected land outside the area where new urban growth will be covered under the HCP/NCCP" (Jones & Stokes 2006, 5–2). This strategy incorporates conservation measures at three ecological scales: landscape, natural community (or habitat), and species. The preserve system includes approximately 23,800 acres of land under the initial urban development area, with a potential for 30,300 acres under the maximum urban development area. The plan also requires habitat restoration or creation for "habitat loss of wetlands, riparian woodland, and oak savanna at ratios varying from 1:1 to 2:1 [conservation: impact]" (Jones & Stokes 2006, ES-5). The preparers estimated that restoration would be 436 acres under initial development areas and 598 acres under the maximum development areas.

The three interviewees disagreed about the status of land ownership and the potential for land acquisition for mitigation and conservation in East Contra Costa County at the time of HCP drafting, though all agreed that land was available for acquisition by the county. The disagreement was over whether land was already under the applicant's jurisdiction. All three agreed, however, that the preparers considered permittee-sponsored mitigation (that is, payments by private landowners), county-sponsored mitigation, and third-party-sponsored habitat banking.

One interviewee explained that the preparers chose to use the county-controlled preserve system because of its "streamlined process." She stated, "In a way, we're like a giant mitigation bank" (Anonymous Interviewee 3A, March 19, 2015). Another interviewee stated that the strategy was based first on the needs of the species, second on the conservation gaps in the plan area (that is, where the conservation needs were), and third on type of impacts and required mitigation (Anonymous Interviewee 3C, March 5, 2015).

Funding for Drafting the Plan

Two interviewees emphasized that having consistent and steady funding was a critical factor in completing the plan, which they say would not have come to fruition with county or municipal funds alone. Funding sources included local governments, the local water district, a USFWS Section 6 grant, U.S. Environmental Protection Agency funding, and state agency funding. The state and federal agencies informed the county about these sources of funding and found some of them themselves.

Funding for Implementing the Plan

The HCP's executive summary describes the funding mechanism this way:

> Funding to implement the Plan will come from a variety of sources. These sources may be classified as fees on covered activities and non-fee public funding. Proponents of covered activities will pay a fee to receive permit coverage under the Plan, a much simpler process for mitigating endangered species impacts than would be possible a project-by-project basis. Non-fee public funding will either come from continued investment by local, state, and federal programs already funding conservation in this area or from existing state and federal sources reserved for areas with an approved HCP/NCCP.

Fees additional to development fees will apply for impacts on jurisdictional wetlands and waters, and each covered road project will have its own pre-defined fees. In lieu of fees, land may be contributed. The plan states that the public funding contribution can be used only for species recovery, not mitigation (Jones & Stokes 2006, 9–16).

Chapter 9 describes the "fair share analysis" that divided implementation costs of implementing between future development and the public:

> This analysis considers the amount of open space acquisition relative to the amount of development before and after adoption of the HCP/NCCP and assigns the costs of the HCP/NCCP according to the premise that future development should pay a share of the costs of habitat conservation in the inventory area proportionate to its share of the overall habitat impacts on the inventory area… Because the pace of habitat protection relative to development before Plan adoption was significantly lower than will be required under the HCP/NCCP, new development will pay a share of the costs of implementing the HCP/NCCP, and existing development (i.e., the public) will also pay a share.

In the initial urban development area scenario, new development pays 43% of the cost, and the public pays 57% of the remaining costs (Jones & Stokes 2006, 9–19). One interviewee emphasized that because the plan is both a federal HCP and a California NCCP, there was a requirement for species recovery—a factor in consideration of a fee mechanism (Anonymous Interviewee 3B, February 23, 2015).

Pima County, Arizona HCP, 2016 (Expected)

Table A4: Demographic and HCP information for Pima County

USFWS region	2
Population	996,500 (U.S. Census Bureau 2015)
County area	5,879,669 acres (Pima County, 2012, 6)
Plan area	5,879,669 acres
Estimated land acreage in preservation	116,000 acres
Maximum area of development	36,000 acres
Primary land uses	Most land in the county is owned by tribes; the rest is mainly owned by states or the federal government; 11.7% is private property
Number of covered species	44: 4 plants, 7 mammals, 8 birds, 5 fishes, 2 amphibians, 6 reptiles, and 12 invertebrates (mollusks)
Mitigation	Lands under county jurisdiction or leased to meet the need for 116,000 acres Mitigation ratios (acres conserved: acres impacted) of 2:1 to 5:1, depending on the habitat type and land use, plan participation by private parties is voluntary
Implementation funding	Primarily general obligation bonds and a flood control district tax levy; participation fee not disclosed in the draft HCP
Other regulatory requirements the plan meets	Pima County Controlling Document (avoids and minimizes impacts to scenic, cultural, and wildlife resources), Arizona Native Plant Law, National Historic Preservation Act
Length of HCP creation process	15 years
Permit duration	30 years

