Carol Rose Comes to the Oil Patch: Modern Property Analysis Applied to Modern Reservoir Problems

David E. Pierce*

I. THE MODERN PROPERTY ANALYSIS IMPERATIVE

Modern oil and gas development issues require a modern property analysis to replace the "rule of capture" analysis that has been used by courts for over 150 years—and which continues today.2 The rule of capture analysis has two components. First, ownership of the subsurface is determined applying what is commonly known as the ad coelum doctrine.3 This doctrine provides that the owner of the surface of land owns all that lies within the surface boundaries extended upward and downward. Second, the owner can search for oil and gas beneath the surface and will obtain title to any oil or gas produced from a well completed in a reservoir4 within the owner’s surface boundaries. This is

* Professor of Law, Washburn University School of Law, Topeka, Kansas.


2. See Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 9-17 (Tex. 2008) (applying a rule of capture analysis to address intra-reservoir trespass claims associated with hydraulic fracturing); David E. Pierce, Minimizing the Environmental Impact of Oil and Gas Development by Maximizing Production Conservation, 85 N.D. L. REV. 759, 770-72 (2009) [hereinafter Maximizing Production Conservation] (critiquing the Texas Supreme Court’s use of the rule of capture in the Coastal case).

3. The doctrine derives from Lord Coke’s maxim: Cujus est solum, ejus est usque ad coelum et ad inferos; translated: “To whomsoever the soil belongs, he owns also to the sky and to the depths.” BLACK’S LAW DICTIONARY 341 (5th ed. 1979).

4. Throughout this article the term “reservoir” is used to describe an accumulation of oil and gas within a rock structure that is pressure connected so that the contents of the reservoir will generally move toward a low pressure zone created by drilling a well into the rock structure. The reservoir is encapsulated by impermeable rock with its own discrete subsurface geological boundaries. State statutes often refer to the reservoir as a “common source of supply” or a “pool” of oil and gas. See, e.g., 58 PA. CONS. STAT. § 402(10) (1996) (“pool” used as an abbreviated reference for “an underground reservoir containing a common accumulation of oil and gas, or both, not in communication laterally or vertically with any other accumulation of oil or gas.”) (reference to “oil and gas” should probably be “oil or gas”).
so even though the oil and gas may have migrated to the well from outside the producing owner's surface boundaries. Ownership of the migrating oil and gas is the product of the "rule of capture" which seeks to account for the ability of oil and gas to move within a defined reservoir of porous and permeable rock that underlies separately-owned surface tracts of land. The alternative analysis proposed in this article more accurately defines the rights and obligations of the owners in the oil and gas reservoir by recognizing that the owners coexist in a common environment instead of the artificial compartmentalized environment created by the rule of capture analysis.

At first glance, this may suggest a plan to "change" basic property rights. That is not the case. Instead, this article focuses on the proper analysis that must be employed under the established oil and gas property regime to more completely define property rights in oil and gas. The assumption is that all the "sticks" are already in place regarding oil and gas ownership. The problem is conceptualizing the rights and obligations created by the "sticks" to address new reservoir

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5. The Pennsylvania Supreme Court, in United States Steel Corp. v. Hoge, 468 A.2d 1380 (Pa. 1983), acknowledged this two-step capture analysis stating: The fact that gas is of a fugacious character does not prevent ownership in it from being granted prior to its being reduced to possession, for we have long recognized that gas may be owned prior to being recovered from its natural underground habitat. Gas is a mineral, though not commonly spoken of as such, and while in place, it is part of the property in which it is contained, as is the case with other minerals within the bounds of a freehold estate, which extends to the center of the earth. . . . Gas necessarily belongs to the owner in fee, so long as it remains part of the property; ownership in it will be lost only upon grant or upon the gas leaving the property through migration. Id. at 1387 (citation omitted).

6. See, e.g., Kelly v. Ohio Oil Co., 49 N.E. 399 (Ohio 1897) (applying for the first time a rule of capture analysis to a simple migration of gas across property boundaries); DaNTITH, supra note 1, at 28-29.

7. States "changing" or "redefining" property rights could in some cases trigger the Takings Clause. As noted in the plurality opinion in Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection, 130 S. Ct. 2592, 2602 (2010): "If a legislature or a court declares that what was once an established right of private property no longer exists, it has taken that property, no less than if the State had physically appropriated it or destroyed its value by regulation." See infra text accompanying notes 51-58.

8. "Complete" definition of a property interest seldom occurs. Instead, defining property rights is an evolutionary process that occurs when the object of property, in this case a natural resource, comes under stress due to scarcity or some other development that requires resolution and, in the process, more complete definition. See Carol M. Rose, A Dozen Propositions on Private Property, Public Rights, and the New Takings Legislation, 53 WASH. & LEE L. REV. 265, 269 (1996) [hereinafter A Dozen Propositions] ("Because property regimes are not costless, people often do not define property rights at all until the need becomes clear; generally speaking, people do so only when resources become scarce, raising the prospect of damaging conflicts over resource use."); infra text accompanying notes 48-50.
challenges such as horizontal drilling and hydraulic fracturing. This same modern property analysis provides a means to reexamine traditional public regulation of the reservoir.

To assist in defining the appropriate modern property analysis, this article applies the teachings of a leading contemporary property law theorist: Professor Carol M. Rose. Professor Rose’s scholarship focuses on several theoretical concepts that can be applied to property in oil and gas. For example, she has noted that property is an evolving concept with “the capacity . . . to morph into new forms as new issues arise.” New hydraulic fracturing applications and techniques have prompted the Texas Supreme Court to suggest that the concept of mineral ownership may need to morph to accommodate certain subsurface activities—much like spatial fee simple ownership morphed to accommodate the technological development of the airplane.

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9. “Horizontal drilling” refers to the act of drilling across and within a target reservoir of oil and gas. Traditional vertical drilling brings the well bore into contact with only that portion of the reservoir in which the well bore penetrates from the top to the bottom of the reservoir. If the reservoir is ten feet thick, the vertical well bore will be in contact with ten feet of the reservoir rock. The horizontal well begins as a vertical well until it reaches the target reservoir. At that point the well bore is turned so that it can travel into the reservoir horizontally. This can result in the well bore, even in the vertically ten-foot thick reservoir, having contact with thousands of feet of reservoir rock. See generally NORMAN J. HYNE, NONTECHNICAL GUIDE TO PETROLEUM GEOLOGY, EXPLORATION, DRILLING, AND PRODUCTION 293-94 (2d ed. 2001).

