



Special Section

The Golden-Cheeked Warbler: History of a Conflict

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ABSTRACT Wildlife biologists are undoubtedly familiar with the decades-long debate over the Endangered Species Act and the conflicts that often arise among people of differing interests when a species is listed as federally threatened or endangered. One example that made local and national headlines in the 1990s was the golden-cheeked warbler (*Setophaga chrysoparia*), which breeds exclusively in central Texas, USA, and primarily on private lands. The inclusion of the warbler on the federal endangered species list in 1990 prompted conflict between land developers, environmentalists, ranchers, and the U.S. Fish and Wildlife Service. Miscommunication and mistrust among the groups resulted in purposeful destruction of habitat and delayed or lost opportunities for species' conservation and scientific research. Now, 20 years later, we have taken the opportunity to review some of the events and conflicts surrounding the listing of the warbler such that a new generation of researchers and biologists can understand the progress made and identify where additional work may be needed. The significance of threatened and endangered species conservation varies among people and places; thus, there will be a continual need for agencies and biologists to develop relationships with local communities formed around understanding the values and motivations of all stakeholders, in an effort to limit conflict and create an atmosphere that promotes cooperative approaches to research on, and recovery of, at-risk species. © 2012 The Wildlife Society.

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Popular media accounts of the Endangered Species Act of 1973 (ESA) and federally listed species are dominated by conflict and controversy, forming the basis for an abundance of legal reviews, position papers, and books that discuss positive and negative results of the ESA's implementation relative to agencies, businesses, landowners, biologists, and the species it was intended to protect. Oft-repeated examples of such conflicts include Tellico Dam versus the snail darter (*Percina tanasi*), the logging industry versus the northern spotted owl (*Strix occidentalis caurina*), and ranchers versus gray wolves (*Canis lupus*). In the early 1990s, conflicts that erupted around the federal listing of the golden-cheeked warbler (*Setophaga chrysoparia*) in Texas, USA, likewise made local and national headlines, as the listing spurred heated campaigns for protecting private property rights while also pitting environmental advocates against developers in major urban growth areas. It is one of many examples of how poor communication and mistrust among the groups involved, along with limited knowledge of the species' needs and management options, can have negative repercussions for the species and its habitat.

Our intent is to review some of the events surrounding the listing of the golden-cheeked warbler, the conflicts it aroused, and what factors have likely contributed to easing tensions in the years since listing. As scientists currently engaged in research on, and investigating conservation opportunities for threatened and endangered species, we see benefit in reviewing this history in light of new research findings on the warbler, a new generation of biologists conducting the research, and a continued pursuit of understanding landowner involvement, or lack thereof, in conservation activities. In addition, our involvement in recent status assessments for the golden-cheeked warbler aroused curiosity to understand what led us to where we are with this species today and to assimilate some of that history in a more accessible format.

The perspective in this paper is ours, and admittedly not purely detached. Much of the information we reviewed consisted of newspaper articles, letters, unpublished reports, and testimonies, with few offerings of unbiased or neutral accounts. Authors and orators had their own agendas and biases, ranging from protection of the species to protection of private property rights. Any facts embedded in those documents were often charged with emotion; perceptions varied widely as to what constituted truth. There were many different groups, attitudes, and points of view, and we have tried

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to capture a few of those here, including landowners caught amid regulatory uncertainty; developers acting on real estate opportunities in the rapidly expanding urban areas of central Texas; environmental advocates concerned with the rate of development and loss of endemic species; and state and federal agencies bound by law to protect and manage natural resources while also considering economic development.

WARBLER LISTING

The ESA is a powerful tool for protecting species and their habitats, with a goal to “provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved” (16 U.S.C. § 1531(b)). By the mid-1980s, about 400 species nationwide had been listed under the ESA as threatened or endangered, >50 of which occurred in Texas. During the next 10 years, the national list more than doubled while the listings for species with ranges in Texas increased 50% (U.S. Fish and Wildlife Service [USFWS] 2012a). Several of these species are endemic to the Edwards Plateau ecoregion and Balcones Escarpment of central Texas. The Escarpment is a crescent-shaped geologic fault zone that forms the eastern boundary of the Edwards Plateau, thus separating it from the Plains and Prairies ecoregions of East Texas (Griffith et al. 2004). The eastern and southern portions of the Edwards Plateau are commonly—and descriptively—referred to as the Texas Hill Country. Rugged, wooded hills and canyons comprise much of the Hill Country and Escarpment, and the underlying karst topography is the source of numerous caves. Several major cities, including Austin and San Antonio, are situated along the Escarpment, and in close proximity to a rich diversity of habitats and species.