Plan Overview

Pima County, Arizona, is in USFWS Region 2. Its HCP has not yet been approved by the USFWS, but interviewees believe it will gain approval within 2016. Thus far, the HCP process has taken 15 years. The HCP is predicated on the Sonoran Desert Conservation Plan, which is a land management plan to identify "the types of development that improved the tax base," as well as "critical habitats and biological corridors, riparian areas, mountain parks, historical and cultural preservation, and ranch conservation" (Pima County Arizona 2015). The county's Maeveen Marie Behan Conservation Lands System (CLS) is the means for protecting the tax base and providing opportunities for economic growth while achieving the biological goals of the Sonoran Desert Conservation Plan (Pima County Arizona 2015).

Of the land area in Pima County, 42% is tribal, 14.7% is owned by the state, 0.8% is municipal, 1.9% is owned by Pima County, and 11.7% is private property. The rest of the land all falls under federal

ownership and is managed by the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, the USFWS, the National Park Service, and the U.S. Forest Service (Pima County, 2012, 6). The permit area includes private lands under the legal authority of Pima County: "lands the County owns in fee simple and lands on which the County possesses a property right, including those located within other jurisdictions," and "lands on which Pima County constructs and maintains infrastructure" (Pima County 2012, 13). The permit area also includes state trust lands that Pima County leases or purchases or that fall under Pima County regulatory jurisdiction after being released to development. The permit area can also include BLM lands that the county patents for open-space purposes or that are released to development.

The plan covers 44 species: 4 plants, 7 mammals, 8 birds, 5 fishes, 2 amphibians, 6 reptiles, and 12 invertebrates (mollusks) (Pima County 2012, 15). Eight are endangered or threatened, and five are candidates or have been petitioned for listing under the ESA. The covered activities for Pima County are listed in Section 3.4 of the HCP. They include Pima County projects that fall in the permit area, such as construction and maintenance of county facilities and infrastructure, and development on private land for "grading of 14,000 square feet or more" and "development of a privately-owned property where Pima County has approved a development plan for non-residential uses," where the property owner has elected to participate in the Section 10 permit (Pima County 2012, 17). The HCP states, "Based on the suite of Covered Activities and a modeling of urban growth projections, Pima County anticipates that there will be approximately 36,000 acres of disturbance resulting from the Covered Activities within the Permit Area during the 30-year permit period. For this amount of disturbance, Pima County would provide approximately 116,000 acres of mitigation" (Pima County 2012, x).

Pima County has already spent approximately $150 million on land acquisitions since 2004 in preparation for the Section 10 permit mitigation needs, which came primarily from bond funds approved by voters. As a component of the plan's predecessor, the Sonoran Desert Conservation Plan, "most of the management and enforcement functions associated with this MSCP are already taking place as the County implements the natural resource and open-space elements" of this plan (Pima County 2012, xi).

Interviewees

All three interviewees were county staff who acted as preparers of the HCP.

Plan Preparers and Initiation of HCP process

Chapter 11 of the HCP includes a list of the contributors to the HCP. The USFWS informed county staff that they should consider doing an HCP, and one interviewee said the Arizona Game and Fish Department played a role in informing the county about HCPs.

Logistical and Administrative Support from Other Organizations and Agencies

One interviewee said that the fact that "USFWS was willing to be a partner in working with us in developing a proposal, an MSHCP, that is different than any other one they've ever entertained before" was one of the biggest factors leading to the success of this HCP (Anonymous Interviewee 2A, February 9, 2015). Broadly, USFWS "staff advised on a lot of different policy issues, and procedural issues and biological issues, prioritization, that sort of thing" and informed the county about available USFWS funding for plan completion (Anonymous Interviewee 2B, February 20, 2015). All three interviewees also "strongly agreed" that they were willing to work with USFWS staff during the HCP process. The interviewees disagreed about whether the USFWS assisted with the grant application process and whether it facilitated outreach to other partners. But they agreed that USFWS staff supported development of the plan scope, covered species, and covered activities and more generally guided the conservation strategy. Additionally, USFWS staff participated as biologists on the Scientific Technical Advisory Team. Two

interviewees confirmed that the USFWS coordinated efforts with other governmental agencies so that all regulatory requirements were met.