10. “Hydraulic fracturing” is a well-stimulation technique designed to increase the surface area within the reservoir that is in contact with the well bore. The surface area is increased by pumping a mixture primarily composed of water and sand into the well bore, under pressure, so that the formation in contact with the well bore begins to crack and create fissures running into the reservoir rock. These fissures are held open by a proping material when the frac fluids are withdrawn from the formation. See id. at 423-26.

11. This would include an examination of capture-based state regulation of oil and gas development. See Maximizing Production Conservation, supra note 2, at 759.


15. Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1, 11 (Tex. 2008). The court made the following observations:

[F]rom the ancient common law maxim that land ownership extends to the sky above and the earth’s center below, one might extrapolate that the same rule should apply two miles below the surface. But that maxim—cujus est solum ejus est usque ad coelum et ad infernos—“has no place in the modern world.” Wheeling an airplane across the surface of one’s property without permission is
As will be seen, some of the stress to morph mineral ownership can be avoided by applying another of Professor Rose's property concepts: "limited common property." Limited common property is "property held as a commons among the members of a group, but exclusively vis-a-vis the outside world." Each oil and gas reservoir creates a limited common property situation which, today, most often comes under stress due to technological innovation.

The challenge is to develop an analysis that can define each common owner's rights and duties in a particular oil and gas reservoir. This process is again assisted by Professor Rose's scholarship where she observes that shared resources are often more accurately analyzed as a usufruct as opposed to exclusive ownership. As will be seen, ownership within the reservoir is not absolute, but rather provides each reservoir owner with the ability to make acceptable uses of the reservoir to extract oil and gas. When dealing with common property the flexibility of "reasonableness" often proves a more fair and workable measure than the rigidity of precisely defined ownership. This is particularly the case when compartmentalized ownership of the reservoir is impossible. In the reservoir context, property in oil and gas has more

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a trespass; flying the plane through the airspace two miles above the property is not. Lord Coke, who pronounced the maxim, did not consider the possibility of airplanes. But neither did he imagine oil wells. The law of trespass need no more be the same two miles below the surface than two miles above.

Id. at 11 (footnotes omitted). Although the court made this observation, it was not the basis for its holding, which was based solely on its interpretation of the rule of capture and the trespass remedy. Id. at 4.


18. Id. at 138 (discussing the technological innovation of barbed wire on the use of public lands). In the oil and gas context, the technological innovations of horizontal drilling and hydraulic fracturing have created similar forms of stress requiring a further definition of oil and gas property interests. See David E. Pierce, Trespass Issues in a Shale Play, SPECIAL INSTITUTE: DEVELOPMENT ISSUES IN THE MAJOR SHALE PLAYS 7-1 (2010).


20. See infra text accompanying notes 74-85.


22. See infra text accompanying notes 65-73.
in common with water than land and should therefore be guided by similar accommodative principles. 23

Defining rights in oil and gas, whether they be individual or collective, also implicates “public” rights. 24 Perhaps no area of the law has had such a close linkage between private and public rights. 25 Private rights in a reservoir have been frequently described as “correlative rights” while public rights have been described as the “prevention of waste.” 26 Traditionally, public rights in oil and gas have been created by state oil and gas “conservation” laws. 27 Therefore, any definition of private rights in oil and gas must also account for the public good element of oil and gas.

Professor Rose reminds us that property “ownership” and “rights” are not absolute concepts. As she notes: “property rights have always overlapped social claims with individual ones, just as they have always mixed stability with change over time.” 28 This results in a more accurate concept of property which, as described by Professor Rose, consists of: “[S]ome individual rights, mixed with some rights shared with nearby associates or neighbors, mixed with still more rights shared with a larger community, all held in relatively stable but nevertheless changing and subtly renegotiated relationships.” 29 This is particularly the case when dealing with individual property interests in a reservoir where many other individuals possess similar rights and duties, whereby each can impact the community and the community can impact each individual.

It will be seen that Professor Rose’s property theories fit neatly within traditional oil and gas property interests known as “correlative

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24. Professor Rose discusses the public rights aspect of property throughout her scholarship. See, e.g., Carol M. Rose, A Dozen Propositions on Private Property, Public Rights, and the New Takings Legislation, 53 WASH. & LEE L. REV. 265, 267 (1996) (stating that certain property is the product of both “private” and “public” rights and must be properly managed to recognize this unique mix of rights).

25. Public rights in oil and gas were created specifically to mitigate the ravages of an unconstrained rule of capture. See HYNE, supra note 9, at 201 (chronicling development of the 1915 Oklahoma general oil and gas conservation statutes).


29. Id.
"rights" and also provide a basis for applying correlative rights concepts to contemporary issues. Although correlative rights have been an important and recognized element of property in oil and gas for over 100 years, they have been viewed primarily as a limitation on an owner's oil and gas rights: a negative right as opposed to an affirmative right. Professor Rose's property theories assist in defining the affirmative aspects of correlative rights. Once a suitable analytical construct is in place for identifying and exercising affirmative correlative rights, emerging intra-reservoir conflicts can be resolved in a manner that properly acknowledges the common interests of individual owners in the oil and gas reservoir. In this manner the individual private owner's "sticks" will be more completely recognized, particularly with regard to the private owner's status as a member of the reservoir community. It will also be shown how recognizing the appropriate mix of private and community rights will, in turn, promote public rights in oil and gas resources. Finally, adopting a modern property analysis that recognizes the realities of the oil and gas community will actually avoid tension with existing property rights in minerals.

II. THE REALITIES OF THE OIL AND GAS "COMMONS"

The unique property interest created by oil and gas while in the reservoir necessitates an articulation of rights and duties that goes beyond any one individual and extends to all members of the reservoir "community." Membership in the reservoir community is defined by the geologic structure while member rights and duties are defined by the physical realities associated with the oil and gas deposit. Therefore, rights and duties associated with the physical attributes of one reservoir

30. Many reservoir "rights" questions can be resolved by applying a correlative rights analysis instead of addressing the issue by applying individual owner concepts. For example, the Texas Supreme Court in the Coastal case, addressing the movement of hydraulic fracture fissures across intrareservoir boundaries, focused on individual ownership of a portion of the reservoir instead of considering the parties' collective ownership in the entire reservoir. This prompted the court to consider qualifying individual ownership in the reservoir to try and answer the question before it. See Coastal Oil & Gas Corp. v. Garza Energy Trust, 268 S.W.3d 1 (Tex. 2008). As will be seen, applying a correlative rights analysis provides a ready solution to the hydraulic fracturing issue while avoiding a confrontation regarding subsurface ownership.

