The Endangered Species Act: The Fountain Darter Teaches What the Snail Darter Failed to Teach

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Eric M. Albritton*

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INTRODUCTION

In 1978, Congress felt the sting of the Endangered Species Act (ESA)\(^1\) when the Supreme Court ruled that the Tellico Dam could not be completed because the dam would place the continued existence of the Snail Darter in jeopardy.\(^2\) Today, looming over one million T exans is the possibility that the ESA will be used to dictate the amount of water they are allowed to pump from an underground reservoir. Unregulated pumping from Texas' Edwards Aquifer (Aquifer), combined with periodic droughts, imperils five endangered or threatened species (Edwards species) dependent on the Aquifer.\(^3\) Even though states traditionally have sovereign power over their water, the United States Fish and Wildlife Service (FWS) has the power under the ESA to directly regulate withdrawals from the Aquifer in order to protect the Edwards species. If the FWS continues to neglect this responsibility, a private plaintiff may enforce the mandate of the ESA by either proceeding against the FWS or against pumpers. However, a court, upon a finding of ESA violations, should defer to the State of Texas to fashion an appropriate remedy. This deference is advisable because any court-ordered regulation would be the first time the federal government, or any government for that matter, has dictated the amount

\(^3\) The listed species are the Fountain Darter, the San Marcos Gambusia, Texas Wild Rice, the San Marcos Salamander, and the Texas Blind Salamander. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 19-20 (W.D. Tex. Jan. 30, 1993); see also 50 C.F.R. § 17.11-12 (1993) (listing federally endangered or threatened species under the ESA).
of water individual pumpers are permitted to withdraw from a Texas aquifer.\textsuperscript{4}

At the center of the controversy is the Edwards Aquifer, which is located in central Texas\textsuperscript{5} and naturally discharges through the San Marcos and Comal Springs (Springs).\textsuperscript{6}

The Edwards species are harmed when springflow from the Springs decreases. The amount of water that discharges through the Springs is related to the Aquifer level,\textsuperscript{7} which fluctuates according to the amount of recharge and pumping.\textsuperscript{8} Thus, in dry periods when demand is high and recharge is low, springflow is reduced.\textsuperscript{9} At such times, the survival of the Edwards species is in doubt.\textsuperscript{10} Not only do the Edwards species depend on the Springs and the Aquifer for their survival,\textsuperscript{11} but more than 1.5 million people depend, directly or indirectly, on the Aquifer.\textsuperscript{12}

Pumping is unregulated under Texas water law, which incorporates the rule of "absolute ownership": landowners are allowed to withdraw as much groundwater from beneath their land as they desire, and in exercise of this right, there is no liability, absent malice or willful waste, for interference with the percolating water of neighbor-
This rule facilitates the excessive pumping that threatens adequate springflow. Springflow, decreased to a certain point, harms the Edwards species, and this constitutes a "take" under section 9 of the ESA. In 1989 and 1990, springflow decreased to the point where Edwards species were taken. Currently, due to one of the region's hottest recorded summers, springflow is decreased to the point where Edwards species are in danger of being taken.

In response to the plight of the Edwards species, the Sierra Club and the Guadalupe-Blanco River Authority (GBRA) sued the Secretary of the Interior and the FWS for violating section 4 of the ESA.


15. Id. at 10-11; see infra part I.C.


19. See Sierra Club v. Lujan, No. MO-91-CA-069, judgment at 1-2. Numerous parties intervened. The intervenors on the plaintiffs' side were the Guadalupe-Blanco River Authority (GBRA), the cities of San Marcos and New Braunfels, the New Braunfels Utilities, the Bexar Metropolitan Water District, the Green Valley Water Supply Corporation, and the Atascosa Rural Water Supply Corporation. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at i. Aligned as defendants were the following intervenors: State of Texas; United Services Automobile Association (USAA); Redland Stone Products Company (Redland); Southwest Research Institute (Southwest Research); USAA Real Estate Company (USAA Realco); Southwest Foundation for Biomedical Research (Southwest Foundation); Greater San Antonio Builders Association (Builders Association); Danny McFadin; Tommy Walker; Carl Muecke; and Living Waters Artesian Springs, Ltd. (catfish farm). Id. at ii.

The State of Texas waived any possible 11th Amendment infirmities by petitioning the court to intervene. See Clark v. Barnard, 108 U.S. 436, 447-48 (1883); CHARLES A. WRIGHT, LAW OF FEDERAL COURTS 67-68 (4th ed. 1984). Additionally, although it is not discussed in Sierra Club v. Lujan, a possible reason the remaining pumpers were not deemed necessary parties under Rule 19 of the Federal Rules of Civil Procedure is because of the "public rights exception." See National Licorice Co. v. NLRB, 309 U.S. 350, 363 (1940). This exception allows Sierra Club to vindicate a public right by suing the FWS without joining all pumpers who otherwise might be deemed necessary. See id.; Natural Resources Defense Council, Inc. v. Berklund, 458 F. Supp. 925, 933 (D.D.C. 1978), aff'd, 609 F.2d 553 (D.C. Cir. 1979) (stating that Rule 19 was not intended to require the dismissal of an action that seeks to enforce public rights and thus to effectively preclude such litigation against the government). But cf. Carl Tobias, Rule 19 and the Public Rights
Section 4 requires the Secretary, who delegates this responsibility to the FWS, to "develop and implement" a recovery plan for the survival of the Edwards species.\(^{20}\)

In *Sierra Club v. Lujan*, Judge Lucus Bunton III of the United States District Court for the Western District of Texas\(^{21}\) held that the FWS violated its nondiscretionary duty under section 4 to develop and implement a recovery plan.\(^{22}\) The court ordered the FWS to develop a recovery plan that includes the minimum springflow requirements necessary to avoid takes of and jeopardy to the continued existence of the Edwards species.\(^{23}\) However, Judge Bunton declined to issue a final remedy until Texas had the opportunity to address the limitations of Texas water law.\(^{24}\) His deference to the Texas Legislature is an example of prudent judicial decisionmaking because the Aquifer dilemma presents an awkward intersection of state and federal law. This intersection would have forced the court to remedy a nonlegal polycentric problem without full command of the legislative facts necessary to make such a determination.\(^{25}\)

Bowing to the demands of the ESA and the encouragement of Judge Bunton, the Texas Legislature, after many years of refusing to change the status quo, took heed and passed a law creating an administrative system for reducing withdrawals from the Aquifer.\(^{26}\) How-

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\(^{21}\) Even though this is an extremely complex case with numerous parties, Judge Bunton tried it from the bench in only three days. *Sierra Club v. Lujan*, No. MO-91-CA-069, slip op. at i.

\(^{22}\) *Id.* at 23. This case will be discussed as the starting point for this comment. I will not critique the court. Rather, I will analyze the legal basis upon which a suit regarding the Aquifer could be based. For explanatory purposes, I will at times refer to legal rulings made by the court and will use its findings of fact.

There have been various interesting developments in the continuing saga of *Sierra Club v. Lujan* that merit discussion but are beyond the scope of this comment. One such line of discussion is a possible suit under the Endangered Species Act's § 7 consultation provision and the impact this provision could have on the military installations in San Antonio. *See* 16 U.S.C. § 1536. Given the potential financial impact on these installations, such a suit could inspire the political will that has been lacking.

\(^{23}\) *Sierra Club v. Lujan*, No. MO-91-CA-069, judgment at 2-3.

\(^{24}\) *See id.* at 5-6. Judge Bunton gave the Texas Natural Resource Conservation Commission until March 1, 1993 to prepare a plan to assure that Spring levels do not drop below the jeopardy levels to be defined by the FWS. *Id.* at 5. The court also scheduled a tentative hearing for June 28, 1993 to address the status of the TNRCC's efforts to regulate withdrawals and any new state laws relative to the Aquifer. *Id.* at 5-6.

\(^{25}\) *See infra* part VI.D.

ever, the response by the Texas Legislature is probably inadequate to protect the Edwards species, so that either the FWS or private plaintiffs will have to ensure the protection of the species.

As tried, *Sierra Club v. Lujan* only resolved the narrow issue of the FWS' duty to develop and implement a recovery plan. However, future litigation engendered by the Aquifer dilemma should demonstrate the incredible breadth of the ESA by raising three questions that have yet to be directly addressed.

First, does the ESA preempt state law so that the FWS can regulate withdrawals from the Aquifer? Second, under the ESA can a private plaintiff force the FWS to regulate withdrawals from the Aquifer to protect the Edwards species? Third, can a private plaintiff sue pumpers under the ESA to prevent them from withdrawing water from the Aquifer in a way that harms the Edwards species?

The answers to each of these three questions is a resounding yes. First, the right to withdraw an unlimited amount of Aquifer water can fall prey to the needs of the Edwards species because the ESA preempts Texas water law to the extent that the water law prevents the full implementation of the ESA.27 Thus, the FWS may issue regulations requiring the reduction of withdrawals to prevent a violation of the ESA.28 Although the FWS has never issued regulations to limit the ability of a private actor to withdraw groundwater, the agency has proscribed, pursuant to the ESA, otherwise legal behavior of private actors in similar situations. By analogy, the FWS has the authority to limit withdrawals from the Aquifer.

As to the second and third questions, if the FWS does not use its authority to limit withdrawals, private plaintiffs can bring suit under the ESA to protect the Edwards species.29 Upon a finding of liability, a court can enjoin the FWS to use all means necessary to protect the Edwards species30 and can enjoin pumpers to limit withdrawals from the Aquifer.31

However, because federal regulation of Texas water would have a profound impact on the lives of the Texans who depend on the Aquifer and because regulation of groundwater traditionally falls exclusively within the realm of state domain,32 the court should defer to the Texas Legislature upon completion of the Aquifer litigation.33 This

27. *See infra* part V.
28. *See infra* part VI.A.
29. *See infra* part VI.B.
30. *See infra* part VI.C.1.
31. *See infra* part VI.C.2.
32. *See California v. United States*, 438 U.S. 645, 658 (1978) (stating that all nonnavigable waters are subject to the plenary control of the states, with each state possessing the right to determine to what extent the common law rule should be followed).
33. *See infra* part VI.D.
would provide Texas with an opportunity to address this complex situation through a political compromise. If Texas nevertheless continues to neglect its responsibility, the court should use its broad remedial powers to assure adequate springflow.

I

THE EDWARDS AQUIFER

A. Physical Characteristics of the Aquifer

The Edwards Aquifer stretches 180 miles across central Texas from Bracketville in Kinney County on its western boundary, across portions of six counties, including Uvalde, Medina, Bexar, and Comal, to Kyle in Hays County in the east. Including its drainage area, the Aquifer region covers 8000 square miles and all or portions of thirteen counties. The Aquifer is composed of Edwards Limestone, which occurs in three segments: the Edwards Plateau (drainage area), the Balcones Fault Zone (recharge zone), and the Coastal Plain (artesian zone).

The Edwards Plateau is the Aquifer's drainage area, covering approximately 4400 square miles. The Aquifer recharges from rainfall over the plateau. The plateau funnels stormwater into streams that flow across the recharge area. Since most recharging of the Aquifer occurs through streambeds, this funneling effect is essential to maintaining the Aquifer level.

The Balcones Fault Zone is the recharge area and covers an area of approximately 1500 square miles. This area is composed of many closely spaced faults that expose fractured Edwards Limestone at the surface of the land. As streams cross the recharge area, much of the streamflow percolates into the Aquifer and recharges it. Average annual recharge to the Edwards Aquifer equals approximately

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34. It is the extremely diverse interests surrounding the Aquifer that have led to the current political stalemate. See Aquifer Dust-Up: How Cities, Farms, Critters Coexist Is Our Fight, Too, HOUSTON POST, Feb. 7, 1993, at C2 [hereinafter Aquifer Dust-Up]. For a discussion of Texas' response to the Aquifer problem, see infra part IV.
35. See infra part VI.C-D.
36. Illgner, supra note 12, at 1.1.
37. Id.
38. Id. Edwards Limestone is a karstic, interbedded limestone that was deposited by a warm, cretaceous, shallow sea more than 100 million years ago. Id.
39. Id. at 1.1 (fig. 2).
40. Id.
41. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 6.
42. Id.
43. Id.
44. Id. at 6-7.
45. Id. at 7.
46. Id.
650,000 acre-feet, with a historical range from 46,000 acre-feet to over two million acre-feet.

The southern and eastern boundary of the Aquifer is the Fresh/Saline Water Interface, often referred to as the "bad water line." Water south and east of the bad water line is highly mineralized and is not potable. On the fresh side of the bad water line, water moves northeastward toward the Springs in New Braunfels and San Marcos.

The Coastal Plain is the artesian/reservoir portion of the Aquifer system and has a surface area of about 2100 square miles. Water from the Aquifer discharges through wells and springs. During the 1980's, average annual flow from the Springs was approximately 340,000 acre-feet. Comal Springs' long-term average discharge is 283 cubic-feet per second (cfs). San Marcos Springs' long-term average discharge is 168 cfs.

Private wells, which account for the majority of pumping from the Aquifer, have been the region's major supplier of water since the turn of the century. Annual pumping in the Aquifer region has more than tripled since 1940 to 489,000 acre-feet in 1990 and is growing as demand increases. By 2020, demand for Aquifer water could exceed 850,000 acre-feet per year, and mining of the Aquifer could begin as soon as 2000. Moreover, the combination of increasing de-

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47. SAPAC, supra note 12, at 3.
48. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 11 (W.D. Tex. Jan. 30, 1993); see also Illgner, supra note 12, at 1.3.
49. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 7.
50. Illgner, supra note 12, at 1.2; Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 6.
51. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 7. The water south of the bad water line is typically charged with hydrogen sulfide. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 12.
52. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 7.
53. Id.
54. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 4; EDWARDS UNDERGROUND WATER DIST., supra note 5, at 7.
55. SAPAC, supra note 12, at 3.
56. Illgner, supra note 12, at 1.2.
57. Id.
59. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 9.
60. Id.; see also SAPAC, supra note 12, at 3 (suggesting that pumping of the Aquifer has nearly quadrupled since 1940).
61. EDWARDS UNDERGROUND WATER DIST., supra note 5, at 9. But cf. SAPAC, supra note 12, at 3 (stating that demand for water in the Aquifer's region will surpass 750,000 acre-feet per year by 2040). Even though estimates as to the exact increase in demand fluctuate, demand for Aquifer water will indeed continue to grow. See TEXAS WATER DEV. BD., WATER FOR TEXAS TODAY AND TOMORROW 3-1 to 3-5 (1990).
mand and variable recharge has resulted in large fluctuations in springflow.\textsuperscript{62}

The Aquifer has several distinctive characteristics that distinguish it from other Texas aquifers.\textsuperscript{63} It functions as a single water-bearing system; thus, any recharge, pumping, or spring discharge affects water levels across the entire Aquifer.\textsuperscript{64} The Aquifer also has a high capacity for recharge because it is composed of porous limestone rather than sand, allowing its water to move relatively quickly through the formation.\textsuperscript{65} Finally, the Aquifer wells produce much more water than comparable wells in other aquifers.\textsuperscript{66}

The unique nature of the Aquifer makes it susceptible to rapid changes in water level,\textsuperscript{67} which can cause crises for the Edwards species.\textsuperscript{68} For example, in 1984 the Aquifer level was at its lowest in three decades.\textsuperscript{69} Only 3 years later, in February 1987, the Aquifer reached a record high level of 699 feet.\textsuperscript{70} By June 8, 1990, however, the Aquifer level had dropped to 623 feet,\textsuperscript{71} placing Comal Springs in grave danger of drying up.\textsuperscript{72} Thus, in only 6 years the Aquifer level had swung from very low, to very high, and back to very low.
B. Importance of the Aquifer

The Edwards Aquifer occupies a vital role in Central Texas. However, people have extremely diverse interests in the Aquifer and correspondingly different interests in the way the Aquifer is managed. On the western boundary of the Aquifer lie Uvalde and Medina Counties, which primarily use Aquifer water for irrigation. Farmers in these two counties irrigate more than 82,000 acres. Pumping for irrigation increased an incredible 822% from 1958 to 1989. The abundant supply of Aquifer water available for irrigation has transformed this arid portion of Texas into an extremely productive agricultural region.

In contrast, Bexar County, which includes San Antonio, primarily uses Aquifer water for municipal and industrial purposes. The county has relied on Aquifer wells for its municipal water supply since the late 19th century. The San Antonio metropolitan area, home to more than one million people, is the largest city in the United States that relies solely on a single aquifer for its water supply. A wide variety of Bexar County industries depends on the Aquifer, including food and beverage manufacturers, high-tech industries, the military, and tourism-related industries. One of these industries is an infamous catfish farm, Living Waters Artesian Springs, located 15 miles south of San Antonio in Bexar County, which withdraws approximately 48,000 acre-feet per year of Aquifer water, the equivalent of

73. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 7 ("Unquestionably, the Edwards is a natural resource vital to the economies of the aquifer region.").
74. See id.; Shadwick, supra note 58, at 679. One reason interests in the management of the Aquifer vary is the vast difference in annual precipitation within the Aquifer region, ranging from 22 inches per year in the western portion of the region (Kinney County) to 36 inches per year in the eastern portion (Comal County). Iligner, supra note 12, at 1; 1992-1993 Texas Almanac 208, 259 (Mike Kingston ed., 1991).
75. SAPAC, supra note 12, at 1.
76. Id.
77. Id. at 4.
78. Id. at 1.
79. Id.
80. Id. The first well was drilled by George Brackenridge in 1891. Id.
82. SAPAC, supra note 12, at 1.
25\% of San Antonio’s total annual usage.\textsuperscript{83} The incredible growth of pumping in Medina and Uvalde Counties has not been paralleled in Bexar County;\textsuperscript{84} despite significant population growth, the county’s Aquifer use less than doubled from 1958 to 1989.\textsuperscript{85}

At the eastern end of the Aquifer, Comal and Hays Counties primarily depend on the Aquifer for tourism.\textsuperscript{86} The Springs have helped to make the region one of the most popular tourist and recreation destinations in Texas.\textsuperscript{87}

Finally, downstream users depend on the Aquifer indirectly because they obtain water for municipal, industrial, irrigation, and livestock uses from the Guadalupe River.\textsuperscript{88} The Springs directly contribute to the streamflow of the Guadalupe River. Under normal nondrought conditions, the Springs supply approximately 30\% of the base flow of the Guadalupe River.\textsuperscript{89} In times of drought, the Springs provide up to 70\% of the base flow.\textsuperscript{90} Thus, the Aquifer has enabled the Guadalupe River basin to attract a great deal of industry.\textsuperscript{91}

The importance of the Aquifer will continue to grow as the population of the Aquifer region grows. The regional population is increasing at a rate of approximately 20,000 people per year\textsuperscript{92} and is predicted to surpass 2.3 million by 2020.\textsuperscript{93} Most of the Aquifer region’s population lives in Bexar County;\textsuperscript{94} the population of San Antonio has increased from approximately 200,000 in 1940 to over 1.1
This trend of population growth is consistent throughout the entire Aquifer region.