One interviewee did not think the county office received assistance from other nongovernmental agencies or governmental agencies in HCP creation; the other two did, although they said that this assistance was not required because the species existed on land that fell under the jurisdiction of the agency that was assisting them.

Local and Political Support

One interviewee said that one of the most important factors leading to the HCP's success was the commitment of local government leaders, but that their support hinged on sustained grassroots support which in turn hinged on "a lot of congruence between what the HCP can offer and what local values and goals there may be." That was especially important, the interviewee said, in Pima County where the species of "most concern from the developers' standpoint and, frankly, an environmental standpoint is no longer listed and it's not even found in some of the developing areas that it was" (Anonymous Interviewee 2B, February 20, 2015). Another interviewee concurred that the HCP process was supported by local political leaders but not by stare-level leaders (Anonymous Interviewee 2A, February 9, 2015).

Staff Capacity

Interviewees found it difficult to gauge how many full-time-equivalent staff worked on the HCP. For the current draft only, 43 people are listed as preparers from the county, and 14 people, as contributors from the USFWS and the Arizona Game and Fish Department. One person estimated that from the county, approximately 25 full-time equivalent staff worked on the HCP. They all said that county-level HCP employment varied throughout the years; for example, years with more fieldwork required more labor. All interviewees either agreed or strongly agreed that regardless of their availability, they were interested in developing this HCP and that they had adequate time in their schedule to work on it.

Staff Opinions

One interviewee said that preparers lack of misconceptions about what can be gained through the HCP process is one of the biggest factors leading to successful HCPs (Anonymous Interviewee 2B, February 20, 2015). Two interviewees said that the plan would provide additional funding in the county for conservation, but one mildly disagreed. All agreed that the HCP would increase economic certainty for residents. They disagreed about whether the HCP would provide an efficient means for development on protected habitat.

Determining the Covered Species

The Scientific Advisory Team chose species on the basis of their importance to biological diversity and their likelihood of listing in the 30-year permit period. One interviewee noted that the CLS preserve design initially covered 54 species (Anonymous Interviewee 2A, February 9, 2015). Preparers reduced that number by assessing each species' likelihood of a take, given the proposed covered activities. Another interviewee noted that when work on the plan began, preparers had to work with the experts to determine species-specific models for habitats (Anonymous Interviewee 2B, February 20, 2015). None of the interviewees said that neither recovery plans nor designated critical habitat helped facilitate creation of the HCP.

The Mitigation Strategy

The interviewees said that the draft preparers considered both developer-responsible mitigation and county-sponsored mitigation, and two of the three said they also considered third-party-sponsored habitat banking. In the end, the HCP preparers chose to use the Sonoran Desert Conservation Plan as a guide for county-sponsored mitigation, and one of the interviewees said the Sonoran plan was one of the biggest

factors leading to the HCP's success. Pima County already has more than 74,000 acres of fee-owned lands and 214,000 acres of lease lands that would be used to meet the 116,000 acres necessary for mitigation on the 36,000 acres of disturbance expected in the county during the plan permit duration; 5,000 of those acres are for county-related construction and maintenance activities, and the remaining 31,000 acres are for ground disturbances caused by private-sector development (Pima County 2012, 17). Notably, developers that choose to opt into the plan have the option to contribute mitigation lands (Pima County 2012, 98).

The mitigation ratios (conservation: impact) range from 2 to 1 for impacts that occur on "agricultural in-holding" and those lands outside the Conservation Lands System, to 5 to 1 for "biological core management areas," "special species management areas," and "important riparian areas" (Pima County 2012, 39). Because the modeled habitat for the covered species is not equally distributed across the mitigation lands, the HCP states that "mitigation will be appropriately located with respect to habitat such that a minimum equivalency conservation ratio of 1:1 can be achieved" (Pima County 2012, 42). Because the county already has so much land in its jurisdiction for use in this plan, only one of the covered species does not have a 1 to 1 ratio of habitat to conserved area.

In the case of land outside the county reserve system, only a certain percentage of the area used for mitigation will actually count for mitigation. The percentage depends on the county's level of land stewardship, which in turn depends on how long the duration and conditions of the county's lease. If a land that is leased by the county has a 50% mitigation credit and it needs to mitigate for an impact occurring in an area designated for 5 to 1 mitigation, the mitigation will need to occur as a 10 to 1 ratio of conservation to disturbance, assuming that only that particular leased land is used for the mitigation. One of interviewee said the final draft of the HCP wlll provide additional detail on how mitigation credits will be assigned (Anonymous Interviewee 2B, February 20, 2015).