31. Professor Kuntz described the oil and gas reservoir community in the following terms:

The owners in the common source of supply operate in a special community and the social acceptability of conduct within such community must be determined, not only by applying the standards applicable to conduct generally, but by also considering the utility of the conduct in the light of its peculiar consequence to others operating in the same community.

may vary from those of other reservoirs with differing physical attributes. What may be acceptable in one community may not be acceptable in another, because the physical attributes of the community may require differing conduct.

A. Physical Attributes of the Oil and Gas Reservoir

The first physical attribute of an oil and gas reservoir that must be addressed is delineation of the geologic structure. To determine membership in a reservoir community, you must be able to identify the reservoir and define its limits. Although this is not a simple process, the industry and state regulatory agencies have been doing it effectively for decades. The science and technology in this area have steadily progressed so that reservoir limits can be readily identified.\(^{32}\) Delineation, however, is a gradual process that will occur as the reservoir is developed and additional information becomes available through drilling, testing, and production. This means membership in the reservoir community can, and most likely will, change over time.\(^{33}\)

The second attribute is the precise structure of the rock that comprises the reservoir container. Porosity, permeability, and their relative homogeneity throughout the reservoir, play a major role in the productive capacity and behavior of the reservoir.\(^{34}\) For example, activities on a single tract within a reservoir may not trigger community concerns if the effective connection through porosity, permeability, and other physical attributes is minimal.

The third attribute concerns the contents of the reservoir. Is it oil, gas, condensate, or a mix of these substances? Is the oil of a high or low viscosity? Is the gas rich in heavier hydrocarbons ("wet") or relatively devoid of heavier hydrocarbons ("dry")? Does it contain other recoverable substances such as sulphur or helium?\(^{35}\)

The fourth attribute is the source of energy within the reservoir that "drives" the oil and gas through the rock structure toward low pressure areas created by a well bore. Is it a water drive, gas cap drive, dissolved gas drive, or mix of these energy sources that will move the contents of the reservoir toward a well bore?\(^{36}\)

The fifth attribute concerns the unique physics that impact the ability to remove oil and gas from the rock structure. For example, for a

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32. See generally HYNE, supra note 9, at 124-28.
34. See HYNE, supra note 9, at 156-64.
35. See id. at 1-14.
36. See id. at 405-12.
coalbed methane well there must be extensive dewatering of the coal seam before gas can be liberated.\textsuperscript{37} Wells in shale formations generally require fracturing or other artificial stimulation of the rock structure to allow the oil and gas to flow toward a well bore.\textsuperscript{38} Some reservoirs behave differently, such as the retrograde gas condensate reservoir, which allows removal of gas while pressures are maintained in the reservoir.\textsuperscript{39} But if pressures are allowed to drop below a certain level, the gas within the reservoir will liquefy, often making it impossible to remove the hydrocarbons in their new liquid phase.\textsuperscript{40}

B. Metaphysical Attributes of the Oil and Gas Reservoir

The metaphysical attributes of the oil and gas reservoir are largely defined by two seemingly incongruent principles. First is the principle that surface boundaries define "ownership" to oil and gas below the surface.\textsuperscript{41} This is subject, however, to the second principle that the rule of capture defines "ownership" to oil and gas that is produced from within an owner's surface boundaries.\textsuperscript{42} The grand inconsistency in these two rules occurs when oil or gas, once beneath one owner's surface boundaries, migrates across those boundaries to a neighbor's tract. Under the rule of capture, the neighbor is able to produce the migrating oil and gas and thereby effectively change ownership of the oil and gas they capture through a well bottomed on their land. Although states have come up with various ownership classifications to try to account for the rule of capture, the practical result is the same whether ownership of oil and gas, while in the reservoir, is classified as a possessory or nonpossessory interest.\textsuperscript{43}

These two dimensions of oil and gas—tract ownership of oil and gas subject to the rule of capture—coexist because oil and gas are typically found in a reservoir that is overlain by many separately-owned tracts. Tract ownership, however, does not change the physical fact that

\begin{itemize}
\item \textsuperscript{37} See id. at 149-50.
\item \textsuperscript{39} MARTIN S. RAYMOND \& WILLIAM L. LEFFLER, OIL AND GAS PRODUCTION IN Nontechnical Language 155-56 (2006).
\item \textsuperscript{40} Id. at 156.
\item \textsuperscript{41} Often referred to as the "ad coelum" doctrine. See supra text accompanying note 3.
\item \textsuperscript{42} See supra text accompanying notes 4-6.
\item \textsuperscript{43} 1 KUNTZ, supra note 31, at 65 ("The adoption of a theory of ownership ultimately represents little more than the selection of an acceptable method of describing ownership in the light of the law of capture.").
\end{itemize}
all the tracts within the reservoir are, to varying degrees, “connected.” The rule of capture developed to deal with this “connectedness” to the extent it relates to the ability of oil and gas to move through the reservoir toward low pressure zones created by wells drilled into the reservoir.

This article seeks to further develop the metaphysical “third dimension” of the oil and gas reservoir, which acknowledges that because every tract owner within the reservoir is connected to varying degrees with all other tract owners, their rights and obligations are relative to those of the other tract owners. They might be described as co-relative since each duty-bound owner has concurrent rights owed by the other owners in the reservoir. This relationship was given the name “correlative rights” at the turn of the century and has been somewhat of a sleeping right since its first recognition.44

C. Convergence of the Physical and the Metaphysical: Tragedy of the Commons

When the two-dimensional metaphysical attributes of the reservoir—tract ownership and the rule of capture—are applied to the physical attributes, a “tragedy of the commons” will result.45 The tragedy is caused by rational oil and gas developers seeking to maximize their capture rights to perfect ownership to oil and gas. The developer will enjoy all the benefits of the captured oil and gas while only being proportionately disadvantaged by the resulting waste caused by its capture activities. The rule of capture encourages oil and gas developers to neglect their collective rights in order to maximize their individual rights.

Without the third metaphysical dimension, or adequate corrective legislation, the metaphysical competes with the physical, resulting in economic waste and waste of the oil and gas resource.46 To date,

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44. Professor Daintith notes that correlative rights, as a common law limitation on the rule of capture, was never fully developed by the courts. Hyne, supra note 9, at 190. This is probably best explained by the early rise of conservation regulation to address specific reservoir problems and reluctance by the industry to seek judicial limitations on the rule of capture. Id. at 193.