C. The Threat to the Edwards Species

As the court found in Sierra Club v. Lujan, if pumping continues at the current rate, the Edwards species dependent on Comal Springs will be harmed in a drought less severe than the drought of record. In 1956, the worst year of the drought of record, pumping at 321,000 acre-feet per year resulted in Comal Springs drying up for 5 months. In 1989, only a relatively dry year, 542,000 acre-feet per year were pumped from the Aquifer, and Comal Springs nearly ceased flowing. If pumping continues at the present rate, a dry period of less magnitude than the drought of record will cause Comal Springs to completely dry up. This is significant because dry periods and mild droughts occur relatively often in Central Texas. Thus, absent regulation of withdrawals, Comal Springs will cyclically dry up. Moreover, if a drought with the magnitude of the drought of record recurs, it is estimated that Comal Springs will cease to flow and remain dry for 19 years.

Given the limited amount of Aquifer water, the increasing demands placed on it, the diverse interests of the water users, the importance of the Aquifer to the survival of Central Texas, and the presence of five endangered species, it is imperative that a regulatory mechanism be in place to regulate pumping from the Aquifer. However, as discussed in the next section, Texas law permits virtually unlimited pumping of the Aquifer.

96. Id. For example, between 1940 and 1990, Uvalde's population increased from 6679 to 14,729; Hondo's population increased from about 3500 to 6012; and San Marcos' population increased from about 6000 to 28,743. Id.; 1992-1993 Texas Almanac, supra note 74, at 169-78.
98. A region experiences a drought when it receives less than 75% of the 1931 to 1960 average precipitation. 1992-1993 Texas Almanac, supra note 74, at 606. In 1956, the Aquifer region only received 43% of average precipitation; thus, 1956 was one of five consecutive drought years for the Aquifer region. See id.
100. Id.
101. In 1989, the region received 72% of the average annual precipitation. 1992-1993 Texas Almanac, supra note 74, at 606.
102. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 12.
103. See id. at 13.
104. Id. Between 1892 and 1990, the region experienced 17 droughts. 1992-1993 Texas Almanac, supra note 74, at 606.
II
TEXAS GROUNDWATER LAW

Texas law imperils the Edwards species by facilitating the over-drafting of the Edwards Aquifer.\(^{107}\) Under Texas' rule of absolute ownership,\(^{108}\) landowners have the right to pump an unlimited amount of percolating groundwater, which includes Aquifer water, from beneath their land. While the pumping cannot be malicious nor constitute willful waste,\(^{109}\) it is extremely rare for a court to find malicious conduct or willful waste.\(^{110}\) Thus, the person with the largest pump can take the lion's share of Aquifer water, and any injury to his or her neighbor does not give rise to a cause of action.\(^{111}\) Moreover, the Edwards Undergroundwater District (EUWD), the entity with primary authority concerning the Aquifer, has no power to limit pumping from the Aquifer. The result is that Texas law has effectively encouraged actions that endanger the Edwards species.

A. State Common Law

The Texas Supreme Court adopted the common law rule of absolute ownership in *Houston & Texas Central Railroad v. East.*\(^{112}\) In *City of Sherman v. Public Utility Commission of Texas,* the Texas Supreme Court reaffirmed the *East* rule that the absolute ownership theory of groundwater carries with it the right of a landowner to capture percolating groundwater from beneath his or her land.\(^{113}\) In support of its holding, the supreme court noted that the Texas Water Code confirms private rights in percolating groundwater.\(^{114}\) Further,

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108. See infra part II.A.
110. See infra notes 128-30 and accompanying text.
114. *Id.; see also* TEx. WATER CODE ANN. § 52.001 (“The ownership and rights of the owner of the land and his lessees and assigns in underground water are hereby recognized,
the supreme court rejected the suggestion that East should be overruled, believing that any change in the rule was best left to the legislature.\textsuperscript{115}

The legal presumption in Texas is that all groundwater, including Aquifer water, is percolating, and thus is governed by the absolute ownership rule.\textsuperscript{116} In \textit{Texas Co. v. Burkett}, the court stated: "The presumption is that the sources of water supply obtained by such excavations are ordinary percolating waters, which are the exclusive property of the owner of the surface of the soil, and subject to barter and sale as any other species of property."\textsuperscript{117} Consequently, a landowner is presumed to own groundwater unless it is conclusively shown that the source of supply is a subterranean stream.\textsuperscript{118}

A Texas court recently reconfirmed the status of Aquifer water as percolating groundwater in \textit{Danny McFadin & Texas Farm Bureau v. Texas Water Commission.}\textsuperscript{119} In that case, the court held that the Aquifer is not an underground river.\textsuperscript{120} Thus, the Texas Natural Resource Conservation Commission’s\textsuperscript{121} (TNRCC’s) regulations declaring the Aquifer an underground river,\textsuperscript{122} and TNRCC’s subsequent attempt to regulate the Aquifer, were unlawful.\textsuperscript{123} As such, the court implicitly affirmed application of the absolute ownership rule to the Aquifer.\textsuperscript{124}

\textsuperscript{115} City of Corpus Christi v. City of Pleasanton, 276 S.W.2d 798, 802 (Tex. 1955).
\textsuperscript{117} 296 S.W. at 278.
\textsuperscript{118} The Texas Supreme Court has indicated, in dicta, that rules other than the absolute ownership rule, such as those applying to surface water rules, may apply to groundwater in well-defined channels or subterranean streams. See Houston & T. Cent. R.R. v. East, 81 S.W. 279, 280 (Tex. 1904); \textit{Burkett}, 296 S.W. at 278. Likewise, the Texas Water Code indicates that a different rule applies to subterranean streams. The Texas Water Code explicitly limits the definition of groundwater to water that is "percolating" and excludes both stream underflow and subterranean streams from the definition.\textit{Tex. Water Code Ann.} § 52.001(6) (West Supp. 1995); see \textit{also} Bartley, 527 S.W.2d at 760 (finding that Texas statutes define "underground water as 'water percolating below the surface of the earth' . . . but [the term] does not include subterranean streams or the underflow of rivers").
\textsuperscript{120} \textit{Danny McFadin & Texas Farm Bureau}, No. 92-05214, slip op. at 2 (331st Jud. Dist., Dec. 21, 1992).
\textsuperscript{121} The Texas Natural Resource Conservation Commission was formerly known as the Texas Water Commission. Proposed Rules, 19 Tex. Reg. 9383 (1994).
\textsuperscript{122} \textit{Tex. Admin. Code} tit. 31, § 298.2(a) (1993).
\textsuperscript{124} \textit{See id.}
Under Texas law, there are two possible, but rarely enforced, exceptions to the rule of absolute ownership. Otherwise, the right of an owner to capture and withdraw percolating groundwater is unqualified. The first exception is that a landowner may not maliciously use the groundwater to cause injury or to harm an adjacent landowner.\(^\text{125}\) The second exception is that a landowner may not wantonly or willfully waste water.\(^\text{126}\) In these instances, the conduct may be enjoined.\(^\text{127}\) However, it is extremely rare for a court to find malicious conduct or waste.\(^\text{128}\) For example, in City of Corpus Christi v. City of Pleasanton, the Texas Supreme Court concluded that the carriage loss of 75% of water did not constitute waste.\(^\text{129}\) Moreover, Texas courts have failed to find that a landowner acted maliciously in withdrawing groundwater.\(^\text{130}\)

### B. State Regulatory Authority

To supplement groundwater law in Texas, the legislature has created Undergroundwater Conservation Districts (UWCD’s).\(^\text{131}\) They are charged with the primary regulatory authority over Texas groundwater.\(^\text{132}\) The UWCD’s are local entities and have the purpose of “provid[ing] for the conservation, preservation, protection, recharging, and prevention of waste of the underground water of underground water reservoirs or their subdivisions . . . consistent with the objectives of . . . the Texas Constitution.”\(^\text{133}\) The stated purpose of the UWCD’s seems to imply broad powers; however, in fact, the Texas Water Code, local political opposition, and bureaucratic inertia confine the power of the UWCD’s.\(^\text{134}\)

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127. See East, 81 S.W. at 281-82.
128. Shadwick, supra note 58, at 661-65.
129. 276 S.W.2d 798, 804-05 (Tex. 1955).
130. See id. at 800-01.
132. See TEX. WATER CODE ANN. §§ 52.151-173 (describing the powers and duties of the UWCD’s); John L. House, Annual Survey of Texas Water Law, Part I: Private Law, 40 SMU L. REV. 375, 392-94 (1986) (stating that the UWCD’s are the best vehicle for realizing the state’s water conservation goals). However, Texas groundwater remains virtually unregulated. See Shadwick, supra note 58, at 672-77; TEXAS PERFORMANCE REVIEW, TEXAS COMPTROLLER OF PUBLIC ACCOUNTS, BREAKING THE MOLD: NEW WAYS TO GOVERN TEXAS 10 (1991) (“Little or no regulatory authority has been provided to Texas state agencies to protect the quality of ground water.”).
133. TEX. WATER CODE ANN. § 52.021.
134. Shadwick, supra note 58, at 673; see also Corwin W. Johnson, Texas Groundwater Law: A Survey and Some Proposals, 22 NAT. RESOURCES J. 1017, 1020 (1982) (stating that the regulatory power needed by the districts is absent).
Until *Sierra Club v. Lujan*, the EUWD was the primary agency with jurisdiction over the Aquifer. The EUWD was not a UWCD; in 1959, the Texas Legislature enacted a special law authorizing the creation of the EUWD in an effort to manage and protect the Aquifer. The EUWD originally included five counties, but by the time it was purportedly dissolved by the Texas Legislature in 1993, it only included three counties in the Aquifer region.

Although the stated goal of the EUWD was to "conserve, preserve, protect and increase the recharge of and prevent the waste and pollution of the underground water," the Texas Legislature gave the district limited regulatory powers to implement its goal. The EUWD lacked the express rulemaking authority given to the UWCD's. The only rulemaking authority the EUWD possessed concerned transporting water out of the district and planning for drought management. Because its powers were so restricted, the EUWD proved unable to address the overdrafting of the Aquifer.

The inadequacy of Texas law, coupled with the diverse interests in the Aquifer and increasing demand, have led to the present situation. Absent intervention by the FWS, it was inevitable that the plight of the Edwards species would end up in federal court. Federal law presents an opportunity to solve a complex issue, of which only a part is the harm to the Edwards species.

135. See Illgner, *supra* note 12, at 3.1-3.2. In addition, the Medina and Uvalde Underground Water Conservation Districts have some limited authority regarding the Aquifer. See Ralph Winingham, *Truce Declared in Aquifer War*, SAN ANTONIO EXPRESS NEWS, June 2, 1994, at 1B; Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 8 (W.D. Tex. Jan. 30, 1993) (noting that the Medina UWCD has authority within Medina County to permit non-exempt wells, limit pumpage, encourage conservation, and prohibit waste).


138. Senate Bill 1477 was proposed and ultimately passed into law in response to the district court's opinion in *Sierra Club v. Lujan*. See infra part IV. However, at the time this comment was published, the EUWD was still operating and the newly created Edwards Aquifer Authority (Authority) had not begun operating. See Edwards Aquifer Authority Board Members Fail To Assume Duties, HOUSTON POST, Sept. 5, 1993, at A35.


142. Illgner, *supra* note 12, at 3.2.

143. *Id.* at 3.4-3.5. Some view this authority as quite broad and therefore sufficient to provide regulatory authority that was lacking in the original enabling legislation. *Id.* at 3.5. As such, it can be interpreted to give the EUWD the authority to effectively create a cap in times of drought. *See id.*

144. Shadwick, *supra* note 58, at 673-77.
A. The District Court's Judgment

*Sierra Club v. Lujan* is the initial outgrowth of the controversy over the Edwards species.\(^{145}\) Sierra Club's original complaint claimed that the FWS violated the ESA because it both "failed to develop and disseminate information about the minimum springflow necessary to protect the endangered species" as required by section 4(f) of the Act and failed to regulate pumping of the Aquifer as required by the ESA.\(^{146}\) However, Sierra Club later amended its complaint, striking the claim that the ESA requires the FWS to regulate pumping.\(^{147}\) Thus, *Sierra Club v. Lujan* addresses only an alleged violation by the FWS of its section 4(f) duty to develop and implement a recovery plan.

Upon completion of the trial, the court found that the FWS had violated this duty.\(^{148}\) First, the court reasoned that the FWS failed to develop any recovery plan regarding the Edwards species dependent on Comal Springs.\(^{149}\) Second, the court believed that even though the FWS adopted the San Marcos Recovery Plan (SMRP) in 1985,\(^{150}\) the FWS was guilty of violating section 4(f) because it failed to implement the plan.\(^{151}\) The SMRP states that the San Marcos species can be downlisted "when it is assured that flow in the San Marcos River will continue within its natural cycle of variation."\(^{152}\) However, the court found that, until 1989, the FWS took no action to assure that the


\(^{146}\) Sierra Club v. Babbitt, 995 F.2d 571, 573 (5th Cir. 1993). By the time the case reached the Fifth Circuit on appeal, Bruce Babbitt, appointed by the Clinton Administration, had taken office as the Secretary of the Interior. See *Babbitt Confirmed as Interior Secretary, Pledges To Make Endangered Species Act Work*, 23 Env't Rep. (BNA) No. 39, at 2582 (Jan. 22, 1993) (stating that Babbitt was confirmed by the Senate on January 21, 1993). Accordingly, the case caption changed. See infra part III.C for a discussion of the Fifth Circuit's opinion.

\(^{147}\) Sierra Club v. Babbitt, 995 F.2d at 574.


\(^{149}\) See Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 39.

\(^{150}\) Id. at 42. The SMRP states: "The most serious threat to the continued existence of the San Marcos River ecosystem is ... the cessation of flow of thermally constant clear, clean water from the San Marcos Springs due to overdrafting of the groundwater from the Edwards Aquifer." Id. at 42-43. The same threat exists for the Comal ecosystem. "The listed species will become extinct unless an aquatic habitat with appropriate volume, flow and quality characteristics is maintained in the Comal and San Marcos Ecosystems." Id. at 43.

\(^{151}\) Id. at 42.

\(^{152}\) Id. at 43.
quantity of flow in the river would continue within its natural cycle of variation.\textsuperscript{153}

The court issued an injunction that required the FWS to determine the point at which takes and jeopardy occur to the Edwards species due to reduced springflow.\textsuperscript{154} In addition, the court ordered the FWS to distribute its findings to all pumpers, as well as any federal agency to which plaintiff or plaintiff intervenors had sent notice of violations.\textsuperscript{155} The court made interim springflow findings effective until the FWS made the determinations required by the judgment.\textsuperscript{156}

Furthermore, the court made extensive findings of fact. Even though they are merely dicta,\textsuperscript{157} these findings are relevant because they illustrate the complexity of the Aquifer dilemma and provide insight into factual findings a court might reach in a future suit. First, the court found that if current levels of withdrawals from the Aquifer continue, both Comal and San Marcos Springs may cease to flow for years during a drought both milder and shorter than the drought of record.\textsuperscript{158} This would constitute a take of the Edwards species in violation of ESA section 9.\textsuperscript{159} Moreover, the court concluded that jeopardy to the continued existence of the Fountain Darter occurs when Comal Springs ceases flowing completely.\textsuperscript{160} To prevent this fate, the court stated that "[l]imiting pumping to an average of roughly 200,000 acre-feet per year during the drought would provide some minimal continuous daily Comal springflow."\textsuperscript{161} However, during the past 10 years, pumping has averaged 468,000 acre-feet per year.\textsuperscript{162}

\textsuperscript{153} Id.
\textsuperscript{155} See id. at 4. Notice to federal agencies is necessary so that those agencies can perform their duties under the ESA. Id. Specifically, notice is essential to comply with § 7(a)(2) of the act. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 26.