Two interviewees said the HCP's high mitigation ratios reflect the high standards the county set for itself regarding conservation. One said, "We took the landscape-level approach and [said], 'Ok, what do we have available that can help us accomplish a landscape level, conservation objective better than what we see out there right now.' Because what we see out there right now doesn't necessarily work very well in terms of providing effective landscape conservation" (Anonymous Interviewee 2A, February 9, 2015).

Funding for Drafting the Plan

Three sources of funding were used for the HCP: county funds, a FWS Section 6 grant, and a congressional earmark.

Funding for Implementing the Plan

One interviewee said the plan preparers did not want their conservation to be limited to what developers paid for; therefore, the county needed to acquire (and pay for) lands (Anonymous Interviewee 2A, February 9, 2015). Thus, the plan is almost entirely funded by the county through general obligation bonds, the primary funding mechanism for purchase of mitigation lands, and a flood control district tax levy (Pima County 2012, 98). It includes other potential funding sources (Pima County 2012, 100).
The exceptions to this county funding are the various fees for participants who elect to be included in coverage (Pima County 2012, 98). All private sector participants will, at a minimum, pay an application fee, though the amount of that fee is not included in the HCP draft; those who also contribute mitigation lands will pay a monitoring fee. The plan states that the private sector will bear the costs necessary for "avoidance and minimization practices exercised through compliance with Pima County Code requirements…and implementation of rezoning conditions that require Open Space Set-Asides for CLS compliance" (Pima County 2012, 98). Additionally, the plan mentions agreements between one developer

and the county that fall under the County's Comprehensive Land Use Plan update (2001). Under this agreement, the developer has agreed to pay for some mitigation (Pima County 2012, 100).

Williamson County, Texas HCP, 2008

Table A5: Demographic and HCP information for Williamson County

USFWS region	2
Population (2010)	422, 649 (U.S. Census Bureau 2015)
County area	715,712 acres (U.S. Census Bureau 2015)
Permit area	Same as county area
Range of area protected	Roughly 1,830 acres of karst habitat Acreage of avian species protection unspecific
Expected development (impact)	--Unspecified for karst species, although 10–20% of development on 80,000 acres of karst habitat, i.e., 8,000–16,000 acres of development on karst habitat expected to participate in plan --Take of one avian species' habitat is expected to be 6,000 acres; take of another is expected to be 4,267 or fewer acres
Primary land use	83% rural (unincorporated), made up of agriculture, ranches, and homes; remainder is in incorporated towns and cities
Number of covered species	4: 2 karst invertebrates and 2 bird species; also addresses additional species
Mitigation	--County has set up reserves for karst species and will purchase from habitat conservation bank for avian species; other avian species' mitigation is unspecific --Mitigation ratios vary from 0.5:1 to 2:1 for all species --Voluntary participation for developers; participation fees depend on impact location and affected species; donation of habitat land accepted in lieu of participation fee on case-by-case basis
Implementation funding	Participation (mitigation) fees collected from participants; return on endowment investments; county land acquisition funds for parks and open space, provided public access plan is in place; county advance funding from road improvement mitigation funds; and Tax Benefit Financing (TBF) program
Other regulatory requirements the plan meets	Subchapter B, Chapter 83 of the Texas Parks and Wildlife Code
Length of HCP creation process	4–5 years
Permit duration	30 years

Plan Overview

One interviewee who has worked on many HCPs noted that for many years Texans resisted the ESA, believing that it was an unjust regulation on their private property rights, but that they now recognize that the ESA is a land modification regulation with which they must comply. One of the models the HCP preparers considered was the Pima County HCP, which is based on land use in the county. This model

would have streamlined the development process and would have provided adequate species protection. However, the preparers rejected it because "the County does not have the regulatory authority to implement land use zoning" (SWCA Consultants 2008, 2–7).

Williamson County is a historically conservative county experiencing rapid development because of the growth of Austin. The county's population is expected to more than treble to more than 1.5 million over the lifetime of the plan (30 years). Some 69% of the growth will likely occur where most of the endangered species and rare species exist (SWCA Consultants 2008, vii).

Covered activities include "public or private construction and development" and "land clearing" (SWCA Consultants 2008, ix). Covered species include two karst invertebrates and two federally listed bird species. Several rare species not covered by the plan are addressed by it. Information about these species is not an emphasis of this case study.