The 1980s also saw high growth rates in Austin, Travis County, with a 37% increase in county-wide population between 1980 and 1990 (U.S. Census Bureau 2010). The housing and business industry likewise surged, with much of the new development occurring in the picturesque hills of western Travis County (Mann and Plummer 1995, Swearingen 2010). Neighborhood groups and environmentalists had been organizing since the 1970s to counter the seemingly unmanaged residential and commercial growth and to protect the remaining open spaces (Swearingen 2010, Humphrey 2012). The speed of conversion from open space to houses, apartments, businesses and commercial areas continued to alarm residents, environmental activists, and state and federal agencies into the 1980s. Concern over habitat loss prompted the USFWS to list several species that occurred partly or only in the Austin area as endangered in 1987 and 1988, including the black-capped vireo (*Vireo atricapilla*; a migratory songbird) and 5 species of cave-dwelling invertebrates (USFWS 1987, 1988). Endangered Species Act prohibitions on the “take” of listed species meant that developers who wanted to build in habitat occupied by the species would need to work with the USFWS on mitigating their impacts or risk federal prosecution. Conflicts quickly arose between environmentalists who favored the listing decisions and developers or businesses wanting to build and expand in Travis County. Increasing focus on

the golden-cheeked warbler as next-in-line for gaining protection under the ESA expanded the scope of conflict because the warbler’s habitat was more widespread in Travis County than was that of the black-capped vireo or cave invertebrates (see reviews in Mann and Plummer 1995, Swearingen 2010).

The golden-cheeked warbler (hereafter, warbler) is a migratory songbird that nests exclusively in Texas. The warbler’s primary habitat for nest sites, food, and shelter is mature mixed woodlands consisting of Ashe juniper (*Juniperus ashei*) and various oak species (*Quercus* spp.). Ashe juniper, or cedar, is an important component of the breeding habitat as a source of both food and nesting material (Ladd and Gass 1999, Marshall 2011). This habitat is relatively common in the Hill Country and Balcones Escarpment and stretches northward towards Dallas; although the majority of habitat occurs across rural lands of central Texas, a portion of it is within or near urbanized areas (Groce et al. 2010). Concern for the warbler was formally recognized in 1982 when the USFWS added it to the candidate species list as a Category 2 species, indicating that a proposal “to list the species as Endangered or Threatened is possibly appropriate, but for which substantial data are not currently available to biologically support a proposed rule” (USFWS 1982:58454). In an unpublished USFWS report, J. E. Johnston noted that by January 1990, there were discussions to propose listing the warbler as threatened under the ESA, but that was eclipsed the following month when Earth First! member Timothy Jones petitioned the USFWS to list the warbler on an emergency basis. Justification for the emergency listing was explained as “imminent habitat destruction by both illegal and legal clearing” in Travis County due to new or expanding development projects and owners clearing woodland habitat in anticipation of the listing (USFWS 1990a:18844, Carpenter 1993). The USFWS listed the warbler as endangered under an emergency rule in May 1990 (USFWS 1990a), followed by a final listing decision in December (USFWS 1990b).

Both listing decisions were based primarily on 2 technical reports by Pulich (1976) and Wahl et al. (1990). The reports documented the presence of warbler habitat within 30–40 counties in central Texas and suggested past and ongoing declines in habitat due to urban encroachment and other land-use practices (e.g., range management). Using satellite images from 1974, 1979, and 1981, Wahl et al. (1990) estimated that one-third of the warbler’s breeding habitat occurred in 5 high-growth counties, mostly between Austin and San Antonio, and that Travis County contained >35% more habitat than any other county, much of which they considered high quality. Based on ground-truthing of the satellite imagery along 11 transects in 3 areas, Wahl et al. (1990) reported 15–45% loss of warbler habitat in the 8- to 10-year interval between the satellite data and on-ground surveys, with the highest rates in Travis County; they inferred similar rates of loss through the 1990s. The listing decisions were not without scientific reservations, however, including skeptical views from Pulich of the Wahl et al. report, the need for emergency listing rather

than a normal listing process, and the disproportionate focus on Travis County (W.M. Pulich, unpublished letters; Collier 1990a).

Media reports of the emergency listing reflected views that ranged from the decision being a sincere attempt at preserving biological diversity in the area and keeping a Texas native from going extinct, to a misuse of the ESA and a tactic to stall or halt the rate of development (e.g., Associated Press 1990, Collier 1990b, Stutz 1990, Kay 1991), but the focus quickly shifted to impacts of the listing on individual landowners. The vast majority of land, including warbler habitat, was (and is) privately owned in Texas; therefore, many Hill Country residents with oak and juniper woodlands on their property suddenly discovered they had to meet the unfamiliar requirements of the ESA (U.S. Government 1994). Landowners who had invested in properties prior to 1990, particularly small land-holdings in Travis County, were now faced with limitations in their building plans or declines in property values; those with occupied habitat on or near their property felt trapped between not being able to use the property and not being able to sell it for lack of interested buyers because of the land-use restrictions (e.g., U.S. Government 1995a, Rector 1996). The listing decision also forced awareness of the species beyond urban areas and into the farming and ranching communities of the Hill Country. Landowners who wanted and needed to continue their farming and ranching activities and profit from their land now felt restricted from doing so (Gilliland 1994, McKinney 1994, Peterson and Horton 1995). Several public meetings were held by USFWS personnel to explain the reason that the warbler was listed under an emergency basis and the ways in which the listing might impact landowners. Hundreds of landowners attended the meetings, yet many of their questions remained unanswered or had to be dealt with on a case-by-case basis, particularly those related to ranch management practices that involved thinning or clearing regrowth juniper (e.g., Collier 1990c, Kay 1990, Mann and Plummer 1995). It seems the suddenness of the emergency listing caught many people off-guard, and nearby USFWS Field Offices were understaffed and unprepared to manage the negative public response quickly and effectively (J. E. Johnston, United States Fish and Wildlife Service, unpublished report; McKinney 1994).