Section 7(a)(2) states in relevant part: "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species . . . ." 16 U.S.C. § 1536(a)(2) (1988).
\textsuperscript{156} Sierra Club v. Lujan, No. MO-91-CA-069, judgment at 2. The court required the FWS to make findings that: (1) Fountain Darters are taken whenever Comal springflow drops to "some as-yet undefined springflow or range of springflows greater than 100 cfs," and (2) the continued existence of Fountain Darters is jeopardized whenever Comal springflow drops to "some as-yet undetermined springflow or range of springflows greater than zero." Id.
\textsuperscript{157} The Fifth Circuit held that the majority of the findings in Sierra Club v. Lujan was merely dicta because the findings were not necessary to the judgment. Sierra Club v. Babbitt, 995 F.2d 571, 575 (5th Cir. 1993).
\textsuperscript{158} Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 13.
\textsuperscript{159} Id.
\textsuperscript{160} Id. at 31.
\textsuperscript{161} Id. at 71.
\textsuperscript{162} Id. at 12.
The court concluded that regulation of withdrawals is also necessary because overdrafting of the Aquifer may cause the bad water line to migrate into the fresh water.163 This event would contaminate the Aquifer and thereby harm the Edwards species.164 The court stated that the “surest and most prudent method of ensuring the inexistence of significant adverse water quality impacts, due to pumping from the Edwards, is to limit pumping to the extent necessary to maintain adequate, continuous springflow from the Comal Springs at all times.”165

In its findings, the court noted that the firm yield of the Aquifer is not 350,000 acre-feet per year as had been thought.166 Pumping that amount during a repeat of the drought of record would cause the Aquifer to drop to levels far below the historic low, would cause Comal Springs to cease flowing for years, would dry up San Marcos Springs for substantial periods of time, and would contaminate the Aquifer.167 Moreover, although the court found that withdrawals in excess of 200,000 acre-feet per year can be allowed during normal and wet years,168 it concluded that it would be imprudent to rely on a plan to supply 350,000 acre-feet of water per year from the Aquifer because of the Aquifer's potential to fall rapidly to unacceptable levels.170

B. The U.S. Fish and Wildlife Service's Response

As required by the judgment in Sierra Club v. Lujan,171 the FWS filed two documents with the court discussing springflow level effects

163. See id. at 14.
164. Id. In the worst case, a repeat of the drought of record with continued high withdrawals would discharge 11,300 acre-feet of bad water and 76,900 tons of pollutants into the fresh water each year. Id.
165. Id.
166. Id. at 72.
167. Id.
168. Id.
169. Id.
170. The Aquifer level dropped from a record high to a level at which Comal Springs nearly dried up in less than 2 years. Id. at 74. For further discussion of this aspect of the Aquifer, see supra notes 67-71 and accompanying text.
171. Sierra Club v. Lujan, No. MO-91-CA-069, judgment at 1-3 (W.D. Tex. Jan. 30, 1993). The judgment required the FWS to determine, within 45 days, based on available information and in the exercise of its best professional judgment, the following:
1. the springflow at Comal Springs at which Fountain Darters begin to be “taken” as springflow drops;
2. the minimum springflow required at Comal Springs to avoid “jeopardy” to the Fountain Darter;
3. the minimum springflow required at San Marcos Springs to avoid destruction or adverse modification of defined critical habitat for any listed species;
4. the springflow at San Marcos Springs at which Texas Wildrice begins to be damaged or destroyed as the springflow drops;
5. the springflow at San Marcos Springs at which any listed wildlife species begins to be “taken” as the springflow drops;
on the Edwards species. The first, dated April 15, 1993 and entitled "Springflow Determinations Regarding 'Take' of Endangered and Threatened Species,"\textsuperscript{172} contains springflow determinations that are more restrictive than the court's interim findings.

The court's interim findings stated that Fountain Darters in the Comal ecosystem are taken as a result of withdrawals from the Aquifer whenever springflow drops below 100 cfs,\textsuperscript{173} and their continued existence is jeopardized whenever springflow drops to 0 cfs.\textsuperscript{174} In contrast, the FWS document states that takes of Fountain Darters begin to occur in the Comal ecosystem when springflow is reduced to 200 cfs.\textsuperscript{175} Nevertheless, the FWS believes that with effective control of the Giant Ramshorn Snail, flow levels could be reduced to 150 cfs without resulting in a take.\textsuperscript{176} The FWS reasoned that takes begin to occur due to decreased springflow because the lost water surface area correlates with a loss of habitat.\textsuperscript{177} Additionally, the FWS filed its second document on June 15, 1993, entitled "Springflow Determinations Regarding Survival and Recovery and Critical Habitat of Endangered and Threatened Species."\textsuperscript{178} Thus, the FWS' findings require significantly more springflow to avoid takes than the court's interim findings and thus indicate a greater reduction in withdrawals is necessary.

C. The Fifth Circuit's Opinion

The FWS and the defendant intervenors appealed from the judgment of Sierra Club v. Lujan.\textsuperscript{179} However, when Secretary Babbitt took over the helm of the Department of the Interior, the FWS dropped its appeal after the plaintiffs agreed to a few semantic

\textsuperscript{6} the minimum springflow required at San Marcos Springs to avoid "jeopardy" to any listed species;
\textsuperscript{7} the minimum springflows or minimum water levels in the Edwards at which the Texas Blind Salamanders begin to be "taken" as springflows and water levels drop; and
\textsuperscript{8} the minimum springflows or minimum water levels in the Edwards required to avoid "jeopardy" to the Texas Blind Salamander.

\textit{Id.}

173. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 28.
175. Springflow Determinations, \textit{supra} note 172, at 5.
176. \textit{Id.} The Giant Ramshorn Snail is an exotic species to Comal Springs and impacts the survival of the Fountain Darter. \textit{Id.}
177. \textit{Id.}
179. Sierra Club v. Babbitt, 995 F.2d 571 (5th Cir. 1993).
changes in the findings of fact and conclusions of law.\textsuperscript{180} Most significantly, the amended findings of fact recite "that the absence of knowledge," rather than the FWS' recalcitrance, caused takes and jeopardy to the Fountain Darter in 1989 and 1990.\textsuperscript{181}

The defendant intervenors continued the appeal.\textsuperscript{182} The Fifth Circuit dismissed, holding that the appellants had no standing because they will suffer no injury from the judgment.\textsuperscript{183} Moreover, the court stated that the amended findings of fact concerning takes and jeopardy were dicta and will not have preclusive effect because these findings were irrelevant to whether the FWS violated its section 4(f) duty.\textsuperscript{184}

\section*{IV

THE TEXAS RESPONSE}

In response to Judge Bunton's encouragement to address the Aquifer dilemma,\textsuperscript{185} the 73d Texas Legislature enacted a bill that is likely inadequate to solve the complex issues involved. Senate Bill 1477, which was signed by former Governor Ann Richards on June 11, 1993, outlines a specific legislative solution for the management of the Aquifer.\textsuperscript{186} It creates the Edwards Aquifer Authority (Authority) and abolishes the Edwards Undergroundwater District.\textsuperscript{187} The Author-

\begin{itemize}
\item \textsuperscript{180} \textit{Id.} at 574.
\item \textsuperscript{181} \textit{Id.} at 574 n.5.
\item \textsuperscript{182} \textit{Id.} at 574.
\item \textsuperscript{183} \textit{Id.} at 575.
\item \textsuperscript{184} \textit{Id.}
\item \textsuperscript{185} See Sierra Club \textit{v.} Lujan, No. MO-91-CA-069, judgment at 5-6 (W.D. Tex. Jan. 30, 1993). In Sierra Club \textit{v.} Lujan, Judge Bunton deferred to the Texas Legislature:
\end{itemize}

\begin{quote}
IT IS FURTHER ORDERED that Plaintiff and Plaintiff-Intervenors may seek appropriate relief from this Court at any time after May 31, 1993 (the last day of the current regular session of the Texas legislature) if the State of Texas does not have in effect at such time, pursuant to new or existing State law, a regulatory system pursuant to which withdrawals from the Edwards Aquifer can and will be limited to whatever extent may be required to avoid unlawful takings of listed species, jeopardy to any listed species, and destruction or adverse modification of critical habitat of any listed species, even in a repeat of the drought of record.
\end{quote}

\textit{Id.} at 5.

\begin{itemize}
\item \textsuperscript{187} \textit{Id.} §§ 1.02(a), 1.41. Currently, the bill is being challenged under the federal voting rights legislation. \textit{See} Texas \textit{v.} United States, 866 F. Supp. 20, 21 (D.D.C. 1994). The basis for the challenge is the abolishment of the former elected board and the installment of a new appointed board in its place. Edwards Aquifer Authority Board Members Fail To Assume Duties, supra note 138, at A35. Under the Voting Rights Act, any alteration with respect to voting rights may not take effect before preclearance by a U.S. district court or the U.S. Attorney General that such a change will not adversely affect minority voting rights. 42 U.S.C. § 1973c (1988); see also R. Tim Hay, Comment, Blind Salamanders, Minority Representation, and the Edwards Aquifer: Reconciling Use-Based Management of Natural Resources with the Voting Rights Act of 1965, 25 St. Mary's L.J. 1450, 1477, 1487-1500 (1994) (arguing that Senate Bill 1477 is subject to the preclearance requirement). Recently, the court denied a motion for summary judgment, holding that the Voting Rights
ity's geographic boundaries include all of Uvalde, Medina, and Bexar Counties, as well as parts of Comal, Hays, Atascosa, Caldwell, and Guadalupe Counties. The Authority is governed by a nine-member board and has the ability to issue and regulate permits to nonexempt users. Initially, permits will be issued for withdrawals up to a total of 450,000 acre-feet per year. Within 15 years, the Authority is required to reduce permitted withdrawals to 400,000 acre-feet per year total.

After September 1, 1993, all nonexempt withdrawals will require a permit. Permits are to be granted based on historical annual usage. The Act contains minimum guarantees for irrigation users of 2 acre-feet per acre for the total number of irrigated acres in any year, and minimum guarantees based on average historical use for nonirrigation users. Nonirrigation users are entitled to either the maximum annualized use without waste for any year during the historic period or the average annual use of a well operated for at least 3 years during the historic period. In order to monitor the wells, Senate Bill 1477 requires meters and annual reports on all nonexempt wells.

The Authority is directed to develop and implement a comprehensive water management plan and a critical period management

Act is applicable. Texas v. United States, 866 F. Supp. at 28. At the time this comment was published, the elected board was still operating as the EUWD and the Authority had not begun operating. See Edwards Aquifer Authority Board Members Fail To Assume Duties, supra note 138, at A35.

189. Id. § 1.09(a). Each board member will serve a four-year term. Id. § 1.09(d). The board members will be appointed through a system created to represent all classes of persons interested in the Aquifer. See id. § 1.09(b). One member will be appointed by the newly created South Central Texas Water Advisory Committee (SCTWAC). Id. § 1.09(b)(1). The SCTWAC represents the downstream interests and includes one person appointed by the governing body of 17 counties and three cities. Id. § 1.10(a). Three members are appointed to represent Bexar County. Id. § 1.09(b)(2). Two are appointed by the San Antonio City Council and one by the Bexar County Commissioners Court. Id. The Comal County Commissioners Court appoints one member; the San Marcos City Council appoints one member; the Medina Underground Water Conservation District appoints one member; the Uvalde Underground Water Conservation District appoints one member; and the final member is appointed in rotation by the Evergreen Underground Water Conservation District, the Medina Underground Water Conservation District, or the Uvalde Underground Water Conservation District. Id. § 1.09(b)(3)-(7).
190. Id. §§ 1.11(b), 1.15(c). Domestic and livestock users of 25,000 gallons per day or less may withdraw from the Aquifer without obtaining a permit. Id. § 1.33(a).
191. See id. § 1.14(b).
192. Id. §§ 1.14(c), 1.21(a).
193. See id. §§ 1.15, 4.02.
194. Id. § 1.16. The historic use period is June 1, 1972 through May 31, 1993. Id.
195. Id. § 1.16(e).
196. Id.
197. Id. § 1.31(a).
The comprehensive management plan must include conservation, future supply, and demand management plans. In addition, it must include a 20-year plan for obtaining alternative supplies of water. The required critical period management plan must take into account necessary reductions of water uses for management of the Aquifer in critical periods. The Authority was required to implement all water management practices by June 1, 1994 to ensure minimum continuous springflow from Comal and San Marcos Springs by December 31, 2012.

To carry out this mandate, the Texas Legislature bestowed the Authority with all rights, powers, and authority provided by Chapters 50, 51, and 52 of the Texas Water Code. The Authority is permitted to assess user fees, charge permit application fees, and issue revenue bonds. However, it cannot levy property taxes.

Senate Bill 1477 specifically states that it should not be construed as depriving an owner of ownership rights. Of course, in reality it alters the rule of absolute ownership because it prohibits any person from withdrawing Aquifer water unless he or she is authorized by the Authority or is exempt under the bill. Senate Bill 1477 also alters the rule of absolute ownership by mandating that water that is withdrawn from the Aquifer must be used within the boundaries of the Authority.

198. Id. §§ 1.25(a), 1.26.
199. Id. § 1.25(a).
200. Id. § 1.25(b).
201. See id. § 1.26.
202. Id. § 1.14(h).
203. Id. § 1.08(a).
204. See id. § 1.29(b)-(e).
205. Id. § 1.29(f).
206. Id. § 1.28(b).
207. Id. § 1.28(a).
208. Id. § 1.07.
209. See id. § 1.35(a). For a discussion of the rule of absolute ownership, see supra part II.A.
210. Act of June 11, 1993, ch. 626, § 1.34(a), 1993 Tex. Gen. Laws 2350, 2366. Under the common law rule of absolute ownership, as defined by the Texas courts, a landowner was not barred from exporting extracted groundwater for use outside the boundaries of his property. See, e.g., Texas Co. v. Burkett, 296 S.W. 273, 278 (Tex. 1927). A spring owner "has the right... to... the use of their waters for any purpose, either on riparian or non-riparian land." Id. Thus, groundwater is the exclusive property of the surface landowner, who had "all the rights incident to them that one might have as to any other species of property." Id.; see also Denis v. Kickapoo Land Co., 771 S.W.2d 235, 236 (Tex. Ct. App. 1989) (finding that a landowner may transport water taken from a spring in a defined stream to other, nonriparian lands, given that he takes from the defined stream no more than the amount of groundwater he put in).
Senate Bill 1477 is a crafted political compromise that seeks to protect rural interests.\(^{211}\) First, agricultural user fees cannot be more than 20% of municipal and industrial user fees.\(^ {212}\) Second, the Authority will install and maintain all irrigation meters at no cost to the irrigator if a well was in existence on September 1, 1993.\(^ {213}\) Third, irrigation and industrial use will be treated equally in a critical period management plan.\(^ {214}\) Senate Bill 1477 is a starting point to address the fundamental cause of the Aquifer dilemma, but it would likely be deemed inadequate to protect the Edwards species. Pumping is permitted up to 450,000 acre-feet per year.\(^ {215}\) However, the findings of Judge Bunton and the documents submitted by the FWS to the court concerning takes and jeopardy to the continued existence of the Edwards species require much greater restrictions on pumping to assure adequate springflow.\(^ {216}\) For this reason, it is likely that the plight of the Edwards species will be relitigated under the ESA in federal court.

Even though *Sierra Club v. Lujan* was limited in scope and the court's extensive findings are dicta,\(^ {217}\) the Aquifer dilemma and the future litigation likely to result from it raise many fascinating issues.\(^ {218}\) The remainder of this comment will address the fundamental issues that the FWS, the State of Texas, and the courts could face in resolving the Aquifer dilemma.

V

FEDERAL PREEMPTION

The threshold determination to establish if the ESA can be utilized to protect the Edwards species is whether the ESA preempts Texas water law so that federal authorities may regulate and limit the amount of water pumpers may withdraw from the Aquifer. If the federal law is preeminent, the next determination is whether the FWS has

\(^{211}\) *Aquifer Dust-Up*, *supra* note 34, at C2; McLemore, *supra* note 18, at A41, A43. Both of these articles discuss the numerous interests that are affected by Senate Bill 1477.


\(^{213}\) *Id.* § 1.31(b).

\(^{214}\) *Id.* § 1.26(2), (4).

\(^{215}\) *See supra* note 191 and accompanying text.

\(^{216}\) *Sierra Club v. Lujan*, No. MO-91-CA-069, slip op. at 72 (W.D. Tex. Jan. 30, 1993). Under Senate Bill 1477, there will be only a 16% reduction of withdrawals to 450,000 acre-feet per year by 2007. To achieve the pumping levels found necessary by Judge Bunton, withdrawals must be reduced by approximately 60%. *See McLemore, supra* note 18, at A43. In addition, the FWS determined that even greater reductions are required to protect the Edwards species. *See supra* part III.B.

\(^{217}\) *But see supra* text accompanying note 157 (stating that, although dicta, findings provide insight into factual conclusions a court might make in future litigation).