Interviewees

Two of the interviewees for this case study were consultants and one was a county staff member.

Plan Preparers and Initiation of HCP Process

The plan was prepared by SWCA Consultants, Prime Strategies, Inc., Texas Perspectives, Inc., and Smith, Robertson, Elliot, Glen, Klein & Bell, L.L.P., all of whom first learned about the HCP process by watching neighboring Travis County and Williamson County go through it. When Travis County released its HCP, officials in Williamson wanted nothing to do with an HCP. But consultants and attorneys who had worked in the Travis County area encouraged the county to consider it because the existence of a recovery plan for karst invertebrates, among the primary endangered species of concern in the county, would make it relatively easy to put together a preserve system for an HCP that could ultimately lead to the species' down listing. In the end, county officials felt pressured to create an HCP because of several development projects that were held up for environmental reasons. One interviewee mentioned that delay of a large shopping center development was the impetus for the HCP's creation (Anonymous Interviewee 5A, March 4, 2015).

Logistical and Administrative Support from Other Organizations and Agencies

Two interviewees, consultants for the HCP, said that the USFWS helped with the Section 6 grant application. Two of the three interviewees said that USFWS staff helped coordinate efforts with other governmental agencies so that regulatory requirements were met. For some HCPs, one interviewee noted, the USFWS is one of the primary determiners of scope, covered species, and covered activities, but for the Williamson County HCP, it was a supporter, not a driver. Decisions were up to the county officials and their consultants. All three interviewees said that the USFWS helped guide the conservation strategy, that is, helped develop what conservation measures were necessary for the covered species.

All three interviewees said that some USFWS staff were a catalyst for plan success and others, a major hindrance. After one valued USFWS individual retired, said one interviewee, "there was a period of time, almost three years, where nobody from Fish and Wildlife showed up to the regular meetings at the Williamson County HCP. They just didn't attend. They were invited every single time" (Anonymous Interviewee 5C, March 19, 2015). "Personality" issues at the regional USFWS office led to a generally difficult relationship with the regional office during part of the HCP creation and implementation process. The consultant team was also cited as a key factor in plan success, which is unsurprising given that it approached the county with the idea for the HCP.

The Texas Parks and Wildlife Department addressed legal issues but was not an active contributor to the plan.

Local and Political Support

All interviewees agreed that staff received support from political leaders. One said county commissioners were "unequivocal about what they wanted," and that they worked well together (Anonymous Interviewee 5C, March 19, 2015). All interviewees emphasized that the support and determination of two county commissioners were key to plan success.

Staff Capacity

Two full-time-equivalent county staff members worked on the HCP. All three interviewees were interested in working on the plan, but only two of them said they had adequate time in their schedules to advance it.

Staff Opinions

All three interviews thought the HCP would provide additional funding for conservation, increase economic certainty for residents, and provide an efficient means for development in the vicinity of protected habitat.

Determining the Covered Species

With one exception, all of the species that were listed as endangered at the time of HCP creation were included in the plan. At the time of HCP creation, the county was home to three endangered karst invertebrates and two endangered birds. According to one interviewee, one of the karst invertebrate species was in an area that was already heavily developed, but because it also had a number of preserve areas, creation of a conservation plan for that one species was unreasonable (Anonymous Interviewee 5A, March 4, 2015).

One salamander on the candidate list became an issue because at the beginning of the HCP process, the regional USFWS office did not convey that it was likely to be listed over the course of the 30-year plan, and therefore the consultants did not include it as a covered species. However, after the Center for Biological Diversity filed a lawsuit against the USFWS in 2011, several years after the HCP's completion, the USFWS did list the salamander as threatened. According to one interviewee, Williamson County officials felt betrayed (Anonymous Interviewee 5B, March 17, 2015).

Both of the consultants who helped create the HCP mentioned that recovery plans for the karst invertebrates were important for plan development, and one even said that the recovery plans provided the HCP's "roadmap to success" (Anonymous Interviewee 5B, 3/17/2015). The recovery plans simplified the HCP process by serving as a guidebook for construction of preserves for the karst invertebrates.

The Mitigation Strategy

At the time of creation, two of the interviewees said that the group considered all three mitigation options: permittee-sponsored mitigation (i.e., the onus falls on the private landowner); county-sponsored acquisition, protection, or enhancement; and third-party-sponsored habitat conservation banks. The preparers chose a county-sponsored, voluntary plan because it was the most cost-effective (Anonymous Interviewee 5A, March 4, 2015). As one interviewee stated, "What the structure of this HCP allowed was to set up nice preserves and in exchange we'll be able to pave everything else. Because most of the constituents were concerned with doing well in their development projects and not having their land valued negatively" (Anonymous Interviewee 5C, March 19, 2015).