45. Professor Hardin used the phrase “tragedy of the commons” to describe the natural tendency for individual owners to exploit resources that are not separately owned, such as a common grazing area, air, and water. Garrett Hardin, The Tragedy of the Commons, Sci. 1243 (1963).

46. Professor Hardin offered two solutions to the tragedy of the commons: private ownership or government regulation. Professor Rose offers a third possibility: common control by those who use the commons. Carol M. Rose, Expanding the Choices for the Global Commons: Comparing Newfangled Tradable Allowance Schemes to Old-Fashioned Common Property Regimes, 10 Duke Envtl. L. & Pol’y F. 45, 49 (1999) (discussing “uncoerced common action” to manage the resource). The “third
legislative responses have merely sought to temper the rule of capture by requiring that it be pursued on state-defined squares and rectangles of acreage. As I have noted previously:

All states unnecessarily tolerate environmental degradation, excessive surface use, and other forms of “waste” of the oil and gas resource. This is because all state oil and gas “conservation” statutes have the rule of capture as their foundation. To protect your “correlative rights” in the oil and gas in place, you need a well. The oil and gas conservation authority will issue a drilling permit if the applicant can show compliance with, among other requirements, “spacing” regulations. Spacing regulations are premised on either a statewide rule or a special rule that seeks to define the maximum area that can be efficiently drained by a single well. Spacing requirements merely specify that the rule of capture must be played using squares and rectangles. Pooling adds nothing to the mix, except to provide a mechanism to combine separate properties within the designated square or rectangle with which the capture game must be played. Although no one would deny that conservation laws have averted a substantial amount of waste, they have done so by tacitly accepting a substantial amount of waste through the preservation of a capture-based regulatory regime. 47

This article sets out the theoretical and practical contours of the third metaphysical dimension of oil and gas ownership: correlative rights. As courts seek to properly resolve new intra-reservoir conflicts, they must consider the analytical solutions correlative rights can offer as property in oil and gas evolves.

III. PROPERTY IN OIL AND GAS IS AN EVOLVING CONCEPT

Professor Rose has noted that property is an evolving concept. 48 “Property” in something may, at first glance, appear to be a definitive, all-encompassing concept. You either “own” it or you don’t. This fails, however, to account for the most important question of exactly “what” you own as property. The evolving aspect of property is not “ownership” but rather defining that which is encompassed by ownership. For example, A may clearly own all the oil and gas in a tract of land. The undisputed chain of title indicates that A is the “owner.”

metaphysical dimension” takes a middle ground by recognizing private collective rights held by all reservoir owners.

47. Maximizing Production Conservation, supra note 2, at 764-65 (citations omitted).

48. See supra text accompanying note 13.
A’s oil and gas ownership is not at issue. The next, and more difficult question, is defining exactly what A’s ownership in the oil and gas encompasses.

Professor Rose has also noted that it is not efficient to try and define all aspects of property at a single point in time. Instead, what property means evolves as it becomes necessary—efficient—to address with precision previously undefined rights.\(^{49}\) "Efficient" means the costs involved in resolving a specific issue that further defines the scope of ownership in property are now justified by the circumstances.\(^{50}\) For example, assume A acquired rights in a tract of land in 1960. Although oil and gas have been developed on the land from 1960 to the present, A’s rights regarding the use of hydraulic fracturing have never been addressed. Until 2005 there was no need to address A’s hydraulic fracturing rights because the practice had not been engaged in during A’s 45 years of ownership. With development of shale deposits in A’s property, and the advent of new technological advances in hydraulic fracturing, it now becomes economic—efficient—to incur the costs necessary to define A’s hydraulic fracturing rights. “Efficiency” in this property-defining context usually refers to the costs associated with negotiating and entering into an agreement to settle the issue, or obtaining a judicial decision to resolve the issue. It is also possible that A, or those affected by A’s conduct, may go to an administrative agency or a legislature to seek further definition. Once a final agreement or decision is obtained, it becomes part of the ownership mix in A’s oil and gas property.

The task is to more fully define what A already owns; it is not a re-definition of what A owns. This is an important distinction because otherwise any legislative, executive, and perhaps judicial action that re-defines what A already owns could be viewed as a taking or subject to a substantive due process claim.\(^ {51}\) For example, a plurality of the Court, in

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49. *A Dozen Propositions*, supra note 8, at 269.

50. Practitioners frequently make this sort of efficiency evaluation when they advise their clients on the need for a quiet title action. If some aspect of mineral ownership is unclear, but there is no mineral development taking place or contemplated, and the issue does not impact use of the surface, the parties may accept the uncertainty of mineral ownership instead of spending the money to conduct a quiet title action or other curative action. This aspect of mineral ownership will remain undefined until there is a need to incur the costs to resolve the issue.

51. This issue is likely to arise in the water context as pressures mount to “change” the Texas capture approach to groundwater ownership to some form of a limited use standard. *See generally* Sipriano v. Great Spring Waters of Am., Inc., 1 S.W.3d 75 (Tex. 1999) (refusing to change the rule of capture approach while inviting the legislature to consider the matter). In *Sipriano* the court refused to depart from the existing rule of capture for groundwater stating:
Stop the Beach Renourishment, Inc. v. Florida Department of Environmental Protection,\(^5\) applied the Takings Clause to evaluate whether an opinion by the Florida Supreme Court gave rise to a "judicial taking" of a beachfront owner's common law accretion and reliction rights.\(^3\) Although the Court ultimately concluded that no taking had occurred, the plurality opinion indicated that property can be taken by a court to the same extent as a legislative or executive body.\(^4\) All the participating justices\(^5\) accepted the proposition that "state law defines property interests."\(^6\) The Court's plurality opinion, in defining the scope of a judicial taking, noted that "insofar as courts merely clarify and elaborate property entitlements that were previously unclear, they cannot be said to have taken an established property right."\(^7\) This article seeks to "clarify and elaborate property entitlements" to oil and gas as defined by the correlative rights associated with membership in a reservoir community.\(^8\)

For over ninety years, this Court has adhered to the common-law rule of capture in allocating the respective rights and liabilities of neighboring landowners for use of groundwater flowing beneath their property. The rule of capture essentially allows, with some limited exceptions, a landowner to pump as much groundwater as the landowner chooses, without liability to neighbors who claim that the pumping has depleted their wells.

\textit{Id.} at 75. The court noted that Texas adopted the common-law rule of capture in 1904. \textit{Id.} at 76. Nevertheless, the court, in \textit{dicta}, suggests the Texas Legislature can, and should, seek to temper this 1904 rule of water ownership, clearly affirmed through the years, by relying upon a 1917 Texas Constitutional Amendment authorizing the legislature to "pass all such laws as may be appropriate" to preserve and conserve the natural resources of the state. \textit{Id.} at 77. As the Texas Legislature chips away at the rule of capture, or the court steps in to act, such actions could raise takings and substantive due process claims. \textit{See infra} text accompanying notes 52-58.