\(^{218}\) For a discussion of the questions that the Aquifer dilemma presents, see *supra* pp. 1012-13.
authority under the ESA to issue the regulations necessary to protect the Edwards species.\textsuperscript{219} Finally, if the FWS does not act of its own accord, a private plaintiff can sue both the FWS and individual pumpers under the ESA to protect the Edwards species.\textsuperscript{220}

The Supremacy Clause of the United States Constitution states that all laws made in pursuance thereof shall be the supreme law of the land.\textsuperscript{221} Chief Justice Marshall in \textit{Gibbons v. Ogden} interpreted this clause and explained the hierarchy of the federal-state system.\textsuperscript{222} He held that state laws that are contrary to federal law must yield.\textsuperscript{223}

There are three recognized tests to determine whether a federal law preempts a state law.\textsuperscript{224} First, a federal law preempts a state law if it does so explicitly.\textsuperscript{225} Second, a federal law preempts a state law if congressional intent to preempt can be inferred.\textsuperscript{226} Finally, a federal

\begin{footnotes}
\footnotesize
\item[219] See infra part VI.A.
\item[220] See infra part VI.B.
\item[221] U.S. Const. art. VI, cl. 2 ("This Constitution, and the Laws of the United States which shall be made in pursuance thereof . . . shall be the supreme Law of the Land . . . any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.").
\item[222] 22 U.S. (9 Wheat.) 1, 200-11 (1824).
\item[223] \textit{Id.} at 211 ("[T]o such acts of the state legislatures as do not transcend their powers, but . . . [i]n every such case, the act of Congress . . . is supreme; and the law of the State, though enacted in the exercise of powers not controverted, must yield to it.").
\item[224] However, these tests are not the only methods by which a court can find preemption. As the Court in \textit{Hines v. Davidowitz} noted, "[i]n the final analysis, there can be no one crystal clear distinctly marked formula [to determine preemption]." 312 U.S. 52, 67 (1941).
\item[226] Rice v. Santa Fe Elevator Corp., 381 U.S. 218, 229-30 (1947); Schneidewind v. ANR Pipeline Co., 485 U.S. 293, 300 (1988). Congress' intent to preempt state law can be inferred from several aspects. Intent can be found where the "scheme of federal regulation [is] so pervasive as to make reasonable the inference that Congress left no room for the states to supplement it." \textit{Rice}, 381 U.S. at 230; see also \textit{Schneidewind}, 485 U.S. at 300 ("Pervasiveness of the federal regulation [within the field] precludes supplementation by the states."). Therefore, in determining whether a federal statute is sufficiently comprehensive to prevent a state's attempt to regulate within the field, a court can consider several factors. First, the court can examine whether the statute is designed to confer upon the federal agency exclusive jurisdiction. \textit{See Schneidewind}, 485 U.S. at 300-01 (holding that the Natural Gas Act of 1938 confers upon the Federal Energy Regulatory Commission exclusive jurisdiction over sale of natural gas in interstate commerce); Pacific Gas & Elec. Co. v. State Energy Comm'n, 461 U.S. 190, 205-12 (1982) (finding that the Atomic Energy Commission is given exclusive jurisdiction over licensing of nuclear materials, but not the generation of electricity itself). Second, the court can look to see who holds the power of ratemaking or licensing. \textit{See Rice}, 381 U.S. at 230; \textit{Schneidewind}, 485 U.S. at 301; Pacific Gas & Elec. Co. v. State Energy Comm'n, 461 U.S. at 208-09. Finally, the court can look to the "number of tools" for examining and controlling the subject of regulation within the exercise of the agency's comprehensive authority. \textit{See Schneidewind}, 485 U.S. at 301.
In addition, an act of Congress may touch a field in which the federal government's interest is so dominant that the federal system is assumed to preclude enforcement of similar state laws. \textit{Rice}, 381 U.S. at 230.
Finally, the inference is proper when the objective that the federal law seeks to obtain is the same as the objective the state law seeks. \textit{Id.; Fidelity Fed. Sav. & Loan Ass'n v. De La Cuesta}, 458 U.S. 141, 153 (1982).
\end{footnotes}
law preempts a state law if the state law actually conflicts with achieving the purpose of the federal law and the federal law is constitutionally authorized.227

Section 6(f) of the ESA addresses the preemptive effect of the statute on state law.228 It provides:

Any State law or regulation which applies with respect to the importation or exportation of, or interstate or foreign commerce in, endangered species or threatened species is void to the extent that it may effectively (1) permit what is prohibited by this chapter or by any regulation which implements this chapter, or (2) prohibit what is authorized pursuant to an exemption or permit provided for in this chapter or in any regulation which implements this chapter. This chapter shall not otherwise be construed to void any State law or regulation which is intended to conserve migratory, resident, or introduced fish or wildlife, or to permit or prohibit sale of such fish or wildlife. Any State law or regulation respecting the taking of an endangered species or threatened species may be more restrictive than the exemptions or permits provided for in this chapter or in any regulation which implements this chapter but not less restrictive than the prohibitions so defined.229

Clearly section 6(f) does not explicitly preempt state water law.230 The plain meaning of this provision is that the ESA only displaces state laws regulating importation, exportation, or commerce in endangered species.231 This conclusion is confirmed by Mariners of Richardson Bay v. Richardson Bay Regional Agency, in which the Ninth Circuit found that the ESA did not explicitly preempt a local ordinance designed to regulate the anchoring of vessels in Richardson Bay.232

229. Id.
230. No reported federal cases address the preemption effect of the ESA on state water laws.
232. Mariners of Richardson Bay, 1989 WL 36756, at *2. A similar conclusion was reached in Pinto v. Connecticut Department of Environmental Protection. No. B-87-523, 1988 WL 47899. There, the court held that the ESA did not explicitly preempt a state law designed to promote custodianship of injured animals by issuing permits to possess sick quadrupeds until they could be released to the wild. Id. at *10. The court reasoned that the state law had no direct application to interstate commerce, and, therefore, the question of federal preemption did not arise. Id. at *10.

The Ninth Circuit has addressed the preemptive effect of the ESA on state laws that directly relate to commerce in endangered species. In Man Hing Ivory & Imports v. Deukmejian, the court considered a California statute that criminalized the importation of
Neither is there any indication that Congress intended to preempt state water law. While Congress intended to give endangered species high priority, this alone is an insufficient basis to conclude that Congress intended to preempt state water law. The cases that have inferred preemptive intent involve a federal law that directly relates to the state law; that is, both deal with the same subject matter. Hence, no authority exists to conclude that the ESA is intended to preempt Texas water law merely because the two indirectly touch one another.

Because Congress did not explicitly or clearly intend to preempt state water law, the relevant preemption inquiry is whether Texas water law conflicts with the goals of the ESA. A state statute is in conflict with a federal statute if compliance with both is a physical impossibility or if the state law is an obstacle to the accomplishment of the purpose and/or objective of Congress.

For instance, in *Xerox Corp. v. County of Harris*, the Supreme Court held that Texas could not impose a tax on imported goods stored in a customs warehouse. The Court reasoned that Congress had created the duty-free warehouses to encourage the use of American ports. Thus, the Court held that Texas was preempted from taxing the goods, even though this taxation was not explicitly prohibited, because it would undermine Congress’ purpose.
Even though there is an initial presumption against preemption, a court should find that the ESA preempts Texas water law because Texas water law represents an obstacle to the full implementation of the ESA. The purpose of the ESA is to bring species back from the brink of extinction. This purpose is significantly undermined by Texas water law, which allows pumpers to overdraft the Edwards Aquifer. Furthermore, Texas water law facilitates an incentive to overdraft the Aquifer by adhering to the rule of absolute ownership. As such, Texas law directly authorizes behavior that harms the Edwards species and places their continued existence in jeopardy.

The ESA should also be judged to preempt Texas water law notwithstanding section 2(c)(2), which requires the federal government to cooperate with states regarding water issues. Section 2(c)(2) should not be read to demand that state water rights must prevail over the restrictions set forth in the ESA; such an interpretation would work to render the ESA a nullity. Further, if section 2(c)(2) was intended to prohibit preemption of state water law, it likely would be accompanied by a provision analogous to section 1251(g) of the Federal Water Pollution Control Act (FWPCA), which explicitly prohibits the FWPCA from being interpreted to preempt state water law. Accordingly, the ESA should preempt Texas water law to the extent that the state law prevents the accomplishment of the ESA's purpose of ensuring the survival of endangered species.

VI
OPTIONS TO PROTECT THE EDWARDS SPECIES

There are three distinct options to prevent takes of the Edwards species and to promote their conservation. First, the State of Texas could act to regulate withdrawals from the Aquifer. However, because the state's response, Senate Bill 1477, is inadequate to protect the Edwards species, federal authority is the only plausible route for protecting the species. The ESA provides the second and third options to prevent takes and to promote conservation of the Edwards species.

\[\text{that allowed conduct, such as a significant disruption in the breeding of an endangered species, that was prohibited by the ESA).}\]

243. See infra note 304 and accompanying text.
244. See supra part II.A.
248. See 33 U.S.C. § 1251(g).
249. See Illgner, supra note 12, at 5.1.
250. See supra part IV.
species. The second option is that the FWS can regulate withdrawals to prevent takes of the Edwards species, even though this would represent an unprecedented intrusion into the domain of state water law.251 The final option is a citizen suit, against the FWS or the pumpers, seeking an injunction to reduce withdrawals.252 Because both the FWS and the State of Texas have so far failed to adequately address the plight of the Edwards species,253 private plaintiffs may have little choice but to enforce the ESA through a citizen suit.

A. Regulation by the U.S. Fish and Wildlife Service

The most direct way for the federal government to protect the Edwards species is for the FWS to regulate withdrawals. Such direct regulation is authorized by the language, purpose, and structure of the ESA and is supported by case law interpreting the ESA. However, because FWS regulation would be highly controversial and because the FWS so far has failed to act, this route for protecting the Edwards species is unlikely.

The plain language of the ESA indicates that the FWS is authorized to issue regulations to implement the ESA. Section 11 states: "The Secretary . . . [is] authorized to promulgate such regulations as may be appropriate to enforce this chapter . . . ."254 Further evidence of the FWS' ability to issue regulations includes the numerous explicit references in the ESA to regulations issued to implement the statute.255 For instance, section 11 states that criminal penalties are available against anyone who violates a provision of the ESA or any regulations issued to implement a provision of the ESA.256

Moreover, the repeated statements in the ESA that the FWS shall utilize its authority to "conserve" listed species reveal that Congress intended the FWS to use "all of the methods and procedures which are necessary" to delist the species.257 Because Texas law permits and encourages excessive withdrawals that harm the Edwards species, it is necessary for the FWS to compel a reduction of withdrawals through regulation in order to delist the Edwards species.258

The FWS' authority to regulate withdrawals is reinforced by the ESA's recited purpose, which suggests that Congress intended to grant the FWS the authority to issue regulations to protect listed spe-

252. Id. § 1540(g).
253. See supra part III.
255. See, e.g., id. §§ 1540(a)-(b), 1535(f).
256. Id. § 1540(b).
257. Id. §§ 1531(c)(1), 1532(3).
cies and to prohibit acts that take listed species. The purpose of the ESA is to conserve ecosystems upon which endangered species and threatened species depend. To further this goal, the ESA states that it is "the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities in furtherance of the purposes of this chapter."

The structure of the ESA also supports the conclusion that the FWS can issue regulations. Section 7(a)(1) places an affirmative obligation on the FWS to conserve listed species. In addition, section 5 authorizes the Secretary to acquire land and/or water to further the purposes of the ESA. Without authority to issue regulations to conserve listed species, the FWS would be powerless to carry out its section 7(a)(1) and section 5 obligations, and these provisions would effectively be rendered meaningless.

Amendments to the ESA have only confirmed congressional resolve to conserve listed species. An amendment to section 7 created the Endangered Species Committee. This addition to the ESA represents a hard line response by Congress to the political hot potato created by TVA v. Hill. To consider an application for an exemption, the members of the "God Squad" must convene a meeting. Practically, this is extremely difficult because the ESA requires that each of these persons attends the meeting rather than a designated representative. Moreover, the committee may only grant an exemption

259. 16 U.S.C. § 1531(b). Section 2(b) states: "The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species . . . ." Id.

260. Section 3(3) states: "The terms 'conserve,' 'conserving,' and 'conservation' mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." Id. § 1532(3) (emphasis added). Such methods and procedures include activities associated with scientific resource management, law enforcement, habitat acquisition, propagation, live trapping, transplantation, and, under some circumstances, regulated takings. Id.

261. Id. § 1531(c)(1) (emphasis added).

262. See infra part VI.B.I.a.


265. The committee members are: the Secretaries of Agriculture, the Army, and the Interior; the Administrators of EPA and the National Oceanic and Atmospheric Administration; the Chair of the Council of Economic Advisors; and one person from the affected state who is appointed by the President. 16 U.S.C. § 1536(e)(3).

266. Id. § 1536(a)(2).

267. Id. § 1536(e)(10).
if a supermajority agrees. Given the difficulty of obtaining an exemption, the inclusion of section 7(e) should not undermine the interpretation that the FWS is authorized to compel a reduction of withdrawals.

A second amendment to section 7 further illustrates Congress’ resolve to conserve endangered species. The amended version of section 7 states that a federal agency must ensure that its behavior “is not likely to jeopardize” endangered species. This language is more stringent than the previous provision, which merely required federal agencies to avoid actual jeopardy. Thus, after the amendments, an agency must not act in a way that is likely to cause jeopardy. Finally, section 2(c)(2), which demands federal cooperation with states regarding state water law, does not undermine the conclusion. The FWS is authorized to issue regulations to limit withdrawals.

The little case law that directly deals with the issue suggests that the FWS has authority to regulate otherwise lawful behavior where it harms endangered species. For example, in *Louisiana ex rel. Guste v.*

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268. Five of the seven members must vote in favor of an exemption. *Id.* § 1536(e)(5).

269. *Id.* § 1536(a)(2).

270. Compare *id.* (“Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence [of the listed species] . . . .”) (emphasis added) with Endangered Species Act of 1973, Pub. L. No. 93-205, § 7, 87 Stat. 884, 892 (“All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities . . . to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence [of the listed species] . . . .”) (emphasis added).

271. See 16 U.S.C. § 1531(c)(2). Section 2(c)(2) states: “It is further declared to be the policy of Congress that Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.” *Id.* A similar provision calling for cooperation is present in the Clean Air Act, 42 U.S.C. § 7402(a) (1988), but the Clean Air Act nevertheless grants EPA broad authority to regulate pollution. For a discussion of the federal/state relationship under the Clean Air Act, see *Brown v. EPA*, 521 F.2d 827, 835-42 (9th Cir. 1975), rev’d on other grounds, 431 U.S. 99 (1976).

It should be noted, however, that § 2(c)(2) merely indicates that Congress intended to bow only as much as possible in the interests of the states, and not to sacrifice the mandate of the ESA. United States v. Glenn-Colusa Irrigation Dist., 788 F. Supp. 1126, 1134 (E.D. Cal. 1992). In this case, the court squarely addressed the intersection of state water law and the ESA, stating:

The [ESA] provides that federal agencies should cooperate with state and local authorities to resolve water resource issues regarding the conservation of endangered species. This provision does not require, however, that state water rights should prevail over the restrictions set forth in the Act. Such an interpretation would render the Act a nullity. The Act provides no exemption from compliance to persons possessing state water rights . . . .

*Id.* (citations omitted).

This interpretation is supported by the absence of a provision in the ESA equivalent to § 1251(g) of the FWPCA, which states: “It is the policy of Congress that the authority of each State to allocate quantities of water within its jurisdiction shall not be superseded, abrogated or otherwise impaired by this chapter.” 33 U.S.C. § 1251(g) (1988).
Verity, the National Marine Fisheries Service (NMFS)\textsuperscript{272} issued regulations requiring shrimpers in Louisiana to install turtle-excluding devices (TED's) on trawlers of 23 feet or longer to prevent takes of endangered sea turtles.\textsuperscript{273} Based on the evidence that shrimpers were likely causing takes of sea turtles, the court reasoned that the NMFS did not act arbitrarily and capriciously by requiring the use of TED's.\textsuperscript{274} The court, in deciding the issue of whether the regulations were arbitrary and capricious, necessarily determined that the NMFS had authority to issue such regulations.\textsuperscript{275} The court based the NMFS' authority on section 11(f).\textsuperscript{276} The Fifth Circuit, in affirming the district court, held that the NMFS could issue regulations requiring the use of TED's even if the regulations did not actually ensure the survival of the species.\textsuperscript{277}

One other case confirms that the FWS has authority to issue regulations prohibiting otherwise lawful behavior. In Connor v. Andrus, the court considered the FWS' ban against hunting the Mexican Duck.\textsuperscript{278} The court overturned the ban, finding that it would not promote conservation of the species.\textsuperscript{279} However, the court implicitly

\textsuperscript{272} The NMFS, a subdivision of the Commerce Department, and the FWS have similar obligations and authority under the ESA because the ESA provides that the Commerce Department and the Department of the Interior have concurrent jurisdiction. See 16 U.S.C. § 1532(15).
\textsuperscript{273} 681 F. Supp. 1178, 1180 (E.D. La. 1988), aff'd, 853 F.2d 322 (5th Cir. 1988).
\textsuperscript{274} Id. at 1183-84.
\textsuperscript{275} Id. at 1182.
\textsuperscript{276} Id. at 1182 n.1; see supra notes 254-56 and accompanying text for a discussion of § 11(f). The Fifth Circuit affirmed the decision of the district court. Louisiana ex rel. Guste v. Verity, 853 F.2d 322 (5th Cir. 1988). The Fifth Circuit analyzed § 4(d) when determining the NMFS' authority to issue the regulations. Id. at 325. However, the court's reliance on this provision is surprising because there is no mention of it in the district court's opinion. See Verity, 681 F. Supp. at 1178. Moreover, the Fifth Circuit misunderstood § 4(d). Section 4(d) permits the Secretary to issue regulations to bring threatened species within the scope of § 9(a)(1)-(2). 16 U.S.C. § 1533(d) (prohibiting takes of endangered species). However, § 4(d) is not applicable because four of the five turtles at issue are endangered, not threatened. Verity, 853 F.2d at 325 n.2.

Section 4(d) is also not applicable to the Edwards species because they are resident species, and Texas has entered into a cooperative agreement with the FWS. See 16 U.S.C. § 1533(d); Cooperative Agreement Between Texas Parks & Wildlife Department & United States Fish & Wildlife Service (Dec. 23, 1987) (on file with the Ecology Law Quarterly). Because Texas has not promulgated regulations to protect the Edwards species through controls on withdrawals, § 4(d) is not applicable. 16 U.S.C. § 1533(d); see also supra part II.B (discussing Texas' failure to regulate pumping from the Aquifer).

\textsuperscript{277} Verity, 853 F.2d at 332; Bonnett & Zimmerman, supra note 264, at 159-60.
\textsuperscript{279} Id. The Fifth Circuit in Verity disagreed with Connor to the extent that Connor held that the FWS was only authorized to regulate hunting if it actually conserved the species. Verity, 853 F.2d at 333; Bonnett & Zimmerman, supra note 264, at 160 n.457.
recognized that such a ban is authorized if it would promote the conservation of a listed species.\textsuperscript{280} These cases suggest that federal agencies may regulate private activities if such regulation is necessary to conserve listed species. Just as the NMFS was authorized to issue regulations requiring shrimpers to install TED's and the FWS was authorized to issue regulations banning hunting of the Mexican Duck, by analogy, the FWS is authorized to regulate withdrawals to the extent necessary to conserve and to avoid takes of the Edwards species.

Undoubtedly, FWS regulation of the Aquifer would be extremely controversial.\textsuperscript{281} It is not disputed that regulation of water is a power that traditionally falls within the realm of state authority.\textsuperscript{282} However, this recognition does not compel the conclusion that state authority concerning groundwater should prohibit FWS regulations designed to conserve the Edwards species.