BCCP AND CRITICAL HABITAT

In addition to the listing of the warbler itself, 2 other events spurred the majority of warbler- and ESA-related controversy in the early 1990s in Texas: development of the Balcones Canyonlands Conservation Plan (BCCP) and USFWS consideration of critical habitat for the golden-cheeked warbler. Faced with the need to balance development pressures with recently listed endangered species, several groups—including representatives from the city of Austin and Travis County, The Nature Conservancy, and USFWS—decided in 1988 to develop a habitat conservation plan (HCP) that would encompass much of the Balcones Escarpment in Travis County, and thus the habitat needed by the then-listed species and the warbler (Mann and

Plummer 1995, Swearingen 2010). This regional approach could streamline the process of requesting and mitigating take of listed species in the county and alleviate the need for USFWS to respond separately to all requests by developers or other landowners for individual incidental take permits. Once accepted by the USFWS, the plan would permit development in certain areas of the county provided that conservation measures were implemented, which typically consisted of setting aside land as permanently protected habitat. The option to develop HCPs had been included in the ESA's 1982 amendments, yet by 1988 only 2 HCPs had been created nation-wide and both were in California (USFWS 2012b); thus, HCPs were still new and mostly untested when the stakeholders initiated the process for BCCP development.

The first draft of the BCCP, completed in 1992, called for a series of preserves encompassing approximately 75,000 ac (approx. 30,350 ha) of the species' habitats within Travis and neighboring counties (see review in Mann and Plummer 1995, Litvan 1996), over half of which would be secured through the federal government's 1991 agreement to establish a 41,000-ac (approx. 16,590 ha) wildlife refuge primarily in western Travis County, called the Balcones Canyonlands National Wildlife Refuge (Haurwitz 1996). The size of the preserve system established in the draft was the result of extensive debate that was focused on trying to balance the needs of the species, the cost of plan implementation and land acquisition, and the acceptance of new regulations and fees by county residents (Beatley 1994, Mann and Plummer 1995). It took another 4 years of debates and revisions before the plan was approved, with the final version requiring a preserve system to eventually encompass 30,428 ac (12,314 ha) and agreement by the USFWS to increase land acquisition to 46,000 ac (18,615 ha) for the wildlife refuge (City of Austin and Travis County 1996).

The years of plan development had many setbacks, including an unsupported bond referendum that would have provided additional funding for land acquisition for the preserve system; disagreement between environmentalists and Texas Parks and Wildlife (TPWD) regarding public access to the preserve system; and the pursuit of parties once interested in the BCCP to either acquire "bird letters" from USFWS (which essentially stated that habitat for listed species was unoccupied or did not exist on the property) or develop their own HCPs (Mann and Plummer 1995, Swearingen 2010). In addition, the BCCP delineated tracts of land, many of which were privately owned, containing warbler habitat desirable for incorporation into the preserve system; there was a similar acquisition area for the wildlife refuge (Peterson and Horton 1995). Numerous articles, interviews, and testimonies maintained that small landowners with property in or near the preserve system felt they had been excluded from the process of BCCP development, claiming that the BCCP focused primarily on balancing the interests of developers and environmentalists. Some residents perceived the delineation of areas of conservation interest as a type of forced displacement, involving lost land and lost investments, for the benefit of the warbler (e.g., Gilliland 1994, Peterson and

Horton 1995; R. Brandes, landowner, unpublished letter; F. K. Ribelin, landowner, unpublished letter; J. B. Ruhl, Assistant Professor of Law, Southern Illinois University School of Law, unpublished report). Within and beyond the proposed preserve system and wildlife refuge, there was both speculation and examples of declines in property values due to uncertainty about current and future land uses brought about by the warbler's listing and the lengthy process of finalizing and funding the BCCP (Carpenter 1993, Gilliland 1995, Rector 1996).

The second major controversy arose when, while the BCCP was still in development, the USFWS began consideration of designating critical habitat for the warbler. The ESA requires consideration of critical habitat for a species concurrent with, or soon after, the listing of that species as threatened or endangered (16 U.S.C. § 1533 (b)(6)(C)), although most listed species have yet to receive such designations (USFWS 2012a). Critical habitat is intended to include specific areas "essential to the conservation of the species" (16 U.S.C. § 1532 (5)(A)(i)), and may include habitat not currently occupied by the species (USFWS 2011). As explained by the USFWS, critical habitat designations do not add further restrictions on properties or projects beyond those established in the ESA for listed species if there is no federal nexus; however, federal properties or projects that involve a federal permit, license, or funding may be affected (USFWS 2011). The USFWS drafted a brochure in 1994 that explained critical habitat for the warbler and included a list of 33 counties within which critical habitat was being considered (i.e., all counties with warbler habitat; USFWS 1994). Details of the brochure reached the public earlier than the USFWS intended, and those reporting on it described critical habitat as possibly encompassing all 20.5 million ac (approx. 8.3 million ha) bounded by the 33 counties (Dawson 1994, Needham 1994)—an area easily inferred by the brochure's wording.