\(^{52}\) See, e.g., Stop the Beach Renourishment, Inc. v. Fla. Dep't of Envtl. Prot., 130 S.Ct. 2592 (2010) (plurality opinion).

\(^{53}\) \textit{Id.} at 2598.

\(^{54}\) \textit{Id.} at 2602 ("If a legislature or a court declares that what was once an established right of private property no longer exists, it has taken that property, no less than if the State had physically appropriated it or destroyed its value by regulation.") (emphasis in original).

\(^{55}\) \textit{See generally id.} Justice Stevens did not take part in the decision. Justice Kennedy, joined by Justice Sotomayor, filed a concurring opinion but joined in parts I, IV, and V of the opinion by Justice Scalia. Chief Justice Roberts and Justices Thomas and Alito joined in all parts of Justice Scalia's opinion. Justice Breyer, joined by Justice Ginsburg, also filed a concurring opinion, but also joined in parts I, IV, and V of Justice Scalia's opinion. \textit{Id.} at 2618. The concurring justices believed it was unnecessary to address whether a court can take property in the context of this case and therefore refused to join the other four justices in parts II and III of Justice Scalia's opinion, resulting in a plurality regarding parts II and III and a unanimous court regarding parts I, IV, and V.

\(^{56}\) \textit{Id.} at 2597.

\(^{57}\) \textit{Id.} at 2609.

\(^{58}\) For an example of a court employing a "judicial taking" analysis applying substantive due process see \textit{Gibson v. American Cyanamid Co.}, 750 F. Supp. 2d 998 (E.D. Wis. 2010) (striking down the Wisconsin Supreme Court's change of tort principles
IV. PROPERTY IN OIL AND GAS INCLUDES COMMUNAL RIGHTS

The significance of the communal nature of the oil and gas reservoir was noted as early as 1900 by the United States Supreme Court where it referred to the oil and gas in place as a "common fund."59 The Court captured the essence of what would be later termed "correlative rights," stating:

[T]here is a coequal right in them all to take from a common source of supply the two substances [oil and gas] which in the nature of things are united, though separate. It follows from the essence of their right and from the situation of the things as to which it can be exerted, that the use by one of his power to seek to convert a part of the common fund to actual possession may result in an undue proportion being attributed to one of the possessors of the right to the detriment of the others, or by waste by one or more to the annihilation of the rights of the remainder.60

The Court made these observations as a basis for upholding an Indiana statute limiting the venting—wasting—of natural gas in order to produce oil.61 The oil producer argued the statute constituted a taking of its oil rights.62 The Court, noting the communal nature of the oil and gas reservoir, held:

Viewed, then, as a statute to protect or to prevent the waste of the common property of the surface owners, the law of the state of Indiana which is here attacked because it is asserted that it divested private property without due compensation, in substance, is a statute protecting private property and preventing it from being taken by one of the common owners without regard to the enjoyment of others.63

59. Ohio Oil Co. v. Indiana, 117 U.S. 190, 209 (1900).
60. Id. at 209-10.
61. Id. at 190-91 (J. White, in statement of facts preceding the Court’s opinion, stating that statute made it unlawful “to allow or permit the flow of gas or oil from any such well to escape into the open air without being confined within such well or proper pipes or other safe receptacle, for a longer period than two (2) days next after gas or oil shall have been struck in such well.”).
62. The Court summarized Ohio Oil’s argument stating:

[T]he law by making it unlawful to allow the gas to escape made it practically impossible to profitably extract the oil. That is, as the oil could not be taken at a profit by one who made no use of the gas, therefore he must be allowed to waste the gas into the atmosphere, and thus destroy the interest of the other common owners in the reservoir of gas.

Id. at 211.
63. Id. at 210. The State of Indiana took the position that there could be no taking because no “property” existed in the gas until it was produced. The Court rejected
In any situation where more than one person owns rights in an oil and gas reservoir, there will be communal rights and obligations among the owners, in addition to individual rights. Individual rights will be qualified by the fact that the "sticks" they own conceptually have roots connected to sticks owned by others in the reservoir community. These roots give rise to affirmative rights and negative limitations on each owner as to what they can, in fact, do with their interconnected sticks. The Court's holding in *Ohio Oil Co. v. Indiana* also provides a basis for asserting public rights in the oil and gas resource.64

Commentators have acknowledged communal rights as a basic component of oil and gas ownership. Commenting on the *Ohio Oil Co.* case, Professor Summers noted the Court was responding to the "peculiar facts of oil and gas" which give rise to "correlative rights" in the "common source of supply."65 The "peculiar facts of oil and gas" refer to the interconnected nature of the oil and gas reservoir.66 Professor Summers defined the communal rights, which he termed "correlative rights," stating:

> [T]hat each owner of land in a common source of supply of oil and gas has legal privileges as against other owners of land therein to take oil and gas therefrom by lawful operations conducted on his own land limited, however, by duties to other owners not to injure the source of supply and by duties not to take an undue proportion of the oil and gas.67

The communal nature of the oil and gas reservoir is the source of the common law of "correlative right-duty relations" described by Professor Summers.68

Another oil and gas scholar, Professor Kuntz, discussed communal oil and gas rights in a 1966 article chronicling the development of Indiana's argument noting that each owner's right to seek to produce the gas is itself valuable property associated with an owner's mineral interest. This finding required the Court to address the taking issue which caused the Court to take a more searching view of rights in a "common source of supply." *Id.*

64. *Id.* (noting that Indiana's "legislative power" was attributed to "the peculiar nature of the right" for the purpose "of protecting all the collective owners" in the reservoir).


66. Professor Summers attributes judicial failures to recognize correlative rights to a failure to appreciate the "physical characteristics of the oil and gas reservoir." *Id.* at 177-78 ("If those courts had known the physical characteristics of the oil and gas reservoir . . . they would have recognized the correlative rights of the owners therein.").

67. *Id.* at 180-81.

68. *Id.* at 190 ("The landowner's correlative right-duty relations respecting oil and gas have not been created by conservation statutes but are the result of judicial decisions on the basis of the peculiar physical and economic facts of these substances.").
"correlative rights." He described the communal oil and gas rights as follows:

Parties who own interests in a common source of supply of oil or gas stand in a very special relation to one another, for the reason that any extractive operation by any one or more of such owners in the common source of supply will have an inevitable and direct effect upon the economic welfare of the other owners.