\textbf{B. Private Adjudication}

If the FWS does not regulate withdrawals to conserve and prevent harm to the Edwards species, litigation by a private plaintiff may accomplish this purpose. A plaintiff can sue either the FWS or a class of pumpers for violations of the ESA.\textsuperscript{283}

Several provisions of the ESA impose duties that a private plaintiff can enforce through litigation. First, a plaintiff can proceed against the FWS under section 7(a)(1), which requires the FWS to use its authority to conserve listed species,\textsuperscript{284} and section 9, which prohibits the FWS from taking listed species.\textsuperscript{285} Second, a plaintiff can litigate against the class of pumpers whose withdrawals of Aquifer water directly harm the Edwards species.\textsuperscript{286} This is possible because section 9 prevents any person from taking endangered species.\textsuperscript{287}

\textsuperscript{280} See Connor, 453 F. Supp. at 1041 (stating that the Secretary has an affirmative duty to bring species to a point where they can be removed from protective status, but that such duty is not met by promulgating regulations that do not attack the cause of the species' depletion).


\textsuperscript{283} See 16 U.S.C. § 1540(g). Section 11(g) states in relevant part: "Except as provided in paragraph (2) of this subsection any person may commence a civil suit on his own behalf . . . to enjoin any person, including the United States and any other governmental instrumentality or agency . . . who is alleged to be in violation of any provision of this chapter or regulation issued under authority thereof . . . ." Id. § 1540(g)(1)(A).

\textsuperscript{284} Id. § 1536(a)(1); see infra part VI.B.1.a.

\textsuperscript{285} 16 U.S.C. § 1538(a)(1)(B); see infra part VI.B.1.b.

\textsuperscript{286} See infra part VI.B.2.

\textsuperscript{287} 16 U.S.C. § 1538(a)(1). Withdrawals by pumpers have a significant effect on springflow from the Aquifer; thus a suit seeking to enjoin a class of pumpers who make grave withdrawals is a possibility for private plaintiffs. See supra part I.C.
Even so, the Aquifer dilemma implicates state water law and state sovereignty. Ideally, Texas, and not the federal courts, should solve the dilemma. Accordingly, even if a court finds liability, before it issues an injunction to reduce withdrawals, it should defer to the State of Texas. Deference is advisable because of the polycentric nature of the Aquifer dilemma and the quasi-legislative role that a court would have to assume in creating a regulatory scheme to limit withdrawals. However, if Texas does not have the political will to adequately address the issues involved, the federal courts must fashion a remedy to implement the ESA and regulate withdrawals from the Aquifer.

1. Private Suit Against the U.S. Fish and Wildlife Service

The citizen suit provision of the ESA permits a private plaintiff to file suit seeking to enjoin the FWS for alleged violations of "any provision of [the ESA]." Therefore, a party can sue the FWS to enforce a number of mandatory duties. First, a plaintiff can sue the FWS for directly violating section 7(a)(1)'s requirement that the FWS act affirmatively to conserve the Edwards species. Second, a party can sue the FWS for takings of the Edwards species in violation of section 9(a)(1). This section 9 suit can be premised on two separate theories: (1) the alleged violations of section 7(a)(1)'s requirement to act affirmatively to conserve the Edwards species resulted in a take, or (2) the FWS caused takes of the Edwards species by failing to develop and implement a recovery plan as required by section 4(f).

a. Violations of Section 7(a)(1) of the Endangered Species Act

A private plaintiff can sue the FWS for violating section 7(a)(1). This section requires the FWS to use its authority in furtherance of the ESA's purposes. Numerous courts have held that section 7(a)(1) imposes an affirmative obligation to conserve listed

288. See infra part VI.D.
289. See infra part VI.C-D.
291. Id. § 1536(a)(1); see infra part VI.B.1.a.
292. 16 U.S.C. § 1538(a)(1); see infra part VI.B.1.b.
293. 16 U.S.C. § 1536(a)(1); see infra part VI.B.1.b.i.
294. 16 U.S.C. § 1533(f); see infra part VI.B.1.b.ii.
296. Id. Standing is conferred by § 11(g)(1)(A) because the Secretary's failure to act as required by § 7(a)(1) is a violation of the ESA. See id. § 1540(g)(1)(A). Moreover, a plaintiff must establish a showing of injury in fact. See Lujan v. Defenders of Wildlife, 112 S. Ct. 2130, 2136 (1992); Swan View Coalition v. Turner, 824 F. Supp. 923, 928-30 (D. Mont. 1992).
species. In *Pyramid Lake Paiute Tribe of Indians v. United States Department of the Navy*, the court held that this obligation applies to all federal agencies, including the FWS. The court based this conclusion on the definition of conserve as used in sections 2(b) and 2(c), which outline the purposes and policy of the ESA. The court addressed the apparent inconsistency between the language used in section 7(a)(1) and section 2(c)(1). The court reasoned that the two provisions are consistent and indicate that the affirmative duty applies to the FWS. Section 7(a)(1) "merely points out that in exercising their duty to conserve, non-Interior Department agencies must do so in consultation with the Secretary. After all, it would have made no sense for Congress to have required the Interior Department . . . to consult with itself." 

In order to satisfy its section 7(a)(1) obligation, the FWS must use all methods and procedures necessary to delist the Edwards species. The Supreme Court has held that this is required because Congress intended to halt and reverse the trend toward species extinc-

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297. *Pyramid Lake Paiute Tribe of Indians v. United States Dep’t of the Navy*, 898 F.2d 1410, 1417 (9th Cir. 1990); *National Wildlife Fed’n v. National Park Serv.*, 669 F. Supp. 384, 387 (D. Wyo. 1987); *Defenders of Wildlife v. Andrus*, 428 F. Supp. 167 (D.D.C. 1977). 298. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1410, 1416 & n.15, 1417; see also *Carson-Truckee Water Conservancy Dist. v. Clark*, 741 F.2d 257, 261 (9th Cir. 1984), cert. denied, 470 U.S. 1083 (1985) (finding that the duty to conserve is enforceable against the Secretary of the Interior). 299. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1416 & n.14, 1417. Section 2(b) states: "The purposes of this chapter are to provide a means whereby the ecosystems upon which endangered species . . . depend may be conserved . . . ." 16 U.S.C. § 1531(b) (emphasis added). Section 2(c) states: "It is further declared to be the policy of Congress that all Federal departments and agencies shall seek to conserve endangered species . . . ." Id. § 1531(c) (emphasis added). Section 3(3) states: "The term ‘ conserve’ . . . mean[s] to use . . . all methods and procedures which are necessary to bring any endangered species . . . to the point at which the measures provided pursuant to this chapter are no longer necessary." Id. § 1532(3). 300. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1416 & n.15, 1417. The court noted that § 7(a)(1) and § 2(c)(1) both discuss the duty to conserve in nearly identical terms. Section 7(a)(1) states that agencies shall "utilize their authorities in furtherance of the purposes of [the Act] by carrying out programs for the conservation of endangered species." 16 U.S.C. § 1536(a)(1). Section 2(c)(1) states that agencies "shall seek to conserve endangered species . . . and shall utilize their authorities in furtherance of the purposes of [the ESA]." Id. § 1531(c)(1). 301. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1416-17. 302. Id. Legislative history confirms the conclusion that the FWS has an affirmative duty to conserve under § 7(a)(1). A House report on the ESA provides: "[Section 7] requires the Secretary [of the Interior] and the heads of all other Federal departments and agencies to use their authorities in order to carry out programs for the protection of endangered species." H.R. Rep. No. 412, 93d Cong., 1st Sess. 14 (1973); see also *Defenders of Wildlife v. EPA*, 882 F.2d 1294, 1299 (8th Cir. 1989) ("The ESA thus imposes substantial and continuing obligations on federal agencies."). 303. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1416.
However, it is widely "recognized that the Secretary is to be afforded some discretion in ascertaining how best to conserve under section 7(a)(1)." Thus, the relevant inquiry is at what point does the FWS' inaction violate section 7(a)(1) by being arbitrary and capricious.

In *Pyramid Lake*, the court held that the agency was not required to adopt the most conserving measures. According to the Ninth Circuit, the standard by which to judge an agency's action or inaction under section 7(a)(1) is whether the action or inaction caused a significant effect on preservation. Thus, if an agency's action or inaction only has an insignificant effect on preservation, the agency is not acting arbitrarily and capriciously. Applying this standard, the *Pyramid Lake* court found that the Department of the Navy did not violate the ESA because its failure to act in a more conserving manner would only have an "insignificant effect on preservation."

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305. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1418; *Carson-Truckee Water Conservancy Dist.*, 741 F.2d at 262 (finding that consulting agencies do not have to accept FWS recommendations); *see* 16 U.S.C. § 1536(b)(3)(A).

306. Judicial review of agency action under the ESA is governed by the arbitrary and capricious standard set forth in the Administrative Procedure Act, 5 U.S.C. § 706(2) (1988). Sierra Club v. Marsh, 816 F.2d 1376, 1384 (9th Cir. 1987); National Wildlife Fed'n v. Coleman, 529 F.2d 359, 371-72 (5th Cir. 1976), *cert. denied*, 429 U.S. 979 (1976). The arbitrary and capricious standard permits the court to ascertain whether "the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment [by the agency]." *Citizens To Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971); *Coleman*, 529 F.2d at 372.

Although the agency's action is not shielded from "thorough, probing, in-depth review" by the court, under the arbitrary and capricious standard, the ultimate scope of review is narrow. *Citizens To Preserve Overton Park, Inc. v. Volpe*, 401 U.S. at 415. Thus, "courts are not empowered to substitute their judgment for that of the agency." *Louisiana ex rel. Guste v. Verity*, 853 F.2d 322, 327 (5th Cir. 1988). Rather, the court's role "is to review the agency action to determine whether the decision 'was based on a consideration of the relevant factors and whether there was a clear error of judgment.'" *Id.* (quoting *Motor Vehicles Ass'n v. State Farm Mut. Auto. Ins.*, 463 U.S. 29, 43 (1983)). Further, "the agency's decision need not be ideal, so long as it is not arbitrary or capricious, and so long as the agency gave at least minimal consideration to relevant facts contained in the record." *Id.*

307. In this case, the plaintiff tribe sued the Department of the Navy, alleging that its practices in leasing acreage and contiguous water rights violated the ESA because the Navy's actions were not the most conserving measures that could have been adopted. *Pyramid Lake Paiute Tribe of Indians*, 898 F.2d at 1410.

308. *Id.* at 1419.

309. *Id.*

310. *Id.* at 1419-20.
A more stringent standard was adopted in *Defenders of Wildlife v. Andrus*. In *Andrus*, the court held that the FWS must utilize all means necessary to "bring these species back from the brink so that they may be removed from the protected class." Applying this standard, the court found that the FWS violated section 7(a)(1). The court reasoned that permitting twilight hunting of nonlisted species posed a threat to listed species. The court made this finding despite the FWS' argument that it had satisfied the section 7(a)(1) obligation to conserve listed species by focusing on habitat protection. Because the court found that FWS' habitat protection activities were insufficient to bring the listed species back from the brink, twilight hunting had to be discontinued.

The FWS' complete failure to act to conserve the Edwards species clearly violates section 7(a)(1). Judged by the *Andrus* standard, a court should find that the FWS has violated section 7(a)(1) because it has not regulated withdrawals, even though regulation is necessary to delist the Edwards species. Even under the *Pyramid Lake* standard, a court should find that the FWS' inaction has violated section 7(a)(1). The FWS' inaction is distinguishable from the action of the Department of the Navy. In *Pyramid Lake*, the Department of the Navy had acted to conserve the listed species. In contrast, the FWS has done nothing to conserve the Edwards species. The FWS has not developed a recovery plan to conserve the Edwards species dependent on Comal Springs and has not implemented the San Marcos Recovery Plan, which was developed to conserve the Edwards species dependent on San Marcos Springs. Moreover, the FWS has not sought to reduce withdrawals, and no evidence exists that FWS has even considered such regulation. This inaction has a significant

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312. *Id.* at 170.
313. *Id.*
314. *Id.*
315. *Id.*
316. *Id.*
317. *See* Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 43 (W.D. Tex. Jan. 30, 1993) ("The listed species will become extinct unless an aquatic habitat with appropriate volume, flow and quality characteristics is maintained in the Comal and San Marcos Ecossystems."); *see also* SAN MARCOS RECOVERY TEAM, *supra* note 258, at i ("The most serious [threat to the continued existence of the San Marcos River ecosystem] is cessation of flow of thermally constant, clear, clean water from the San Marcos Springs due to overdrafting of groundwater from the Edwards Aquifer.").
318. *Pyramid Lake Paiute Tribe of Indians v. United States Dep't of the Navy*, 898 F.2d 1410, 1419 (9th Cir. 1990).
319. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 43, 48-49.
320. *Id.* at 39.
321. *Id.* at 42.
322. *See supra* part III.
impact on conservation because excessive withdrawals are the root of the Edwards species' problems. Therefore, the FWS' failure to regulate withdrawals should be found arbitrary and capricious because regulation is necessary to conserve the Edwards species.

A court should reject any interpretation of the ESA by the FWS that the agency is not required to regulate withdrawals. Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc. held that a court should defer to an agency's construction of a statute unless the language of the statute is unambiguous or Congress has clearly expressed a contrary interpretation. The language of the ESA is unambiguous: the FWS has an affirmative duty to use all methods necessary to delist listed species. Moreover, Congressional intent demonstrates that the FWS must use all of its authorities to protect endangered species. Thus, the FWS is required to regulate Aquifer withdrawals because a reduction in withdrawals is necessary to conserve the Edwards species.

b. Violations of Section 9 of the Endangered Species Act

Section 9 of the ESA prohibits any "person," defined broadly to include governmental entities, from taking a listed species. As used

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323. See supra part I.C; see also supra note 317.
324. There has been no official interpretation by the FWS concerning whether it is required by § 7(a)(1) to regulate withdrawals. However, the SMRP evidences the FWS' knowledge that regulation of withdrawals is necessary to conserve the Edwards species. See SAN MARCOS RECOVERY TEAM, supra note 258, at 63; Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 48 (stating that FWS Regional Director Spear testified that pumping controls are necessary). This recognition should undermine any FWS argument that it is not required by § 7(a)(1) to regulate pumping because § 7(a)(1) requires the FWS to use all means necessary to delist the Edwards species. See 16 U.S.C. § 1536(a)(1).
325. 467 U.S. 837, 842-43 (1984). Where Congress is ambiguous or expressly leaves a "gap" for the agency to fill, the court's inquiry is limited to ensuring that the agency's interpretation "is based on a permissible construction of the statute." Id. at 843.
326. Id.
327. See 16 U.S.C. §§ 1531(c), 1532(3), 1536(a)(1); see supra note 257 and accompanying text.
328. TVA v. Hill, 437 U.S. 153, 184 (1978) ("The plain intent of Congress in enacting this statute was to halt and reverse the trend toward species extinction, whatever the cost.").
329. In Defenders of Wildlife v. Andrus, the court held that the FWS must do far more than merely avoid elimination of listed species. 428 F. Supp. 167, 170 (D.D.C. 1977). "It must bring these species back from the brink so that they may be removed from the protected class, and it must use all methods necessary to do so." Id. Defenders of Wildlife v. Andrus suggests that any FWS interpretation that the FWS is not required to regulate pumping is not entitled to deference under Chevron U.S.A. because Andrus held that the plain meaning of § 7(a)(1) and the legislative history of the ESA demand that the FWS bring the listed species back from the brink. See id. at 169-70.
330. 16 U.S.C. § 1538(a)(1)(B). The ESA defines "person" to include "any individual, corporation, partnership, trust, association, or any other private entity; or any officer, employee, agent, department, or instrumentality" of the federal, state, or local government. Id. § 1532(13).
in the ESA, "[t]he term ‘take’ means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the FWS has defined the term "harm," as used in the ESA’s definition of take, to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing behavioral patterns, including breeding, feeding, or sheltering.

The key to whether a plaintiff may sue under section 9 for takes of the Edwards species is whether the FWS’ definition of harm properly includes habitat modification. Currently, there is a split in the circuits over whether the FWS’ definition of harm is a reasonable interpretation of the ESA. Recently, in *Sweet Home Chapter of Communities for a Greater Oregon v. Babbitt*, the D.C. Circuit held that the FWS’ definition of harm as including habitat modification is neither clearly authorized by Congress nor a reasonable interpretation of the ESA. This opinion was issued on rehearing over a vehement dissent by Chief Judge Mikva. In contrast, the Ninth Circuit, in *Palila v. Hawaii Department of Land & Natural Resources*, specifically addressed the appropriateness of the inclusion of habitat modification in the definition of harm and held that the FWS’ interpretation of harm is consistent with the language, purpose, and legislative history of the ESA.

On January 6, 1995, the United States Supreme Court granted certiorari to review the D.C. Circuit’s decision in *Sweet Home*. The Supreme Court should settle the split among the circuits by reversing the D.C. Circuit because that court failed to defer to the FWS’ interpretation of harm under the ESA as directed by the *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.* standard.

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331. *Id.* § 1532(19).
332. 50 C.F.R. § 17.3 (1993).
333. 17 F.3d 1463, 1464, 1472 (D.C. Cir. 1993).
334. *Id.* at 1472-78. Originally, Judge Mikva, writing for the majority, held that the definition of harm was authorized. See *Sweet Home Chapter of Communities for a Greater Or. v. Babbitt*, 1 F.3d 1, 2 (D.C. Cir. 1993). However, on rehearing Judge Williams changed his vote to join the original dissenter, Judge Sentelle, and form the current majority. See *Sweet Home Chapter of Communities for a Greater Or.*, 17 F.3d at 1472.
335. 852 F.2d 1106, 1108 (9th Cir. 1988); see also *Sierra Club v. Yeutter*, 926 F.2d 429, 438-39 (5th Cir. 1991) (relying on habitat destruction to find that the defendant violated § 9 and thereby implicitly approving the FWS’ definition of harm).
requires a reviewing court to first determine whether Congress has spoken unambiguously to the precise question at issue in the statute. If the statute is clear, the court and the agency must give effect to Congress' plain intent. However, if the act is ambiguous, the court must then determine whether the agency's interpretation is a "permissible construction of the statute." The reviewing court "need not conclude that the agency construction was the only one [the agency] permissibly could have adopted to uphold the construction or even the reading the court would have reached if the question initially had arisen in a judicial proceeding."