News of a 33-county critical habitat designation for the warbler spread quickly through local and national papers. During our review of these articles and reports, it was obvious that the distinction between "incidental taking" of endangered species habitat and designation of critical habitat was blurred by most authors, which emphasizes the confusion surrounding the concept of critical habitat. Clearing or other modification of occupied warbler habitat, resulting in an incidental taking of the species, had been prohibited since the species was listed as endangered in 1990. However, based on the public's response to the potential designation of critical habitat, it seems this was the first time that many of the landowners within the warbler's breeding range had realized the implications of the ESA, or realized that the warbler's habitat occurred anywhere beyond Travis County. In subsequent articles and reports, the USFWS emphasized that critical habitat for the warbler, if proposed, would only encompass a portion of the roughly 800,000 ac (approx. 323,700 ha) of breeding habitat found within the 33 counties (acreage as per Wahl et al. 1990) and that it would only apply to federal activities (e.g., Hamilton 1994, U.S. Government 1994), but those words did little to alleviate landowner

concerns. Media accounts cited concerns that ranchers who relied on federal loans could be affected negatively by the critical habitat designations (e.g., Associated Press 1994a, Kay 1994, Power 1994, Reiger 1995). Confusion and apprehension among landowners were likely exacerbated by lack of assurances and clarity from USFWS (e.g., whether the agency would formally propose critical habitat) and by impassioned and vocal property-rights advocates. Designating critical habitat for an endangered species is intended to contribute to its conservation. However, in the case of the warbler, the mere possibility of critical habitat had unintended consequences; it was a public relations failure that furthered the perverse incentives for landowners to 'shoot, shovel, and shut up!' (McKinney 1994, Brosig and Langford 1995, Sanders 2005). Thus, the conservation of the species was being forestalled, at best, and reversed, at worst.

Several meetings took place in the Hill Country throughout the summer of 1994, some held by the USFWS and others organized by private landowners, and all involving hundreds of ranchers and farmers upset over the implications of the critical habitat designation and fearing land-use restrictions and loss of property values (e.g., Graves and MacCormack 1994, Scott 1994, Welch 1994). Mirroring complaints regarding the BCCP, opponents viewed designation of critical habitat for the warbler as a land grab by the federal government (Dawson 1994, Graves and MacCormack 1994). During this time, much of the debate in Texas was shifting to broader issues of private-property rights and unwanted or unnecessary government intervention, in parallel with the growing property-rights and anti-federal movements in other parts of the country. The issue of critical habitat for the warbler was not the first time the property-rights movement gained traction in Texas, but it did once again arouse advocates, who protested and initiated the establishment of organizations dedicated to protecting private-property rights (e.g., Associated Press 1994b, Graves and MacCormack 1994, Haurwitz 1994). Texas politicians became more heavily involved and, citing the warbler critical-habitat controversy among other examples, joined others across the country in calling for reform or repeal of the ESA (Associated Press 1995; U.S. Government 1995b, c).

It was a public relations nightmare for the USFWS, and it became extremely personal when Sam Hamilton, State Administrator for USFWS, received death threats against himself and his family (Dawson 1994, Noah 1995). The growing angst culminated in a mass demonstration in August 1994, when an estimated 3,000 protestors, mainly farmers and ranchers, marched on the Texas capital (Thatcher 1994, Mann and Plummer 1995). People arrived in cattle trucks, horse trailers, on foot and on horseback, "mad-as-hell" about delineations of critical habitat for the warbler and perceived infringement on their property rights by the federal government (Brosig and Langford 1995, Duff 1996). Politicians were quick to support the landowners and pressured Secretary of the Interior Bruce Babbitt to end the consideration of critical habitat for the warbler (e.g., Elliot et al. 1994, Smith 1995). A month after the march, Babbitt ordered the

USFWS to stop consideration of critical habitat, stating, “if the appropriate habitat conservation plans [e.g., BCCP] are implemented within a reasonable period of time, the designation of critical habitat for the warbler will be neither necessary nor prudent because it will provide no net benefit to the species” (Reiger 1995:17).

Overall, the information we reviewed pertaining to the BCCP and critical habitat indicates that much of the controversy for both matters resulted from poor communication; limited knowledge of the warbler and management options; lack of existing landowner incentives or other creative approaches to conservation and management; and lack of USFWS understanding of landowner values and motivations, or the staff’s inability to effectively act on the understanding they did have. Generally, the USFWS as a whole was perceived as unsympathetic toward property owners who were good land stewards or who relied on their land for their livelihood (McKinney 1994, Peterson and Horton 1995, U.S. Government 1995*a*), which served to alienate the very landowners whose help USFWS needed for conservation of the warbler. Many landowners with warbler habitat on their property felt threatened rather than sought after for help (e.g., U.S. Government 1994, Peterson and Horton 1995). The controversy caused polarized opinions about the importance of the species, its habitat, and the ESA in general. Constructive discourse was limited by misunderstandings, mistrust, and inadequate staffing of USFWS, which in turn limited the development of effective conservation and management strategies for the warbler on rural lands (Peterson and Horton 1995, Stroup 1995, Tilt 1995).