This "special relation" dictates that: "Each such owner has the right to operate in such common source of supply and also owes a duty to respect the reciprocal rights of others who own interests in such common source of supply." Like Professor Summers, Professor Kuntz acknowledges that "correlative rights" have been recognized by courts to delineate permissible conduct within the reservoir community. The following section undertakes the task of defining these evolving correlative rights.

V. DEFINING THE EVOLVING CORRELATIVE RIGHTS

"Correlative rights" are not a collection of do's and don'ts, but rather an analytical construct for defining acceptable behavior within a specific reservoir community under specific circumstances. Professor Summers offers the broadest definition of correlative rights, which provides:

The term "correlative rights" is merely a convenient method of indicating that each owner of land in a common source of supply of oil and gas has legal privileges as against other owners of land therein to take oil and gas therefrom by lawful operations conducted on his own land limited, however, by duties not to take an undue proportion of the oil and gas.

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70. Id. at 224.
71. Id. at 244.
72. SUMMERS, supra note 65, at 190.
73. Correlative Rights, supra note 69, at 226 ("Correlative rights of parties owning interest in a common source of supply of oil or gas have been recognized by the courts in innumerable occasions, but there has been little occasion for the courts to attempt a comprehensive description of such rights.").
74. "[T]he concept of correlative rights is in the nature of a guide or precept that is to be applied to particular facts." 1 BRUCE M. KRAMER & PATRICK H. MARTIN, THE LAW OF POOLING AND UNITIZATION 5-16 (3d ed. 2010).
75. SUMMERS, supra note 65, at 180-81.
Professor Summers divides the operative portions of his definition into two parts: (1) "not to cause injury to the common source of supply" and (2) "not to take an undue proportion." Although the first part of his definition is uniformly accepted, the second part is not.

The common law has not sought to address the quantity of oil and gas taken by a reservoir owner, as compared to other reservoir owners. Instead, the focus has been on actions taken within the reservoir that may impair the ability—the "opportunity"—of other owners to produce oil and gas from the reservoir. Even Professor Summers observed that the "undue proportion" part of his definition would typically be a matter for state conservation authorities to address when they regulate production from a reservoir. The "undue proportion" aspect of correlative rights is, in reality, more of a property-based limitation on public conduct as opposed to private conduct. To the extent public authority limits an owner's ability to exercise his capture rights, it must be done in an equitable manner so no other reservoir owner is unfairly allowed to obtain a disproportionate part of the oil and gas from the reservoir.

Professor Kuntz puts the concept in perspective by noting that "the recognition of correlative rights constitutes a refinement of the law of..."
He notes that the law of capture has two components: (1) "the question of ownership of the extracted substance" and (2) "the conduct that is permitted in the extractive process." It is this second component that is defined by the correlative rights of reservoir owners. From this perspective, the definition of correlative rights becomes a much simpler statement as "a term to describe such reciprocal rights and duties of the owners in a common source of supply." This accurately describes the relationship that exists among owners in a reservoir community and provides the foundation for defining reservoir community standards.

A. Reservoir Community Standards

Correlative rights ensure that each owner in a reservoir has the opportunity to fully develop the oil and gas resource beneath his land, so long as he does so without unreasonably interfering with the rights of other impacted owners. There is nothing new about this basic statement of correlative rights. As early as 1893, trial judge Charles H. Noyes, in *Hague v. Wheeler*, articulated a fully developed statement of correlative rights in evaluating whether a member of a reservoir community could waste gas because another reservoir owner would not share its gas market. Instead of shutting-in its well, the defendants, in an apparent effort to enhance their negotiating position with the plaintiffs who had access to a market, allowed the gas to flow freely from its well and burn. In granting the requested injunctive relief, Judge Noyes, looking to water law for guidance, concluded:

> From the very nature of the case, the right of each owner is qualified. It is common to all whose land overlies the basin, and each must of necessity exercise his right with some regard to the rights of others. . . . The same considerations of natural justice which limit the ownership of running water to the usufruct, and of percolating waters to their use in a broader sense, must of necessity impose qualifications upon the enjoyment of all rights of property which,
from the nature of the things possessed, many must enjoy together. The owners cannot be permitted to carry on their operations in lawless irresponsibility, but must submit to such limitations as are inevitable to enable each to get his own. 89

Applying his statement of correlative rights, 90 Judge Noyes granted the injunction because, under the facts, he felt the defendants’ actions were unreasonable and thereby caused damage to the other reservoir owners. 91 The Supreme Court reversed Judge Noyes, thereby allowing defendants to resume wasting all the gas they could produce from their well. 92

Commentators have cited Hague v. Wheeler for the proposition that the Pennsylvania Supreme Court, in effect, rejected any sort of correlative rights limitation on the rule of capture. 93 The Supreme Court’s discussion and analysis of the facts suggests otherwise. First, the court noted that “a clear apprehension of the facts on which the questions are raised” was “a matter of first importance.” 94 The defendants drilled their well into the reservoir at the request of plaintiff Citizens Gas Company with the expectation that Citizens would either buy the well or the gas it produced. 95 Apparently things broke down and the parties were unable to agree upon any sort of sale. Plaintiff Hague was selling gas to Citizens and they both sought to have the defendants’ well shut-in. Citizens was likely the only available market. This meant that granting the injunction would allow Hague and Citizens to drain the gas from the defendants’ land. 96 Denying the injunction would at least put the defendants in a bargaining position where they could either sell their well, or the gas, to Citizens.

89. Id. at 717.
90. Although Judge Noyes does not label his oil and gas application of the concept as “correlative rights,” he used the label to describe the concept when applied to water, stating: “In such cases there are correlative rights to the use of the water, and the boundary of the right is a reasonable use of it.” Id. at 716.
91. Id. at 717.
92. Id. at 720.
94. Hague, 27 A. at 718.
95. Id.
96. Id. at 719 (“Their well must be shut in, while their successful neighbors drain the entire basin through their open wells, and receive pay for the gas.”).
The holding in *Hague v. Wheeler* was a practical solution to a gas marketing problem where the complaining parties, particularly Citizens, had “hands” that were not all that “clean.” It was not an outright rejection of a correlative rights limitation on the rule of capture. This is perhaps best demonstrated by the court’s concluding comments: “In the disposition he may make of it [gas from defendants’ well] he is subject to two limitations: he must not disregard his obligations to the public, he must not disregard his neighbor’s rights.”97 The court explained “his neighbor’s rights” stating: “If the use he makes of his own, or its waste, is injurious to the property or the health of others, such use or waste may be restrained or damages recovered therefore. . . .”98 Under the facts, the court simply did not think the defendants’ conduct warranted judicial intervention to, in effect, allow the plaintiffs to drain the defendants’ gas. The court, however, made it clear the legislature was free to get in on the act to address the resulting waste.99 The court also left open the possibility that under different facts it could find that an owner’s actions within a reservoir violate a “neighbor’s rights.”