The ESA is ambiguous because Congress has not spoken to the definition of harm. Therefore, the issue is whether the FWS' interpretation of harm as encompassing habitat destruction is permissible. Addressing this second prong of the Chevron test, Judge Mikva persuasively argued that the language, structure, and legislative history of the ESA indicate that the definition of harm can encompass habitat modification. The Ninth Circuit reached the same conclusion, stating: "The Secretary's inclusion of habitat destruction that could result in extinction follows the plain language of the statute because it serves the overall purpose of the Act, which is 'to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved . . . .'"

The analysis of Judge Mikva and of the Ninth Circuit should be adopted by the Supreme Court in resolving the circuit split over the inclusion of habitat modification in the definition of harm. First, the language of the ESA does not suggest that the definition of harm cannot include habitat modification. The rule of statutory construction, noscitur a sociis, which means a word is known by the company it keeps, does not demand that harm must be construed narrowly.

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341. Id.
342. Id. at 843.
343. Id. at 843 n.11. The burden to establish that the agency's interpretation is impermissible is on the party seeking to invalidate the interpretation. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1473 (Mikva, C.J., dissenting).
344. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1473-74 (Mikva, C.J., dissenting).
345. Id. at 1474 (Mikva, C.J., dissenting).
346. Id. at 1476-77 (Mikva, C.J., dissenting).
347. Palila v. Hawaii Dep't of Land & Natural Resources, 852 F.2d 1106, 1108 (9th Cir. 1988) (quoting 16 U.S.C. § 1531(b)).
348. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1474-76 (Mikva, C.J., dissenting).
349. Id. In the majority's view, the immediate context of the word "harm" argues "strongly against any broad reading," such as that given by the FWS. Id. at 1464. The majority found that, with the single exception of harm, the words defining "take" "contemplate the perpetrator's direct application of force against the [species] taken: 'harass, harm,
Harm is not the only word listed in the definition of take, which has the potential to be construed broadly. As Judge Mikva observed, the FWS could have derived a prescription against habitat modification from the words "kill," "wound," and "harass," as well as from the word "harm." For instance, the House report accompanying the ESA specifically comments on the breadth of "harassment," stating that take "includes harassment, whether intentional or not. This permits the FWS, for example, to regulate or prohibit the activities of bird watchers where the effect of their activities might disturb the birds and make it difficult for them to raise their young." Thus, both harm and harass legitimately may be broadly construed.

Second, Judge Mikva stated that there is nothing in the structure of the ESA that indicates habitat modification should not be included in the definition of harm. As such, he correctly dismissed as speculation the majority's contention that the exclusive instrument for preventing habitat modification on private land was section 5's provision for federal land acquisition. Third, the legislative history of the ESA is inconclusive as to whether harm was meant to include habitat modification. More importantly, under a Chevron inquiry, "there is nothing to suggest that Congress chose the definition [of take] it did in order to exclude habitat modification." Finally, the purpose of the ESA is to conserve ecosystems upon which endangered and threatened species depend. Defining take to include habitat modification would be entirely consistent with this

pursue, hunt, shoot, kill, trap, capture, or collect." Id. For the definition of take, see supra text accompanying note 331.

350. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1474-76 (Mikva, C.J., dissenting).

351. Id.

352. H.R. Rep. No. 412, supra note 302, at 11. In addition, "harass" is interpreted by the FWS nearly as broadly as harm. See 50 C.F.R. § 17.3(c) ("Harass in the definition of 'take' in the Act means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.").

353. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1475 (Mikva, C.J., dissenting).

354. Id.

355. Id. at 1476 (Mikva, C.J., dissenting); see also H.R. Rep. No. 412, supra note 302, at 15 (stating that the ESA "includes, in the broadest possible terms, restrictions on the taking, importation and exportation, and transportation of [endangered] species, as well as other specified acts"); S. Rep. No. 307, 93d Cong., 1st Sess. 7 (1973), reprinted in 1973 U.S.C.C.A.N. 2989, 2995 (stating that the term "take" is defined in the broadest possible manner to include any conceivable way a person can take a listed species).

356. Sweet Home Chapter of Communities for a Greater Or., 17 F.3d at 1476 (Mikva, C.J., dissenting).

purpose.\textsuperscript{358} For these reasons, the \textit{Sweet Home} court should have deferred to the FWS' reasonable interpretation. After all, "[t]ies are supposed to go to the dealer under \textit{Chevron}."\textsuperscript{359}

This comment will apply the FWS' definition of harm because \textit{Sweet Home} is currently only applicable in the District of Columbia.\textsuperscript{360} Not only is \textit{Sweet Home} not binding precedent in other jurisdictions, but the Aquifer is located in Texas and the Fifth Circuit implicitly approved of the FWS' definition of harm in 1991 when it affirmed a finding of take based on habitat modification.\textsuperscript{361} Even if a court presiding over Aquifer litigation determines that Fifth Circuit precedent is not directly on point concerning the definition of harm, the court should nevertheless defer to the FWS' definition based on \textit{Chevron}.\textsuperscript{362}

i. Section 9 Takes by the U.S. Fish and Wildlife Service Under Section 7(a)(1)

The FWS' liability under section 9 can be premised upon the fact that the FWS has failed to regulate withdrawals, as required by section 7(a)(1).\textsuperscript{363} There is little doubt that excessive withdrawals from the Edwards Aquifer are the direct cause of loss of springflow.\textsuperscript{364} Applying the FWS' definition of harm,\textsuperscript{365} these reduced springflows have substantially modified the habitat of the Edwards species.\textsuperscript{366} The FWS has failed to discharge its statutory duty and the result has been a take of the Edwards species.

\textsuperscript{358} \textit{Sweet Home Chapter of Communities for a Greater Or.,} 17 F.3d at 1478 (Mikva, C.J., dissenting).

\textsuperscript{359} \textit{Id.} at 1473 (Mikva, C.J., dissenting).

\textsuperscript{360} \textit{See Justice Files for Rehearing of Habitat Modification Case,} Nat'l Env't Daily (BNA) (Apr. 28, 1994), available in LEXIS, BNA Library, BNANED File. There is no indication in the ESA that the D.C. Circuit's interpretation is binding on the other circuits. \textit{See} 16 U.S.C. § 1540(g)(3)(A) (providing that a suit can be brought in any United States district court). As such, each district court is bound to follow the precedent of its circuit. \textit{See}, \textit{e.g.}, Lawrence C. Marshall, "\textit{Let Congress Do It}”: \textit{The Case for an Absolute Rule of Statutory State Decisis}, 88 MICH. L. REV. 177, 178 (1989). Of course, this is not to deny that the D.C. Circuit is influential in matters of statutory interpretation. \textit{See}, \textit{e.g.}, City of Westfield v. Federal Power Comm'n, 551 F.2d 468, 468 (1st Cir. 1977) (noting that the views of the Court of Appeals for the District of Columbia carry great weight in administrative law matters).

\textsuperscript{361} \textit{See Sierra Club v. Yeutter,} 926 F.2d 429, 439 (5th Cir. 1991).

\textsuperscript{362} \textit{See Strong v. United States,} 5 F.3d 905, 906-07 (5th Cir. 1993) (finding that the National Marine Fisheries Service's determination that feeding the endangered Bottlenose Dolphin constitutes a take because it disturbs or harasses the species deserves deference under \textit{Chevron}).

\textsuperscript{363} \textit{See supra} part VI.B.1.a.

\textsuperscript{364} \textit{See supra} part I.C.

\textsuperscript{365} \textit{See supra} note 332 and accompanying text.

\textsuperscript{366} \textit{See Sierra Club v. Lujan,} No. MO-91-CA-069, slip op. at 12-17 (W.D. Tex. Jan. 30, 1993). For a discussion of how pumping has affected the Aquifer, Comal and San Marcos Springs, and the Edwards species, see \textit{supra} part I.C.
ii. Section 9 Takes by the U.S. Fish and Wildlife Service Under Section 4(f)

The second theory upon which to base a section 9 suit against the FWS is the agency's failure to develop and implement a recovery plan for the conservation and survival of the listed species as required by section 4(f).\footnote{367} The plain language of section 4(f) and judicial interpretations of analogous provisions of section 4 suggest that section 4(f) should be interpreted to place a nondiscretionary duty on the FWS to develop and implement a recovery plan.\footnote{368} The ESA states that the Secretary "shall develop and implement" a recovery plan.\footnote{369} Under the canons of statutory construction, one must presume that the particular language used by an act is intended to convey the normal meaning of the words used.\footnote{370} In this case, "shall" implies an obligation rather than an invitation.\footnote{371} This interpretation of "shall" is consistent with the interpretation normally adopted by courts.\footnote{372}

The section 4(f) requirement that the FWS, "in developing and implementing recovery plans, \textit{shall}, to the maximum extent practicable," include certain numerated items further supports the proposition that section 4(f) imposes a nondiscretionary duty.\footnote{373} This provision dictates the appropriate factors to be considered in determining whether a recovery plan is required as well as the necessary components of such a plan.\footnote{374}

\footnote{367} 16 U.S.C. § 1533(f)(1); Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 23.
\footnote{368} But cf. National Wildlife Fed'n v. National Park Serv., 669 F. Supp. 384 (D. Wyo. 1987). In National Wildlife Federation, the court stated in dicta that § 4(f) imposes nothing more than a discretionary duty. \textit{Id.} at 388. The court based this conclusion on the fact that the statute grants an exception. \textit{Id.} However, the court's holding turned on the fact that the FWS had determined that a plan would not conserve the species. \textit{Id.} at 388-89. Thus, the FWS' failure to implement a plan was excused because it fell within the exception to § 4(f). \textit{Id.}
\footnote{369} 16 U.S.C. § 1533(f)(1) ("The Secretary shall develop and implement plans . . . for the conservation and survival of endangered species and threatened species listed pursuant to this section . . . .")
\footnote{372} See Brock v. Pierce County, 476 U.S. 253, 260 n.7 (1986).
\footnote{373} See 16 U.S.C. § 1533(f) (emphasis added).
\footnote{374} \textit{Id.} § 1533(f)(1). This provision states:

The Secretary, in developing and implementing recovery plans, \textit{shall}, to the maximum extent practicable—

(A) give priority to those endangered species or threatened species . . . that are most likely to benefit from such plans, particularly those species that are, or may be, in conflict with construction or other development projects or other forms of economic activity;

(B) incorporate in each plan—
In an analogous provision of section 4, the ESA states that the FWS shall designate critical habitat concurrently with making the determination to list a species unless the critical habitat is indeterminable at that time. This provision has been interpreted to impose a nondiscretionary duty. Comparing the statutory directives of these analogous provisions, it is reasonable to conclude that section 4(f) imposes a nondiscretionary duty to develop and implement a recovery plan unless it will not conserve the species.

Simply because section 4(f) states an exception, as does section 4(a)(3)(A), does not lead to the conclusion that the duty is discretionary. The FWS is required to conserve the listed species unless a recovery plan would not conserve the species. The FWS has never contended that a recovery plan for the Edwards species would not conserve the species. Therefore, section 4(f) should be read to impose a nondiscretionary duty on the FWS to develop and implement a recovery plan, unless the FWS determines that a recovery plan will not conserve the Edwards species.

The recovery plan mandate is twofold: a plan must be both developed and implemented. In 1985, the FWS adopted the San Marcos Recovery Plan, which only addresses the species dependent on the San Marcos ecosystem. The SMRP identifies excessive pumping as

(i) a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species;
(ii) objective, measurable criteria which, when met, would result in a determination...that the species be removed from the list; and
(iii) estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal.

_id._ (emphasis added).

375. See id. § 1533(a)(3)(A).
376. See, e.g., Northern Spotted Owl v. Lujan, 758 F. Supp. 621, 624-26 (W.D. Wash. 1991) (stating that the Secretary's discretion to decline to make a habitat designation was intended by Congress to be circumspect, and only a “single exception to this duty was recognized where habitat designation was found ‘not prudent’ and in the best interest of the species”).
381. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 40-43.
382. See SAN MARCOS RECOVERY TEAM, supra note 258, at i.
the factor most greatly affecting the Edwards species and states that pumping controls are required to delist the Edwards species. However, the FWS has not implemented the SMRP: it has neither taken the steps to limit pumping nor to determine the necessary minimum springflow. The FWS also has not developed a recovery plan for the remaining Edwards species that are dependent on Comal Springs. Therefore, the FWS has failed to fulfill its section 4(f) duty regarding the Edwards species dependent on both the Comal and San Marcos ecosystems.

The FWS' failure to satisfy its nondiscretionary duty under section 4(f) caused takes in violation of section 9 because the FWS neither developed nor provided the objective criteria required to be included in a recovery plan. As a result, neither the State of Texas nor the pumpers knew the point at which takes occurred due to reduced springflow. Without this knowledge, neither was prepared to prevent takes. Consequently, Edwards species were taken in 1989 and 1990 and continue to be imperiled by excessive pumping.

iii. Current Case Law on Section 9 Takes by Government Agencies

Several cases suggest that the FWS took Edwards species in violation of section 9. First, in Sierra Club v. Yeutter, the Fifth Circuit affirmed the district court's finding that the United States Forest Service (USFS) violated section 9 by failing to fully implement the provisions of its wildlife management handbook for the Red Cockaded Woodpecker. This omission impaired the essential behavioral patterns of the Red Cockaded Woodpecker by permitting excessive harvesting of its habitat. The court based this conclusion on the statistical decline of the Red Cockaded Woodpecker population. Similarly, the FWS' omissions take the Edwards species: both the

383. Id.
384. See id. at 73-74.
385. Sierra Club v. Lujan, No. MO-91-CA-069, slip op. at 42-44.
386. Id. at 39.
387. Id. at 34.
388. Inaction is given the same treatment as agency action that effectuates a taking of a species listed pursuant to the ESA. See Defenders of Wildlife v. EPA, 688 F. Supp. 1334, 1353-54 (D. Minn. 1988), aff'd in part, rev'd in part, 882 F.2d 1294 (8th Cir. 1989); Sierra Club v. Marsh, 816 F.2d 1376, 1385 (9th Cir. 1987) (finding that positive management action could not be postponed without jeopardizing the endangered species and thus violating the ESA).
390. Sierra Club v. Lyng, 694 F. Supp. 1260, 1271 (E.D. Tex. 1988), aff'd in part, rev'd in part sub nom. Sierra Club v. Yeutter, 926 F.2d 429 (5th Cir. 1991). The court held that a take determination does not require proof of a death. Id. ("‘Harm’ does not necessarily require the proof of the death of specific or individual members of the listed species.").
391. Id.
FWS' failure to limit withdrawals, as required by section 7(a)(1), and its failure to provide necessary springflow information, as required by section 4(f), destroy the habitat of and harm the Edwards species.

Second, in *Defenders of Wildlife v. EPA*, the court held that EPA's continued registration of strychnine for aboveground use indirectly caused takes of listed species.\(^{392}\) Noting the indirect nature of the takes, the court stated: "A violation of section 9 can be attributed to federal agency action (or inaction) even when the agency does not directly cause the harm."\(^{393}\) EPA's continued registration of strychnine is analogous to the FWS' failure to limit withdrawals. In both cases, the agency's action indirectly leads to takes.\(^{394}\) Thus, *Defenders of Wildlife v. EPA* suggests that the FWS is guilty of taking Edwards species.

Third, in *Palila v. Hawaii Department of Land & Natural Resources*, the court held that the state agency's failure to remove feral sheep and goats from the habitat of an endangered species caused takes.\(^{395}\) The court found that the presence of sheep and goats harmed the listed species because the sheep and goats destroyed the habitat of the species.\(^{396}\) The failure to remove the herds in *Palila* is analogous to the FWS' failure to regulate withdrawals. That is, in both cases the agency failed to use its authority to prevent destruction of the listed species' habitat.

Finally, in *National Wildlife Federation v. Hodel*, the court held that the FWS violated section 9 by authorizing hunters to use lead shot ammunition, which resulted in the secondary poisoning of bald eagles.\(^{397}\) This case is analogous to the Aquifer dilemma; in both cases, the FWS failed to regulate the behavior of private actors.\(^{398}\) Due to this failure, listed species in each situation were indirectly taken.

The positions adopted by the courts in the cases above are proper because "[t]he prohibition against taking is broadly construed to prohibit nearly any activity which might adversely affect protected spe-

\(^{392}\) 688 F. Supp. at 1355-56.

\(^{393}\) *Id.* at 1353-54. Noting the "strong statutory presumption" in the ESA for the preservation of endangered species, the court found that "no level of threat to endangered species . . . can be deemed insignificant." *Id.* at 1354.

\(^{394}\) For a discussion of takes of the Edwards species due to the failure to regulate pumping of the Aquifer, see *supra* notes 157-70.

\(^{395}\) 639 F.2d 495, 497 (9th Cir. 1981).

\(^{396}\) *Id.*

\(^{397}\) 23 Env't Rep. Cas. (BNA) 1089, 1092-93 (E.D. Cal. 1985).

\(^{398}\) *Id.* (stating that measures put forth by the FWS would do nothing to mitigate the incidental taking of bald eagles); see *supra* notes 145-53 and accompanying text (stating that the FWS has not adopted a plan to regulate private withdrawals from the Aquifer).
cieties." Likewise, because the FWS' omissions have had "some prohibited impact on an endangered species," the FWS' failure to regulate withdrawals should constitute a take.

2. Private Suit Against Pumpers of the Edwards Aquifer

A plaintiff could initiate a suit against an individual pumper for a violation of section 9 of the ESA. As discussed above, section 9 requires all persons to refrain from taking endangered species and thus applies to entities who pump water from the Aquifer, as well as to the FWS. Such a suit would be premised on the proposition that every pumper takes Edwards species to the extent that its behavior contributes to the unacceptable decrease in springflow.