The inability of USFWS and other agencies to communicate quickly and effectively with landowners in regard to listing and critical habitat decisions, and the impacts of those decisions, seemed to exacerbate the conflict and left many landowners misinformed, uninformed, or in limbo. Lack of scientific knowledge of the species’ habitat requirements hindered the USFWS’ ability to respond to landowner questions about the impacts of land use and management practices on the warbler and its habitat. Unfortunately for the warbler, this uncertainty, frustration, and apprehension over land-use restrictions resulted in the purposeful destruction of its habitat, both in the Austin area and other parts of the Hill Country. Compliance with the ESA was perceived as too difficult, expensive, or slow for most small or rural landowners (e.g., Edmonson 1994, U.S. Government 1994). Not only was there loss of habitat, there was also lost opportunity for federal and state biologists to increase their knowledge about the warbler’s distribution and ecology on private lands because landowners wanted no involvement in government-led research or government employees accessing their properties (e.g., U.S. Government 1994).

SHIFTS IN ATTITUDES AND OPTIONS

A number of changes occurred in the years following the 1994 march on the capital that has helped ease some of the tension between private landowners and the USFWS with regards to endangered species. Several changes occurred almost immediately, including legislation to protect property

rights and continued pressure for ESA reform, while other changes have been more gradual, such as new incentives for landowner participation in species and habitat protection, shifts in land use, and shifts in attitudes.

Several bills were passed during the Texas legislature’s 1995 session that helped bolster private-land ownership rights, increase incentives for wildlife management on private property, and create opportunities for wildlife biologists to access properties through confidentiality agreements (Brosig and Langford 1995). In addition, the Texas Parks and Wildlife Code was amended to set standards for landowner involvement in the development of habitat conservation plans led by governmental entities.

By the mid- to late-1990s, USFWS appeared to be more vocal about their interest in cooperating with private landowners and the need to involve landowners in the protection and conservation of endangered species, realizing that species protection would only occur if landowners are allies and stakeholders in the process (e.g., USFWS 1998*a*), particularly in states dominated by private lands. In 1995, the USFWS issued a policy detailing 10 principles to “guide the Administration’s effort for reforming and implementing the Endangered Species Act” (USFWS 1995:3). These initiatives included “No Surprises” policy, Safe Harbors, and Candidate Conservation Agreements, all of which aimed to encourage proactive conservation efforts by private landowners for listed or candidate species (USFWS 1998*b*, 1999*a*, *b*).

There have also been gradual shifts in land use—ongoing for decades and continuing through and beyond the 1990s—which altered the attitudes and perceptions of some landowners. Weakened agricultural economies and increasing urban expansion have led to a decrease in ranching and farming in Texas (Wilkins et al. 2000). The growing population within and around urban areas from 1982 to 1997 resulted in the conversion of millions of acres in Texas to urban uses, with a 1992–1997 annual rate of conversion nearly 30% higher than in the preceding 10 years (Wilkins et al. 2003). The sheep and goat industry (i.e., wool and mohair production), once a major component of the Edwards’ Plateau landscape, has been slowly declining since the mid-1900s (Landivar 2005, Carlson 2012). Thus, fewer landowners are managing their properties for livestock grazing, and they may have less incentive to clear Ashe juniper.

Furthermore, in recent years an increasing number of Hill Country ranches are being purchased by recreational landowners who are more receptive to the needs of endangered wildlife. In the Hill Country, current and future land market values may be influenced more by aesthetics than development potential. Based on conversations with real estate brokers and rangeland management specialists, Thurow and Thurow (2012) suggest buyers are more interested in woodlands than open grasslands and that the presence of woodlands, in which Ashe juniper is a common component, may add to the property’s market value. These recreational landowners are also generally willing to allow researchers on their properties (J. E. Groce, personal observation),

which has vastly improved our knowledge of the warbler's distribution and population status (e.g., Collier et al. 2012, Mathewson et al. 2012).

MANAGEMENT IMPLICATIONS

Although the aforementioned changes are generally positive for the warbler's conservation, it is apparent that there continues to be resentment and mistrust among some landowners toward any state or federal agency. This may always be the case for a subset of landowners, but that does not preclude the need for continued efforts to improve communication and outreach. Recognizing how best to manage for a species of conservation concern means understanding its biological needs along with the varying values, attitudes, and motivations of property owners within its range—notably important in areas dominated by private property—such that landowners do not feel targeted or mischaracterized. Recent and extensive court settlements between the USFWS and environmental groups may result in the listing of, or critical habitat designations for, hundreds of species over the next several years (USFWS 2012c); although this may distract USFWS resources and personnel from developing creative strategies with other landholders, it does not lessen the importance of such strategies. The perceived value of conserving at-risk species and their habitats will always vary among people and places; thus, there will be a continual need for agencies and biologists to develop new and renewing relationships with local communities formed around the values and motivations of all stakeholders, in an effort to limit conflict and create an atmosphere that promotes cooperative approaches to the species' research and recovery.