Correlative rights are a matter of time and place. The “time” element considers the state of the art in developing oil and gas. The “place” encompasses the unique conditions presented by a particular reservoir. Development techniques and practices appropriate for one reservoir may be inappropriate for a different reservoir. Development techniques and practices that were reasonable at one time may become unreasonable as they are eclipsed by new techniques and practices. Therefore, the correlative rights within a particular reservoir community must be evaluated on a case-by-case basis. For example, consider the social acceptability within a reservoir community of hydraulic fracturing that creates cracks in the reservoir. Assume further the cracks extend beyond property lines and are being made to maximize gas production from the reservoir. As noted in the following section, analysis of this issue should include discussions of trespass, capture, and correlative rights.

**B. The Correlative Rights Approach to Hydraulic Fracturing Trespass Claims**

Hydraulic fracturing is the deliberate creation of cracks in reservoir rock to increase the recovery of oil or gas from the reservoir. When a well is drilled into a formation, whether it is a vertical well or a

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97. *Id.* at 720 (emphasis added).
98. *Id.*
99. *Id.* at 719 (“[T]he public has a sufficient interest in the preservation of oil and gas from waste to justify legislation upon this subject.”).
horizontal well, the operator may decide to use hydraulic fracturing to expand the area connecting the productive reservoir rock to the well bore. This is accomplished by pumping highly pressurized material, typically water and sand, into the well bore and out into the reservoir where the well has been completed. The extreme pressure causes the rock structure to crack, resulting in fissures that can extend long distances. The cracks are propped open by the sand so they remain open and in communication with the reservoir rock. This allows oil and gas to migrate from the reservoir rock and into the cracks; the cracks serve as extended pathways to the well bore. 100

Hydraulic fracturing often results in cracks that extend beyond boundary lines. This raises the issue whether such transboundary invasions constitute a trespass. The Texas Supreme Court had the opportunity to address this issue in Coastal Oil & Gas Corp. v. Garza Energy Trust. 101 The trial court and court of appeals both found that Coastal’s hydraulic fracturing operations, which extended cracks into the Garza property, constituted a trespass and upheld an award of $543,776 in damages for drainage attributed to the fracturing plus $10 million in punitive damages to deter such conduct. 102 The supreme court reversed the trial court and court of appeals holding that Garza was unable to establish any damage caused by Coastal’s fracturing operations other than drainage. In Texas, because Garza owned a non-possessory interest in the leased land—a possibility of reverter—it could not sue to enjoin the trespass but could sue for damages caused by the trespass. 103

The court held that because the only damages Garza claimed were related to drainage from its lands to Coastal’s well on adjacent lands, it need not address the trespass issue because the drainage was encompassed by the rule of capture. 104 There appears to be a missing

100. SHALE GAS DEVELOPMENT, supra note 38, at 56. See also Downhole Dilemma, supra note 14, §§ 20.4-6.
102. Id. at 8.
103. The court distinguished trespass quare clausum fregit, which is limited to invasions of a possessory interest in land, and trespass on the case, which allows recovery for damage to a non-possessory interest. In Texas, when a landowner enters into an oil and gas lease, it is viewed as a defeasible term conveyance of the oil and gas to the lessee with the lessor retaining a possibility of reverter. Id. at 9. As a non-possessory interest owner the lessor could not seek injunctive relief but must prove actual, permanent harm to its reversionary interest. Id. at 9-10. Normally the lessee would also be a complaining party as the owner of the possessory interest under the lease, along with its lessor. In this case, however, Coastal was the oil and gas lessee of the Garza tract of land and the owner of the minerals in the land on which the well was drilled. Id. at 5.
104. Id. at 12. The court stated:
   We need not decide the broader [trespass] issue here. In this case, actionable trespass requires injury, and Salinas’s [Garza’s] only claim of injury—that Coastal’s fracing operation made it possible for gas to flow from beneath Share
step in the court’s analysis. How can the rule of capture be used to exempt Coastal from liability without first determining whether the drainage was legitimate and therefore protected by the rule of capture? If the cracks were the product of an unlawful trespass, then the drainage would be the product of an illegitimate act not protected by the rule of capture. If the cracks were the product of legitimate acts within the reservoir community, then any resulting drainage would be protected by the rule of capture. The court, however, never addressed the legitimacy of the act that allegedly caused the drainage.

Applying surface principles to the hydraulic fracturing situation will result in an actionable trespass. If Coastal propelled a crack, filled with water and sand, across the surface of Garza’s land, it would be a trespass. The surface, however, exists in its own compartmentalized universe defined by boundary lines. There is no necessity or legitimate reason for Coastal to intrude on the surface of the Garza land with cracks, water, and sand. The situation, however, is much different regarding the Vicksburg T formation. Through the common medium of the reservoir rock, the Coastal and Garza tracts are connected; it is not possible to compartmentalize the formation with a fence or other barrier. Nor is it possible to effectively fracture the reservoir on Coastal’s side of the line without the risk of cracks crossing into Garza’s side of the line. Similarly, an effective fracture of wells on Garza’s side of the line will likely send cracks into Coastal’s reservoir area.

The problem with a surface dimension approach to the crack is it fails to account for the true environment in which the crack was made. Oil and gas reservoirs are not a series of distinct compartments; they have no physical relationship to boundary lines drawn upon the surface. Therefore, a compartmental analysis is inappropriate. Nevertheless, all the Texas Supreme Court justices applied some form of compartmental analysis to address the trespass issue in the Coastal case.
Nowhere in any of the three opinions comprising the Coastal decision do the justices ever consider whether the hydraulic fracturing issue might be informed by a correlative rights analysis. Instead, all the justices were preoccupied with a two dimensional rule of capture analysis where the ad coelum doctrine had to be dealt with in some manner. When you combine the incomplete capture analysis found in the court’s majority opinion, with the willingness of three dissenting justices to find a trespass, the Coastal case, instead of offering useful guidance on the issue, merely highlights the dispute that will likely be taken up by courts in other jurisdictions. Therefore, the hydraulic fracturing scenario, and the Coastal case, provide an excellent opportunity to consider the role of correlative rights in resolving these sorts of intra-reservoir disputes.