A suit against an individual pumper raises the issue of whether the pumper is the cause of the taking because no single pumper withdraws enough water to decrease springflow to the point at which habitat is destroyed. No court has addressed a similar causation problem.

Under the traditional view of the law, an actor's conduct is a cause in fact of an event only if the event would not have occurred "but for" that conduct. However, in cases where the combined conduct of two or more actors concurs to bring about the event, and strict application of the but for rule would absolve all of the actors of liability, a broader rule must be applied. In such cases, an actor's conduct is the cause in fact of the event if her conduct is a "substantial factor" in bringing about the event.

Under the substantial factor test, the question of causation may turn on the size of withdrawals made by the individual pumper defendant. Courts have refused to apply the substantial factor test in

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399. Defenders of Wildlife v. EPA, 688 F. Supp. 1334, 1351 n.33 (D. Minn. 1988), aff'd in part, rev'd in part, 882 F.2d 1294 (8th Cir. 1989); Sierra Club v. Marsh, 816 F.2d 1376, 1383 (9th Cir. 1987); see also S. REP. No. 307, supra note 355, at 7 (" 'Take' is defined . . . in the broadest possible manner to include every conceivable way in which a person [including federal agencies] can 'take' or attempt to 'take' any fish or wildlife.").

400. Defenders of Wildlife v. EPA, 882 F.2d 1294, 1300-01 (8th Cir. 1989) (quoting Palila v. Hawaii Dep't of Land & Natural Resources, 639 F.2d 495, 497 (9th Cir. 1981)).

401. 16 U.S.C. § 1538(a)(1)(B). As with a citizen suit filed against the FWS, a plaintiff must establish standing to sue. See supra note 296. Private pumpers cannot be sued under § 7 because that provision only addresses federal agencies or state agencies delegated federal tasks. See John Steiger, The Consultation Provision of Section 7(a)(2) of the Endangered Species Act and Its Application to Delegable Federal Programs, 21 ECOLOGY L.Q. 243, 244-46 (1994).

402. See supra part VI.B.1.b.


405. Id. § 41, at 266-67.

situations where the harm would occur even in the absence of the defendant's actions.\textsuperscript{407} In addition, in recent years the substantial factor test has often been invoked to aid the defendant in establishing that his conduct made an insubstantial contribution to the outcome, and, thus, liability should not be imposed.\textsuperscript{408} In the proposed suit, a possible result would be that the court would find that an individual farmer withdrawing for the purpose of irrigating cropland should be viewed as insignificant, while a defendant like the city of San Antonio, which withdraws in excess of 250,000 acre-feet per year, should be viewed as a significant cause in fact of the taking of the species.

There is an alternative argument to establish cause in fact under section 9. Because the conduct of individual pumpers is "so related" to the taking of the Edwards species, and their combined conduct viewed as a whole is the but for cause of the takings, the conduct of each pumper should be viewed as a cause in fact of the takings.\textsuperscript{409} Such a view of causation is consistent with the ESA and its purpose of protecting ecosystems on which endangered species depend. Because the prohibition against taking is construed broadly "to prohibit nearly any activity which might adversely affect protected species," absolving pumpers from liability because they do not independently lower springflow to the take level would be contrary to the ESA.\textsuperscript{410} For these reasons, a plaintiff should be able to prove that under the ESA individual members of a pumper class were the cause in fact of takes of the Edwards species.

Additionally, to the extent that an individual pumper contributes to the unacceptable decrease in springflow, it is also a proximate cause of the takes.\textsuperscript{411} An individual act, otherwise lawful or innocent by itself, may be the proximate cause of a harm when combined with the acts of others to cause damage.\textsuperscript{412} For example, if several defendants independently pollute a stream, the impurities traceable to each may be negligible and harmless, but all together may render the water unfit for use.\textsuperscript{413} In such a case, all polluters are the proximate cause.\textsuperscript{414} Indeed, pumpers are aware that springflow is directly related to the amount of pumping from the Aquifer and that their individual actions,
combined with the actions of other pumpers, harm the Edwards species.\textsuperscript{415}

However, because there are thousands of similarly situated pumpers, fairness dictates that a plaintiff should sue a defendant class.\textsuperscript{416} Moreover, certification of a defendant class is preferable.\textsuperscript{417} If a pumper class is not sued, the litigation would likely progress piecemeal, with the plaintiff suing the largest pumpers.\textsuperscript{418} This would not assure the springflow necessary to protect the Edwards species because not all pumping would be regulated.\textsuperscript{419} The certification of a defendant pumper class would also reduce litigation expenses by eliminating repetitive litigation.\textsuperscript{420} If the plaintiff, nevertheless, chooses to sue some smaller number of pumpers, the court may deem the absent pumpers necessary and indispensable parties and require the joinder of a defendant class under Rule 19 of the Federal Rules of Civil Procedure.\textsuperscript{421} A defendant class of pumpers would be both the cause in fact and the proximate cause of the takes because its behavior destroys the Edwards species’ habitat by decreasing springflow to an unacceptable level.\textsuperscript{422}

A defendant class of pumpers could be sued under Rule 23\textsuperscript{423} by suing a representative of the pumper class if four prerequisites are met.\textsuperscript{424} The trickiest issue lies within the fourth prerequisite: do the

\begin{itemize}
\item \textsuperscript{415} Sierra Club v. Lujan, No. MO-91-CA-069, judgment at 4 (W.D. Tex. Jan. 30, 1993). Even if a large pumper such as the city of San Antonio is viewed as both the cause in fact and the proximate cause of the takes, Rule 19 of the Federal Rules of Civil Procedure may still require other pumpers to be brought before the court. See infra text accompanying notes 437-41.
\item \textsuperscript{417} A. Peter Parsons & Kenneth W. Starr, Environmental Litigation and Defendant Class Actions: The Unrealized Viability of Rule 23, 4 Ecology L.Q. 881, 889 (1975).
\item \textsuperscript{418} See id.
\item \textsuperscript{419} See id. at 899-900.
\item \textsuperscript{420} See id. at 901.
\item \textsuperscript{421} Fed. R. Civ. P. 19(a)(1). Because neither the plaintiff nor any individual pumper before the court will likely have the interest of the absent pumpers at heart, the class of absent pumpers should be joined. See Robert E. Holo, Comment, Defendant Class Actions: The Failure of Rule 23 and a Proposed Solution, 38 UCLA L. Rev. 223, 264-74 (1990). If the plaintiff chooses not to sue a defendant class of pumpers, and the class is judged necessary under Rule 19, the defendant may petition the court under Rule 12(b)(7) to dismiss for failing to join a Rule 19 party. See Fed. R. Civ. P. 12(b)(7).
\item \textsuperscript{422} For a discussion of the threat that aggregate pumping poses to the Edwards species, see supra part I.C.
\item \textsuperscript{423} Fed. R. Civ. P. 23(a) ("One or more members of a class may sue or be sued as representative parties . . . ") (emphasis added); Note, Defendant Class Actions, 91 Harv. L. Rev. 630 (1978); 1 Herbert B. Newberg, Newberg on Class Actions §§ 4.45-4.70, at 373-421 (2d ed. 1985).
\item \textsuperscript{424} First, the class must be so numerous that joinder is impracticable. Fed. R. Civ. P. 23(a)(1). This prerequisite can easily be satisfied in the case at hand because there are thousands of pumpers. Second, there must be questions of law or fact common to the
representative defendants adequately and fairly protect the interests of the class?\textsuperscript{425} This is problematic because not all of the pumpers have identical interests.\textsuperscript{426} In fact, the interests of the pumpers are somewhat divergent.\textsuperscript{427} However, to the extent that the interests are divergent, the class could be broken into subclasses.\textsuperscript{428} The adequacy of actual representation cannot be assessed absent particular facts; however, there is no inherent conflict of interest that would prohibit adequate representation by a given defendant. After all, every pumper has an interest in claiming that pumping does not violate section 9. Determining a class representative would not be very troubling.\textsuperscript{429} The defendant intervenors in \textit{Sierra Club v. Lujan}\textsuperscript{430} could reasonably be determined to be adequate representatives for any necessary subclasses.\textsuperscript{431} Thus, the difficulties should not prohibit the formation or certification of a class. Without all pumpers before the court, those absent pumpers' interests will, as a practical matter, be adversely affected, and the status of this fragile resource will continually be in flux.

If the pumpers are a certifiable class under Rule 23(a),\textsuperscript{432} it appears that a Rule 23(b)(1)(B) class action could be maintained.\textsuperscript{433} A class. \textit{FED. R. CIV. P.} 23(a)(2). This is not normally a significant hurdle. According to Professor Wright, this requirement is always met if the case fits within a Rule 23(b) category. \textit{Wright, supra} note 19, at 473 n.14. Here, the common question of law and fact is whether the actions of the pumpers cause § 9 takes. Third, the defenses of the representative party must be typical of the defenses of the class. \textit{See FED. R. CIV. P.} 23(a)(3). This inquiry is generally viewed as nothing more than a restatement of the fourth prerequisite that the named defendants must adequately represent the class. \textit{FED. R. CIV. P.} 23(a)(4); \textit{Wright, supra} note 19, at 473 n.14; \textit{Note, supra} note 423, at 638. In this case, all of the defendant pumpers have an interest in arguing that pumping does not violate § 9.

425. \textit{FED. R. CIV. P.} 23(a)(4); \textit{see Hansberry v. Lee}, 311 U.S. 32, 40-41 (1940) (holding a constitutional lack of due process occurs in a case where it cannot be said that the action fairly ensures the protection of the interests of absent parties who are claimed bound by it).

426. \textit{See supra} part I.B.


428. \textit{FED. R. CIV. P.} 23(c)(4); \textit{see also} Parsons & Starr, \textit{supra} note 417, at 908-10.

429. Simply because the named defendant did not seek his or her status as a class representative does not mean that the person would not do a good job. \textit{Note, supra} note 423, at 639-40.


431. \textit{See supra} note 19 for a discussion of the parties involved in \textit{Sierra Club v. Lujan}. These representatives would likely be adequate because each has a personal interest to argue that pumping does not cause takes. \textit{See Note, supra} note 423, at 639.

432. Satisfying Rule 23(a) is a prerequisite to maintaining any type of class action. \textit{See FED. R. CIV. P.} 23(a). After the Rule 23(a) prerequisites are met, a class action must fall within Rule 23(b)(1), (b)(2), or (b)(3). \textit{Id.}

433. \textit{FED. R. CIV. P.} 23(b). It is of great practical significance that the action falls under either Rule 23(b)(1) or Rule 23(b)(2), but not under Rule 23(b)(3). If defendant pumpers were permitted to opt out under Rule 23(b)(3), multiple litigation would result, and the legal status of the Aquifer would continuously be in flux. \textit{See FED. R. CIV. P.} 23(b)(3).
class action could be maintained under Rule 23(b)(1)(B) if separate actions against individual pumpers would create a risk that the interests of the nonparty pumpers would be substantially impaired or that the adjudication would dispose of their interests as a practical matter. The Aquifer dilemma falls within the scope of Rule 23(b)(1)(B) because, conceptually, the Aquifer should be viewed as a limited fund. If only so much water can be withdrawn in compliance with the ESA, an adjudication determining the amount of water that certain pumpers could withdraw would practically impair the interests of those pumpers not before the court. For example, if a court determines that the ESA allows withdrawal of only a certain amount of groundwater, and if the court permits each of the five pumpers before the court to withdraw one-fifth of the determined amount of groundwater, then the pumpers not before the court will be left, in essence, with no groundwater to withdraw. Res judicata does not prevent the absent pumpers from relitigating the issue. Nevertheless, as a practical matter, once the groundwater has been allocated, no more is available; further withdrawals would harm the Edwards species in violation of the ESA.

If a plaintiff does not sue the entire class, Rule 19 may require the compulsory joinder of a defendant class of pumpers. In analyzing the necessity of a defendant class under Rule 19, it is first necessary to determine whether a pumper class is maintainable. Once it is established that the pumpers are a certifiable defendant class, one must turn to Rule 19. Under this rule, a defendant pumper class is a

434. FED. R. CIV. P. 23(b)(1)(B).
435. See FED. R. CIV. P. 23(b)(1)(B) advisory committee's note. The classic limited fund scenario exists when the defendant has only a certain amount of money that can be received by potential plaintiffs for harm caused to them by the defendant's action. See id. The fund is limited because once the defendant pays out its total liability, future plaintiffs have nothing from which to recover damages. See id.
436. See Parsons & Starr, supra note 417, at 903.
437. However, if the plaintiff chooses to sue the FWS in addition to a pumper for § 9 takes, there is a question as to whether adding the FWS as a defendant brings the entire action within the "public rights exception." This exception allows a plaintiff to vindicate a public right by suing the FWS without joining all pumpers who otherwise might be deemed necessary. See supra note 19. If the plaintiff does not sue a defendant class of pumpers, and the class is judged necessary under Rule 19, the defendants may petition the court under Rule 12(b)(7) to dismiss for failing to join a Rule 19 party. See FED. R. CIV. P. 12(b)(7).
438. For a class to be necessary, it must meet the Rule 19(a) and Rule 23(a) standards. Stoddard, supra note 416, at 1471. Moreover, it must qualify as either a Rule 23(b)(1) or (b)(2) class action. Id.
439. Rule 19(a) states that a person who can be joined must be joined if, in that person's absence, complete relief cannot be accorded among those who are already parties to the proceeding. FED. R. CIV. P. 19(a). Additionally, the person must be joined if he claims an interest relating to the subject of the action and is so situated that the disposition of the action in his absence may as a practical matter impair or impede his ability to protect that interest. Id.
necessary party in a section 9 suit against an individual pumper. The class has an interest in the subject matter of the suit: the point at which excessive withdrawals from the Aquifer take the Edwards species. The pumper class' interest as a practical matter may be affected because the Aquifer is analogous to a limited fund. Rule 19 also requires that a class be deemed a necessary and indispensable party because absent its joinder the plaintiff may not receive full relief because of potential cause in fact problems.

Rules 19 and 23 operate together to allow joinder of a defendant class. Rule 19(d) states: "This rule is subject to the provisions of Rule 23." Rule 19(d) should not be interpreted as an obstacle to the joinder of a necessary class. The Ninth Circuit in Shimkus v. Gersten Cos. stated that Rule 19(d) does not uniformly exclude classes for joinder. In Shimkus, the court found the joinder of non-Black minorities desirable. It remanded to the lower court for a determination of the minority classes that should be joined. The approach adopted in Shimkus is the most plausible and preferable. "Section (d) simply obviates the need to join all class members once an adequate representative can be joined." Moreover, the policy goals of Rules 19 and 23 are furthered by requiring the joinder of a defendant class. Requiring the joinder of a defendant class of pumpers in a section 9 action will minimize duplicative litigation, protect the interests of absent pumpers, and preserve judicial efficiency and integ-

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440. "[A] class certified under Rule 23(b)(1) is simply a group of Rule 19 necessary parties . . . ." Robinson v. First Nation City Bank, 482 F. Supp. 92, 98 n.18 (S.D.N.Y. 1979); see Fed. R. Civ. P. 23 advisory committee's note (referring to Rule 19(a)(2)(i)-(ii)).

In Sierra Club v. Lujan, the court permitted numerous parties to intervene as defendants. The court, however, did not articulate whether these parties intervened by right or whether their intervention was permissive. If the parties intervened by right, it supports the conclusion that those defendants are necessary parties under Rule 19 because the standard is the same under Rule 19 and Rule 24. See Fed. R. Civ. P. 19(a)(2), 24(a).

441. See supra notes 404-15 and accompanying text for a discussion of the causation problems in cases brought against individual pumpers.


443. Stoddard, supra note 416, at 1453.

444. 816 F.2d 1318, 1321 (9th Cir. 1987) (stating that Rule 19(d) "allows joinder [of classes] to the extent its use does not conflict with Rule 23's provisions"). Other courts have reached similar conclusions. See Illinois Brick Co. v. Illinois, 431 U.S. 720, 738-40 (1977); English v. Seaboard Coast Line R.R., 465 F.2d 43, 45 (5th Cir. 1972). However, some courts read Rule 19(d) to mean that Rule 19 and Rule 23 are mutually exclusive. See, e.g., Thompson v. Board of Educ., 71 F.R.D. 398, 412 (W.D. Mich. 1976).


446. Id. at 1322. The court said a consent decree entered by the court establishing an affirmative action plan was an abuse of discretion without the presence of the necessary class of persons not covered by the consent decree. Id. at 1320.

447. Stoddard, supra note 416, at 1461.

448. Id. at 1462.

449. See id. at 1464-65.
Therefore, a defendant class of pumpers should be joined in a section 9 suit against a pumper.

C. Remedies

The ESA specifically provides for injunctive relief. In most other types of cases, the determination of appropriate injunctive relief requires a court to balance the equities of a remedial alternative before issuing an injunction. However, in ESA cases, Congress "foreclosed the exercise of traditional equitable discretion by courts." Congress decided that any expense and inconvenience to the public pales in comparison to the potential loss from extinction. Both the FWS and pumpers may be enjoined from violating the ESA; however, there are marked distinctions between an injunction against the FWS and an injunction against pumpers.