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LITERATURE CITED

- Associated Press. 1990. U.S. may expedite protection of Austin-area bird species. *The Dallas Morning News*. 7 March 1990; section 13B.
- Associated Press. 1994a. Plan to protect warbler habitat won't hurt property owners, agency says. *The Dallas Morning News*. 27 July 1994; section 28A.
- Associated Press. 1994b. Landowners, environmentalists spar over federal regulations. *The Dallas Morning News*. 24 August 1994; section 12D.
- Associated Press. 1995. Hutchison proposes suspending law on endangered species. *The Dallas Morning News*. 12 January 1995; section 19A.
- Beatley, T. 1994. *Habitat conservation planning: endangered species and urban growth*. University of Texas Press, Austin, USA.
- Brosig, G., and D. K. Langford. 1995. Wildlife extra: TWA's 1995 legislative mission accomplished. *Texas Wildlife*, July: 1–8.
- Carlson, P. H. 2012. Wool and mohair industry. *Handbook of Texas online*. Texas State Historical Association, Denton, USA. www.tshaonline.org/handbook/online/articles/asw02. Accessed 20 Mar 2012.
- Carpenter, B. 1993. The best-laid plans. *U.S. News and World Report* 115:89–91.
- City of Austin and Travis County. 1996. *Habitat conservation plan and final environmental impact statement*. http://www.co.travis.tx.us/TNR/bccp/pdfs/Habitat_Conservation_Plan_Final_Environment_Impact_Statement.pdf. Accessed 25 Feb 2012.
- Collier, B. 1990a. Forces align for review of bird's status. *Austin American-Statesman*. 16 October 1990; section A1.
- Collier, B. 1990b. Life in the balance: for endangered species, the headlines conceal a simpler story—survival. *Austin American-Statesman*. 29 May 1990; section A1.
- Collier, B. 1990c. Hundreds flock to bird hearing. *Austin American-Statesman*. 12 May 1990; section A1.
- Collier, B. A., J. E. Groce, M. L. Morrison, J. C. Newnam, A. J. Campomizzi, S. L. Farrell, H. A. Mathewson, R. T. Snelgrove, R. J. Carroll, and R. N. Wilkins. 2012. Predicting patch occupancy in fragmented landscapes at the rangewide scale for an endangered species: an example of an American warbler. *Diversity and Distributions* 18:158–167.
- Dawson, B. 1994. Nature's balance: in warbler case, facts fly in the face of perception. *Houston Chronicle*. 20 November 1994; section 1.
- Duff, A. 1996. Cowboys and critters. *Austin Chronicle*, 26 January 1996. www.austinchronicle.com/news/1996-01-26/530503/. Accessed 21 Feb 2012.
- Edmonson, M. 1994. Rancher's fight begins. *Kerrville Daily Times*. 17 July 1994; section 1A.
- Elliot, D., R. K. M. Haurwitz, and S. Gamboa. 1994. Warbler won't receive 'critical habitat' status. *Austin American-Statesman*. 28 September 1994; section A1.
- Gilliland, C. E. 1994. What's the cost? Private property, public use. *Tierra Grande, Texas A&M University Real Estate Center Publication* 1034, College Station, USA.
- Gilliland, C. E. 1995. *Endangered Species Act: impact on Texas rural land values*. Texas A&M University Real Estate Center, Technical Report 1091, College Station, USA.
- Graves, D., and Z. MacCormack. 1994. Hundreds in state unite for land fight. *Austin American-Statesman*. 29 July 1994; section A10.
- Griffith, G. E., S. A. Bryce, J. M. Omernik, J. A. Comstock, A. C. Rogers, B. Harrison, S. L. Hatch, and D. Bezanson. 2004. *Ecoregions of Texas*. U.S. Environmental Protection Agency, Corvallis, Oregon, USA.
- Groce, J. E., H. A. Mathewson, M. L. Morrison, and N. Wilkins. 2010. *Scientific evaluation for the 5-year status review of the golden-cheeked warbler*. Institute of Renewable Natural Resources, Texas A&M University, College Station, USA.
- Hamilton, S. 1994. Protecting birds' habitat is in everyone's interest. *Austin American-Statesman*. 20 July 1994; section A15.
- Haurwitz, R. 1994. Land groups unite to protect private property rights. *Austin American-Statesman*. 24 August 1994; section B1.
- Haurwitz, R. 1996. Eight years in the making, a plan to preserve 30,000 Austin-area acres will soon gain federal approval. *Austin American-Statesman*. 21 April 1996; section A1.
- Humphrey, D. C. 2012. *Austin, TX (Travis County). Handbook of Texas online*. Texas State Historical Association, Denton, USA: www.tshaonline.org/handbook/online/articles/hda03. Accessed 20 May 2012.
- Kay, M. 1990. Conservation quarrel: too many questions, too few answers. *Austin American-Statesman*. 14 May 1990; section 1.
- Kay, M. 1991. Conservation crossroads: preserve proposal forks path for future. *Austin American-Statesman*. 25 August 1991; section A1.
- Kay, M. 1994. Agency's plan to designate critical habitat ruffles feathers. *Austin American-Statesman*. 27 July 1994; section A16.
- Ladd C., and L. Gass. 1999. Golden-cheeked warbler (*Dendroica chrysoparia*). Account 420 in A. Poole and F. Gill, editors. *The birds of North America*. The Academy of Natural Sciences Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C., USA.
- Landivar, L. A. R. 2005. *Econometric model of the U.S. sheep and mohair industries for policy analysis*. Dissertation, Texas A&M University, College Station, USA.
- Litvan, L. M. 1996. A blueprint for saving a species? *Investor's Business Daily*. 19 September 1996; section A1.
- Mann C. C., and M. L. Plummer. 1995. *Noah's choice: the future of endangered species*. Alfred A. Knopf, Inc., New York, New York, USA.
- Marshall, M. E. 2011. *Effects of tree species composition and foraging effort on the productivity of golden-cheeked warblers*. Thesis, Texas A&M University, College Station, USA.