Chapter 5 of the plan details mitigation measures. For the karst species, the county will purchase or acquire 700 acres of karst fauna areas (KFAs), establishing three KFAs for each species, as the recovery plan suggests, by year 17 (SWCA Consultants 2008, 5–7). According to the plan, roughly 890 acres of conservation areas would probably meet USFWS standards as suitable habitat for the karst species, and

that to further enhance recovery, the county will acquire an additional 6 KFAs, totaling 240 acres (SWCA Consultants 2008, 3–11, 5–10). These additional KFAs, which bring the total amount of karst invertebrate conservation area to roughly 1,830 acres, could prevent the need to list an additional 19 karst invertebrates (SWCA Consultants 2008, x).

The county will purchase 1,000 acres of conservation bank credits to mitigate impacts on one of two covered bird species. After those acres are used, the county will determine whether to establish a preserve for the species, create a habitat conservation bank, or utilize an out-of-county bank. The county has approximately 34,465 acres of potential habitat. Mitigation ratios (conservation to development) depend on whether the impact is direct and other factors. The most common ratio is 1 to 1. If the county thinks that the affected habitat is of high quality, it reserves the right to require a mitigation ratio of 2 to 1 (SWCA Consultants 2008, x).

For the other avian species, the county will annually assess its accumulated mitigation funds to "restore, enhance, and manage protected vireo habitat," for the most part at a 1 to 1 ratio within or outside the county (SWCA Consultants 2008, 5–4). For this species, the county has an estimated 4,267 acres of habitat.

Funding for Drafting the Plan

To draft the plan, the county utilized its own funds; a USFWS Section 6 grant, approximately $20,000 from private entities such as developers and surveying firms, and funds from state agencies such as the Department of Transportation and from quasi-governmental agencies such as school districts (Anonymous Interviewee 5C, March 19, 2015). County officials learned about the Section 6 grant from attorneys and consultants, and they secured smaller grants through their relationship with the Texas Department of Transportation and outreach to other local leaders, such as mayors and city school district superintendents.

Funding for Implementing the Plan

When determining the mitigation fee structure, it was important in conservative Williamson County that no stealth tax was imposed. At the time of the plan's creation, according to one interviewee, a citizen's advisory committee was spreading rumors that a new tax would be imposed (Anonymous Interviewee 5A, March 4, 2015). Private sector participation in the plan is voluntary, and one of the interviewees stated that this characteristic was one of the key factors leading to the plan's success (Anonymous Interviewee 5A, March 4, 2015). The plan states:

> "Funding for this RHCP will be generated from five primary sources: 1) participation (mitigation) fees collected from participants; 2) return on endowment investments; 3) County land acquisition funds for parks and open space, provided a public access plan is in place; 4) County advance funding from road improvement mitigation funds; and 5) a Tax Benefit Financing (TBF) program" (SWCA Consultants 2008, xv).

If landowners choose to participate, Williamson County bases their participation fee on their potential impacts on both bird habitat and karst areas. For impacts occurring within 50 feet of a known cave footprint, the fee is $400,000 per cave. For impacts that occur between 50 and 345 feet of a known cave footprint, the fee is $10,000 per acre. For impacts on undetected caves and for any impacts on caves due to disturbances more than 345 feet from the caves footprint, the participation fee is $100 per acre (SWCA Consultants 2008, xii).

The participation fee for one of the bird species is $7,000 per acre for mitigation credits; for the other species, it is $5,000 per acre of impact. The plan also states that "[p]articipant land contributions that will

contribute to RHCP objectives for acquisition of karst and/or bird preserves can be accepted in lieu of participation (mitigation) fees" (SWCA Consultants 2008, xiv).

One of the interviewees explained that for all projects in the TBF program, 15% of the increase in property value, which occurs once the land is put into development, is applied against the increase in taxable rate and dedicated to the HCP's implementation funding. Thus, private landowners do not see an increase in their taxes. A county staff member stated that the county aims to have an adequate amount of funding within 20 to 22 years of the HCP's initial implementation so that it will be able to discontinue the tax (Anonymous Interviewee 5A, March 4, 2015). He also stated that funding the plan based on taxes works in Texas, potentially unlike other states, because property tax is already a significant source of funding for county governments in the state (Anonymous Interviewee 5A, March 4, 2015).

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