Consider a modern property analysis of the Coastal hydraulic fracturing issue. The first step is to determine whether correlative rights are implicated by the dispute. In this case the issue concerns actions taking place in the Vicksburg T formation, a connected body of reservoir rock in which Coastal and Garza have rights. The “reservoir community” is the Vicksburg T formation and therefore the task is to define the correlative rights of owners in the Vicksburg T reservoir community. Failing to recognize the existence of a reservoir community, and the need to define the parties’ correlative rights in the community, will most likely result in an application of traditional surface ownership principles using a compartmentalized analysis.

The second step is to identify the conduct at issue. The conduct is hydraulic fracturing that is being pursued to maximize production from the Vicksburg T formation. The court in the Coastal case made it clear that ancient doctrine “has no place in the modern world.” He was also prepared to simply declare that invading cracks, water, and proppants are not a trespass. Id. at 36 (Willett, J., concurring) (“Trespass is a court-defined doctrine, and it falls squarely on this Court’s shoulders to decide what is actionable.”). The dissenting justices also viewed the issue as one concerning extended surface boundaries noting: “In considering the effects of the rule of capture, the underlying premise is that a landowner owns the minerals, including oil and gas, underneath his property.” Id. at 43 (Johnson, J., dissenting).


109. Coastal Oil & Gas Corp, 268 S.W.3d at 43 (Johnson, J., dissenting) (“In the face of this record and an uncontested finding that Coastal trespassed on Share 13 by the manner in which it conducted operations on Share 12, I do not agree that the rule of capture applies.”).

110. Nor does the Coastal case appear to be the last word on the issue in Texas.

111. Id. at 6.
that hydraulic fracturing was a necessity to effectively develop the Vicksburg T formation.112

The third step is to evaluate the conduct and its relationship to the Vicksburg T reservoir community. As a necessary technique to effectively develop the Vicksburg T formation, all members of the reservoir community will benefit from hydraulic fracturing. Without it, the Vicksburg T formation would likely remain undeveloped to the detriment of the entire reservoir community. Although cracks may extend into adjacent lands owned by Garza, and cause drainage from the Garza lands to the Coastal well, this would not necessarily impair the reasonableness of the fracture treatment. If it can be shown that the fracture treatment was necessary to maximize production from the Vicksburg T formation, and not designed and executed solely to drain adjacent lands, it should be deemed acceptable conduct within the reservoir community. The appropriateness of an activity must be evaluated by what is best for the reservoir community, without regard for what may redound to the maximum benefit of any individual member of the community.

Therefore, as a member of the reservoir community, Garza may have to tolerate a crack in its land created by Coastal. Similarly, Garza may have to tolerate the additional drainage associated with the crack. Garza’s correlative right would be to enjoy the benefits of similar cracks that have been made in Coastal’s land, or the land of other owners in the reservoir. The appropriateness of cracks made by Coastal, Garza, or other reservoir owners, would depend upon whether they were made to reasonably develop the reservoir. The Coastal/Garza boundary line will not be the determinative factor in assessing the appropriateness of the crack. Instead, the rights of the parties will be determined within the context of Professor Rose’s “limited common property.”113 In this case, the particular oil and gas reservoir that is being developed.

The hydraulic fracturing example also highlights that correlative rights include affirmative as well as negative rights. Traditional correlative rights analysis has focused on “negative rights” by stating the right as a limitation on what owners can do within the reservoir.114 Hydraulic fracturing is an activity which lends itself to consideration of “affirmative” correlative rights. The affirmative nature of the right

112. Id. (“The Vicksburg T is a ‘tight’ sandstone formation, relatively imporous, and impermeable, from which natural gas cannot be commercially produced without hydraulic fracturing stimulation, or ‘fracing’, as the process is known in the industry.”).

113. See supra text accompanying notes 16-18.

114. E.g., Wilmer D. Masterson, Jr., A Survey of Basic Oil and Gas Law, 4 INST. ON OIL & GAS L. & TAX’N 219, 222-28 (1953) (describing correlative rights as duties not to do things, or fail to do things, that can result in injury to the reservoir).
recognizes that hydraulic fracturing is beneficial, and in many cases essential, to reasonable development of the reservoir. \(^{115}\) Therefore, it will be an acceptable practice within the reservoir community without regard for whether it gives rise to cracks that cross the surface boundaries of individual reservoir owners. The right, however, includes a negative component. To the extent a particular fracturing activity in the reservoir damages the reservoir community, or has the effect of unnecessarily damaging a member of the community, it may be deemed "unreasonable" and therefore actionable.

To the extent a state oil and gas conservation agency adopts regulatory guidelines for hydraulic fracturing, they can assist in defining the line between "affirmative" and "negative" correlative rights. Absent regulation, the common law of acceptable conduct within the reservoir will be defined by what is currently viewed as prudent operating practices.

VI. CONCLUSION

The teachings of property theorists, such as Professor Rose, provide the foundation for applying principles that may otherwise be overlooked. For example, something as basic as the distinction between compartmentalized property and connected property has been overlooked by the Texas Supreme Court in evaluating whether hydraulic fracturing constitutes a subterranean trespass. Professor Rose's limited common property, and the resulting community of owners, provides the analytical foundation that is necessary to confidently depart from *ad coelem* concepts of "ownership" and "rights." Perhaps the most interesting aspect of using the correlative rights analysis to address reservoir problems is that it results in "more" property rights in the reservoir owners. Contrast this with the Texas Supreme Court's failure to recognize the reservoir community, and each party's "limited common property" in the reservoir. The court was prepared, if necessary, to redefine subsurface ownership in a manner that would clearly result in "less" property rights in all reservoir owners. \(^{116}\) At least with regard to hydraulic fracturing, such a showdown is unnecessary and can be avoided by recognizing that the rights of owners in a reservoir are, indeed, correlative.

\(^{115}\) E.g., *Coastal Oil & Gas Corp.*, 268 S.W.3d at 6.

\(^{116}\) See generally id. Under the Texas Supreme Court's suggestion that subsurface mineral ownership should go the way of the easement for air travel, the question is: where would the "stick" go that is currently owned by mineral owners? Presumably it would reside with governments that could then define how and when the subsurface mineral formations could be, or must be, used.
Professor Rose has provided the foundational tools to more precisely define “property” in oil and gas as new conflicts arise. The task at hand is for the industry, litigants, courts, and the public to use the tools she has provided.