- Mathewson, H. A., J. E. Groce, T. M. McFarland, M. L. Morrison, J. C. Newnam, R. T. Snelgrove, B. A. Collier, and R. N. Wilkins. 2012. Estimating breeding season abundance of golden-cheeked warblers in Texas. *Journal of Wildlife Management* 76:1117–1128.
- McKinney, L. 1994. Reauthorizing the Endangered Species Act—incentives for rural landowners. Pages 53–61 in U. S. Government. *Endangered Species Act—incentives to encourage conservation by private landowners*. Hearing before the Subcommittee on Environment and Natural Resources of the Committee on Merchant Marine and Fisheries, House of Representatives. One hundred third Congress, First Session, 13 October 1993, Washington, D.C., USA.
- Needham, J. 1994. Bird habitat would cover 33 counties. *San Antonio Express News*. 11 July 1994; section 1A.
- Noah, T. 1995. Angry threats targeting federal employees aren't limited to the gun-toting law enforcers. *The Wall Street Journal*. 3 May 1995; section A16.
- Peterson, T. R., and C. C. Horton. 1995. Rooted in the soil: how understanding the perspectives of landowners can enhance the management of environmental disputes. *The Quarterly Journal of Speech* 81:139–166.
- Power, S. 1994. Habitat hearing becomes a roast for U.S. officials. *The Dallas Morning News*. 17 September 1994; section 27A.
- Pulich, W. M. 1976. The golden-cheeked warbler: a bioecological study. Texas Parks and Wildlife Department, Austin, USA.
- Rector, M. 1996. Statement of Margaret Rector. Pages 14–15 in U. S. Government. *The implementation of the Endangered Species Act, private property rights, and whether the present policies have recovered threatened or endangered species*. Oversight hearing before the Committee on Resources, House of Representatives. One hundred fourth Congress, second session, 20 March 1996, Washington, D.C., USA.
- Reiger, G. 1995. Law of nature. *Field & Stream* 99(11):16–17.
- Sanders, J. C. 2005. Relationships among landowner and land ownership characteristics and participation in conservation programs in central Texas. Thesis, Texas A&M University, College Station, USA.
- Scott, S. 1994. Farmers, ranchers plow into officials over songbird. *San Antonio Express News*. 31 July 1994; section 21A.
- Smith, E. E. 1995. Environmental issues for the '90s: golden-cheeked warblers and yellowfin tuna. *Maine Law Review* 47:345–363.
- Stroup, R. L. 1995. The Endangered Species Act: making innocent species the enemy. PERC Policy Series, Bozeman, Montana, USA: <http://www.perc.org/articles/article648.php>. Accessed 25 Feb 2012.
- Stutz, T. 1990. Ruling on birds has builders squawking. *The Dallas Morning News*. 6 May 1990; section 46A.
- Swearingen, W. S., Jr. 2010. *Environmental city people, place, politics, and the meaning of modern Austin*. University of Texas Press, Austin, USA.
- Thatcher, R. 1994. 3,000 march for land rights. *Austin American-Statesman*. 28 August 1994; section B1.
- Thurow A., and T. Thurow. 2012. Juniper management in the Edwards Plateau: policy issues and options. Texas Natural Resources Server, AgriLife Extension, Texas A&M System. texnat.tamu.edu/library/symposia/juniper-ecology-and-management/juniper-management-in-the-edwards-plateau-policy-issues-and-options/. Accessed 20 Mar 2012.
- Tilt, W. 1995. Moving endangered species management from conflict to cooperation. Pages 510–515 in K. G. Wadsworth and R. E. McCabe, editors. *Transactions of the sixtieth North American Wildlife and Natural Resources Conference*. Wildlife Management Institute, Washington, D.C., USA.
- U.S. Census Bureau. 2010. Historical population counts. Texas QuickLinks, State and County QuickFacts. quickfacts.census.gov/qfd/states/48000lk.html. Accessed 19 Mar 2012.
- U.S. Fish and Wildlife Service [USFWS]. 1982. Endangered and threatened wildlife and plants—review of vertebrate wildlife for listing as endangered or threatened species. *Federal Register* 47:58454–58460.
- U.S. Fish and Wildlife Service [USFWS]. 1987. Endangered and threatened wildlife and plants—determination of the black-capped vireo to be an endangered species: final rule. *Federal Register* 52:37420–37423.
- U.S. Fish and Wildlife Service [USFWS]. 1988. Endangered and threatened wildlife and plants—final rule to determine five Texas cave invertebrates to be endangered species. *Federal Register* 53:36029–36033.