1. Remedies in a Private Suit Against the U.S. Fish and Wildlife Service

In a suit against the FWS, a court's options at the remedial stage are guided by clear precedent. A court has the authority to enjoin the FWS from violating section 7(a)(1). As part of that authority, the court may prohibit the FWS from continuing activities that resulted in past violations of the ESA. Furthermore, the court may dictate the temporary actions that the FWS must take until it submits an acceptable plan that adequately addresses the violation. As such, the court may enjoin the FWS from continuing to allow excessive withdrawals. Moreover, the court may require the FWS to regulate withdrawals until the FWS submits a plan to the court that ensures adequate springflow. Once the FWS develops a plan, the

450. Id.
451. The problems associated with a necessary class include determining who has the burden of identifying the absent class, who pays for notice, and who represents the class. Id. at 1467-68. If a necessary party cannot be joined, the court may dismiss the action if it determines that the case cannot go forward fairly without the absent party. Fed. R. Civ. P. 19(b); see also Provident Tradesmens Bank & Trust Co. v. Patterson, 390 U.S. 102, 118-20 (1968) (describing the balancing test under Rule 19(b)).
452. 16 U.S.C. § 1540(g).
459. See, e.g., Sierra Club v. Yeutter, 926 F.2d at 439.
460. Id.
court must decide whether the plan is arbitrary and capricious.\textsuperscript{462} If the court determines that the plan will not reasonably ensure against further section 7(a)(1) violations, the court must send the FWS back to the drawing board;\textsuperscript{463} the court cannot, however, compel the FWS to take a particular course of action that the court thinks is preferable.\textsuperscript{464} Rather, the court must merely decide whether the FWS' actions are in accordance with the law.\textsuperscript{465}

Likewise, the court may enjoin the FWS from further violations of section 9.\textsuperscript{466} This injunction may specifically require the FWS to eliminate the direct cause of the takes—excessive pumping.\textsuperscript{467} However, the court must defer to the FWS' judgment about the appropriate manner in which to prohibit excessive pumping.\textsuperscript{468} The court may issue this type of injunction against the FWS despite the fact that takes are directly caused by the actions of independent third parties who are legally pumping from the Aquifer.\textsuperscript{469}

2. Remedies in a Private Suit Against Pumpers of the Edwards Aquifer

In a suit against pumpers for taking the Edwards species, a court is presented with a difficult decision at the remedial stage. It could simply prohibit excessive withdrawals.\textsuperscript{470} However, this type of injunction likely would be inadequate for two reasons. First, individual pumpers do not possess the knowledge necessary to determine the point at which their behavior violates the ESA. Second, there is no mechanism to monitor compliance. Due to the inherent limitations of

\textsuperscript{462} See supra note 306; Sierra Club v. Yeutter, 926 F.2d at 439.
\textsuperscript{463} Sierra Club v. Yeutter, 926 F.2d at 440.
\textsuperscript{464} Id.
\textsuperscript{465} Id.
\textsuperscript{466} 16 U.S.C. § 1540(g)(1)(A); see Defenders of Wildlife v. EPA, 882 F.2d 1294, 1301 (8th Cir. 1989); Palila v. Hawaii Dep’t of Land & Natural Resources, 471 F. Supp. 985, 999 (D. Haw. 1979), aff’d, 639 F.2d 495 (9th Cir. 1981).
\textsuperscript{467} See Palila v. Hawaii Dep’t of Land & Natural Resources, 649 F. Supp. 1070, 1080 (D. Haw. 1986), aff’d, 852 F.2d 1106 (9th Cir. 1988) (requiring the state agency to remove the feral goats and sheep from the Palila’s habitat based on the determination that the livestock’s presence caused takes); Sierra Club v. Lyng, 694 F. Supp. 1260, 1276 (E.D. Tex. 1988), aff’d in part, rev’d in part sub nom. Sierra Club v. Yeutter, 926 F.2d 429 (5th Cir. 1991) (holding that evidence of takings demonstrates that a permanent injunction is warranted to restrain certain timber management activities of the Forest Service that adversely impact the Red Cockaded Woodpecker).
\textsuperscript{468} See Sierra Club v. Yeutter, 926 F.2d at 439-40.
\textsuperscript{469} See National Wildlife Fed’n v. Hodel, 23 Env’t Rep. Cas. (BNA) 1089, 1092-93 (E.D. Cal. 1985) (enjoining the FWS from permitting the use of lead shot ammunition based on the court’s finding that the use of this ammunition indirectly took listed species).
\textsuperscript{470} This type of injunction is often referred to as a “negative injunction.” William A. Fletcher, The Discretionary Constitution: Institutional Remedies and Judicial Legitimacy, 91 YALE L.J. 635, 649 (1982). It simply prohibits the behavior that caused the violation. Id. The negative injunction is generally favored by courts. Id. at 649-50.
a negative injunction, as well as to the systemic failure concerning the Aquifer, a broad-based remedy is required.

In order to successfully address the inadequacy of Texas law and to ensure the adequate springflow necessary to avoid takes of the Edwards species, the court may use its broad and flexible equitable power. The court derives its equitable authority from the conferral of judicial power by statute, by the Constitution, as well as by the court's inherent equitable powers, often referred to as its discretion. In accordance with this power, the court should issue an affirmative injunction to ensure adequate springflow. Such an injunction would be similar to an institutional decree entered in an "institutional reform litigation" suit. Implementing this type of remedy would require the court to perform quasi-legislative and quasi-administrative tasks.

However, an affirmative injunction in this case would be dramatically different from the traditional institutional decree. In the typical institutional case, a federal court assumes control of a state agency, for

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473. U.S. CONST. art. III, § 1. It has been argued that the duty to provide an adequate remedy stems from the judicial power. See Kellis E. Parker, Modern Judicial Remedies 411 (1975).
474. The Remedial Process in Institutional Reform Litigation, 78 COLUM. L. REV. 784, 854 (1978) [hereinafter Institutional Reform Litigation]. The meaning of discretion is elusive. As Professor Davis notes: "I know of no systematic scholarly effort to penetrate discretionary justice." KENNETH C. DAVIS, DISCRETIONARY JUSTICE: A PRELIMINARY INQUIRY v-vi (1969). Commentators on law and government "characteristically recognize the role of discretion and explore all around the perimeter of it but seldom try to penetrate it." Id.
475. See Institutional Reform Litigation, supra note 474, at 788 n.9 (stating that institutional reform litigation is a type of suit in which the statutory defects of social institutions are reformed). There is no social institution at issue in this case; nevertheless, the lack of an institution to properly regulate pumping from the Aquifer is analogous to a malfunctioning social institution. See id. at 788. Thus, in crafting a remedy to prevent individual pumpers from overdrafting the Aquifer, the court must effectively create a regulatory scheme—normally a state function. See Fletcher, supra note 470, at 637. There are several excellent descriptions of institutional reform litigation. See generally id.; Institutional Reform Litigation, supra note 474; Abram Chayes, The Role of Judge in Public Law Litigation, 89 HARV. L. REV. 1281 (1976).
476. See DONALD L. HOROWITZ, THE COURTS AND SOCIAL POLICY 7 (1977). Institutional remedies are "reminiscent of the kinds of programs adopted by legislatures and executives." Id. If they are to be translated into action, remedies of this kind often require the same type of supervision as other government programs. Id.
instance, a prison system, to ensure compliance with federal law.\(^477\) In this case, no Texas agency has authority to regulate withdrawals from the Aquifer.\(^478\) Therefore, an affirmative injunction in this case would require a federal court to assume an entirely novel role. That is, the court would assume a state function to ensure compliance with federal law.

The court may take such a step because its remedial power stems from the need to cure a judicially ascertained statutory violation.\(^479\) Accordingly, the nature of the court’s remedial power is determined by the nature of the ESA violation.\(^480\) As a corollary, the remedy must not be overbroad and must be effective.\(^481\) Because the ESA violation results from the lack of a regulatory scheme to regulate pumping from the Aquifer, the court is authorized to create a system to regulate withdrawals.\(^482\)

In determining the particulars of an appropriate affirmative injunction to remedy section 9 violations, a court may take any of several alternative courses. First, the court could abstain, thus allowing the State of Texas to develop a regulatory scheme.\(^483\) This would be preferable because general concepts of federalism and comity suggest that a court should minimize its intrusion into a state’s affairs.\(^484\) Second, the court could select among alternative remedies submitted by all the parties.\(^485\) Third, the court could appoint a special master to

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\(^478\) However, it must be noted that Senate Bill 1477, adopted by the Texas Legislature during the last term, creates authority to limit withdrawals from the Aquifer. Act of June 11, 1993, ch. 626, § 1.15, 1993 Tex. Gen. Laws 2350, 2360-61. Even though Texas has adopted a regulatory scheme, a court that adjudicates water claims in a private action may find that the legislative response is not adequate. See supra part IV. As such, the court will be presented with the same issue—should the court assume control of the newly created Edwards Aquifer Authority to limit withdrawals.

\(^479\) See Institutional Reform Litigation, supra note 474, at 854.


\(^481\) See Institutional Reform Litigation, supra note 474, at 855; Green v. County Sch. Bd., 391 U.S. 430, 439 (1968). A remedy is overbroad when it orders the creation of conditions that are not legally required, but may be socially desirable. Institutional Reform Litigation, supra note 474, at 863. According to Professor Mishkin, this is an abuse of discretion. Paul S. Mishkin, Federal Courts as State Reformers, 35 WASH. & LEE L. REV. 949, 956 (1978). To be effective, a remedy must be sufficient to address the fundamental cause of the statutory violation. Institutional Reform Litigation, supra note 474, at 863.

\(^482\) See Institutional Reform Litigation, supra note 474, at 854-55.


\(^484\) Institutional Reform Litigation, supra note 474, at 799.

\(^485\) Id. at 802.
develop the remedial structure. Finally, the court could unilaterally adopt a remedy.

Regardless of how it is developed, an injunction establishing a mechanism to regulate withdrawals would likely require the court’s continuing participation. The court could retain jurisdiction to oversee the implementation of the injunction. Retention of jurisdiction is necessary to ensure the success of the remedy. Jurisdiction is needed so that the court could revise the remedy when necessary, enter any necessary additional orders, and clarify the meaning of any terms in the order.

To ensure compliance with the injunction, the court could appoint a special master to oversee the administrative component of the implementation of the remedy. However, Rule 53 does not address the use of special masters in this context. For this reason, a court that would like to appoint a special master to oversee implementation of the remedy should rely on its equitable power to do so.

A court is afforded great discretion in developing an appropriate remedy because a court’s remedy is reviewed under an abuse of discretion standard. This standard—that an equitable remedy is not an abuse of discretion if it is fair and reasonable—is too general to provide much guidance to a court. As such, a court faces the predicament of exercising discretion within undefined boundaries.

D. A Preferred Judicial Remedy

Even though a court has broad authority, it should not hastily use its extensive equitable power. Caution is advisable because the Aqui-

486. See Fed. R. Civ. P. 53. The appointment of a special master “meets the need for the active involvement of a judicial officer in remedy formulation when the judge does not have the skills to make proper use of the pertinent social information.” Institutional Reform Litigation, supra note 474, at 805. However, masters can only be appointed under exceptional conditions. Fed. R. Civ. P. 53(b); see also La Buy v. Howes Leather Co., 352 U.S. 249, 252-53 (1957) (exploring the exceptional conditions requirement).

487. Institutional Reform Litigation, supra note 474, at 800-01.


489. Institutional Reform Litigation, supra note 474, at 816 (“[Retention of jurisdiction] ensures that the court’s further role is not dependent on initiation of a new action or remand from an appellate court and that the same judge stays in charge of the case.”).

490. Id.


492. Id. at 808.

493. Ruiz v. Estelle, 679 F.2d 1115, 1161 (5th Cir. 1982), modified in part, vacated in part, 688 F.2d 266 (5th Cir. 1982), cert. denied, 460 U.S. 1042 (1983) (“Rule 53 does not terminate or modify the district court’s inherent equitable power to appoint a person . . . to assist in administering a remedy.”); see also DeGraw, supra note 491, at 809.

494. Fletcher, supra note 470, at 660.

495. Institutional Reform Litigation, supra note 474, at 861.
fer dilemma is to a large extent a nonlegal polycentric problem. A remedy for such a problem will affect many nonlegal arenas. For instance, the remedy will affect the allocation of groundwater: a regulatory scheme must determine who is allowed to pump and how much. These decisions about distribution will have a profound impact on the Aquifer region. Given the complexity of the Aquifer dilemma, a court should defer to the State of Texas for several reasons. First, a court is less likely than the State of Texas to be apprised of the legislative facts necessary to determine the public policy ramifications of a particular remedy. The Texas Legislature is in a better position to determine the proper allocation scheme because it is more aware of the issues surrounding the Aquifer and the needs of the region’s economy. Second, a court is less likely than the State of Texas to continuously modify the regulatory system until it properly takes into account the needs of the Aquifer region as well as the Edwards species. Finally, “courts have no institutional authority to assess normatively the ends of possible solutions to non-legal polycentric problems.”

For these reasons, it is preferable for a court to defer to the State of Texas before crafting a remedy that will so greatly affect everyday life in the Aquifer region. However, if Texas fails to remedy the ESA infirmities, the court must intervene. This intervention would not be disastrous, given the substantial advantages a court has in remedying polycentric problems.

First, the federal judiciary is insulated from politics, but not to the extent that it is oblivious to political considerations. Federal judgeships are the product of the political process, and most persons appointed to the bench have political experience. Second, judicial

496. See Fletcher, supra note 470, at 645. “Polycentricity is the property of a complex problem with a number of subsidiary problem 'centers,' each of which is related to others, such that the solution to each depends on the solution to all others.” Id. Until a suit reaches the remedy stage, it is not polycentric because the court must only determine whether pumping takes species in violation of the ESA. See id. at 646.

497. See id.

498. Id. at 648. However, it has been argued that courts have a unique opportunity to collect the critical facts. Chayes, supra note 475, at 1308. Not only does litigation provide an incentive to reveal relevant information, but courts are authorized to employ experts to apprise courts of necessary facts. Id.; see also Fed. R. Evid. 706 (providing the right to appoint expert witnesses).

499. See Institutional Reform Litigation, supra note 474, at 800-01 (stating that the problem with institutional remedies imposed by a court is that they are formulated without the benefit of specialized expertise).

500. See id. at 817 (stating that a remedy to a complex problem needs revision from time to time); Fletcher, supra note 470, at 648-49.

501. Fletcher, supra note 470, at 649.

502. Chayes, supra note 475, at 1307-08.

503. Id.
discretion in fashioning remedies leads to an ad hoc application of broad national policies. As such, a court will not rigidly apply the mandate of the ESA, but will instead take into account the complexity of the local situation. Third, a remedy fashioned by a court allows the interested parties to have more direct input than a solution crafted by the legislature, which not only represents the parties' interests but the interests of others as well. Finally, courts are not bureaucratic organizations. This is an advantage because their decisionmaking is centralized.

The ultimate question in assessing a remedy for a polycentric problem is whether the remedy is legitimate. The exercise of discretion in fashioning an affirmative remedy to a polycentric problem must initially be presumed illegitimate for two reasons. First, a court does not have the benefit of the normal internal controls that provide guidance to judges. This is true because when remedying a nonlegal polycentric problem, a judge is presented with complex extrajudicial problems with which he or she is not accustomed to dealing. Second, external controls from reviewing courts are likewise lacking, since appellate courts review judicial remedies under the abuse of discretion standard.

General concerns about legitimacy are counterbalanced in this case because the ESA specifically provides for injunctive relief. Additionally, legitimacy is less troubling because Congress retains residual control to amend the ESA, and this changes the character of the discretion granted to the courts. However, the residual control is limited because trial courts issue injunctions rather than rules. Thus, the legislature cannot overrule a decision by passing a new statute.

504. Id. at 1308.  
505. See id.  
506. Id.  
507. Id. at 1308-09.  
508. Fletcher, supra note 470, at 692.  
509. See id.  
510. Id. at 660, 694.  
511. Id. at 660.  
512. Id. at 660, 694.  
513. Id. at 660. Professor Fletcher has argued that there will necessarily be very few reversals by appeals courts because equitable remedies are discretionary. As such, it is very unlikely they will be found to be an abuse of discretion. Id. at 661. "[F]or the most part, this abuse of discretion rationale appears to permit effective control over only aberrational or idiosyncratic trial court behavior." Id. The lack of external control of remedial discretion is inevitable because trial courts need flexibility to properly consider the social, bureaucratic, and political problems raised in the remedial process. Id. at 663.  
515. Fletcher, supra note 470, at 644, 693.  
516. Id. at 644.  
517. Id.
Given the presumption of illegitimacy, the use of discretion in fashioning a remedy to a nonlegal polycentric problem should only be judged as legitimate when the political process has completely failed. After the invitation of Judge Bunton, if the Texas Legislature does not address the lack of a regulatory scheme, the political process should be deemed to have completely failed. At that point, a court's use of discretion in fashioning an equitable remedy to assure adequate springflow should be judged legitimate.

CONCLUSION

The fate of the Edwards species highlights the broad scope of the ESA. First, the ESA authorizes the federal government to regulate pumping of groundwater. Second, if the federal government does not act because of the recognized state interest in groundwater management, the FWS can be forced to regulate groundwater to conserve and to prevent takes of listed species. Third, all pumpers who withdraw water to drink, to water their crops, or to make a living, can be found guilty of violating the ESA. Thus, private parties can utilize the ESA to accomplish what the FWS and the State of Texas have failed to do: protect the endangered species whose survival is pitted against the needs of a region that is home to more than a million people. This realization need not strike fear in the hearts of Texans. The FWS has indicated that if Texas addresses the root cause of the ESA violations—lack of a regulatory scheme to prevent excessive pumping of the Edwards Aquifer—the FWS is willing to issue an incidental take permit. Thus, the ESA will not necessarily destroy the Central Texas economy, as claimed, as long as Texas provides a realistic regulatory scheme to ensure adequate springflow to protect the Edwards species.

518. Id. at 694-95.
519. See supra note 185.
520. See Institutional Reform Litigation, supra note 474, at 799 n.80.
521. See Babbit Tells Texas To Move on Edwards Aquifer Management; Says It's in State's Best Interest To Beat Feds to a Solution, PRESS RELEASE (Department of the Interior, Wash., D.C.), Apr. 19, 1993, at 2, available in 1993 WL 136976. In a letter to former Governor Ann Richards of Texas, Secretary of the Interior Bruce Babbitt stated: "[A]s a former governor, I believe that management of groundwater resources is first and foremost a state responsibility." Id.
522. Id. at 1.
523. McLemore, supra note 18, at A41. The mayor of San Antonio has stated that his city "is the first U.S. city I know of to be attacked by the Endangered Species Act." Id. Furthermore, he has guaranteed that he will take "whatever actions necessary to protect the jobs, the health and the welfare of [the] community, including defying a court order." Id.