- U.S. Fish and Wildlife Service [USFWS]. 1990a. Endangered and threatened wildlife and plants—emergency rule to list the golden-cheeked warbler as endangered. *Federal Register* 55:18844–18845.
- U.S. Fish and Wildlife Service [USFWS]. 1990b. Endangered and threatened wildlife and plants—final rule to list the golden-cheeked warbler as endangered. *Federal Register* 55:53153–53160.
- U.S. Fish and Wildlife Service [USFWS]. 1994. What's all this about critical habitat for golden-cheeked warblers? U.S. Department of the Interior, Ecological Services, Austin, Texas, USA.
- U.S. Fish and Wildlife Service [USFWS]. 1995. Protecting America's living heritage: a fair, cooperative and scientifically sound approach to improving the Endangered Species Act. http://www.fws.gov/policy/npi96_06.html. Accessed 5 Mar 2012.
- U.S. Fish and Wildlife Service [USFWS]. 1998a. The road back: endangered species recovery. U.S. Department of Interior, Fish and Wildlife Service, Washington, D.C., USA.
- U.S. Fish and Wildlife Service [USFWS]. 1998b. Habitat conservation plan assurances (“no surprises”) rule: final rule. *Federal Register* 63:8859–8873.
- U.S. Fish and Wildlife Service [USFWS]. 1999a. Announcement of final Safe Harbor policy. *Federal Register* 64:32717–32726.
- U.S. Fish and Wildlife Service [USFWS]. 1999b. Announcement of final policy for Candidate Conservation Agreements with Assurances. *Federal Register* 64:32726–32736.
- U.S. Fish and Wildlife Service [USFWS]. 2011. Endangered Species Program: listing and critical habitat. <http://www.fws.gov/endangered/what-we-do/critical-habitats.html>. Accessed 20 May 2012.
- U.S. Fish and Wildlife Service [USFWS]. 2012a. Endangered Species Program: U.S. species. www.fws.gov/endangered/species/us-species.html. Accessed 20 May 2012.
- U.S. Fish and Wildlife Service [USFWS]. 2012b. Conservation plans and agreements database. http://ecos.fws.gov/conserv_plans/public.jsp. Accessed 20 May 2012.
- U.S. Fish and Wildlife Service [USFWS]. 2012c. Improving ESA implementation: listing workplan. www.fws.gov/endangered/improving_ESA/listing_workplan.html. Accessed 5 Jan 2012.
- U.S. Government. 1994. Endangered Species Act—incentives to encourage conservation by private landowners. Hearing before the Subcommittee on Environment and Natural Resources of the Committee on Merchant Marine and Fisheries, House of Representatives. One hundred third Congress, first session, 13 October 1993, Washington, D.C., USA.
- U.S. Government. 1995a. Department of Agriculture's activities related to the yellow-cheeked warbler. Hearing before the Subcommittee on Department Operations and Nutrition of the Committee on Agriculture, House of Representatives. One hundred third Congress, second session, 16 September 1994, Cleburne, Texas, USA.
- U.S. Government. 1995b. Endangered Species Act: Washington, DC—part I. Oversight hearing before the Task Force on Endangered Species Act of the Committee on Resources, House of Representatives. One hundred fourth Congress, first session on the impact of the Endangered Species Act on the Nation, 10 May 1995, Washington, D.C., USA.
- U.S. Government. 1995c. Endangered Species Act: Washington, DC—part III. Hearing before the Task Force on the Endangered Species Act of the Committee on Resources, House of Representatives. One hundred fourth Congress, first session on the impact of the Endangered Species Act on the Nation, 25 May 1995, Washington, D.C., USA.
- Wahl, R., D. D. Diamond, and D. Shaw. 1990. The golden-cheeked warbler: a status review. Report submitted to Ecological Services. U.S. Fish and Wildlife Service, Fort Worth, Texas, USA.
- Welch, L. L. 1994. Crowd blasts species act at meeting. *Austin American-Statesman*. 22 September 1994; section B1.
- Wilkins, N., R. D. Brown, R. J. Conner, J. Engle, C. Gilliland, A. Hays, R. D. Slack, and D. W. Steinbach. 2000. Fragmented lands: changing land ownership in Texas. http://txdandtrends.org/Briefings/Previous/2000_Fragmented_Lands.pdf. Accessed 20 May 2012.
- Wilkins, N., A. Hays, D. Kubenka, D. Steinbach, W. Grant, E. Gonzalez, M. Kjelland, and J. Shackleford. 2003. Texas rural lands: trends and conservation implications for the 21st century. An overview of the Rural Land Fragmentation Project. Texas A&M University System in partnership with the American Farmland Trust. Texas A&M Institute of Renewable Natural Resources, College Station, USA.

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