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The Valuation Of High-Amenity Natural Land

The authors seek to establish a logical framework within which to value natural lands. These lands generally do not provide a basis for economic analysis. This is because such attributes as old growth or virgin forest, unique wildlife habitats, and other features often cause the public to severely constrain or effectively stop economic use. According to the public, these lands have a higher and better use than certain economic alternatives. The dilemma appraisers face is how to quantify this noneconomically based value. The authors discuss the market for natural lands and a concept of market value in natural land valuation. The rationale for land use as well as precedence for its use, how this concept is consistent with highest and best use, and how the use of comparative sale evidence fits within the highest and best use context are also discussed.

The income capitalization approach, and other methods based on economic analysis, are not generally applicable to the valuation of natural lands. This is because such attributes as old growth or virgin forest, unique wildlife habitats, and other features often cause the public to severely constrain or effectively stop economic use. In such cases, the message of the public is that these lands have a higher and better use than certain economic alternatives. The dilemma appraisers face is how to quantify this noneconomically based value. In this article, a logical framework within which to value natural lands will be established.

THE MARKET FOR NATURAL LAND

In recent decades a noticeable cognitive shift has occurred in the way we comprehend and respond to our environmental surroundings. Typically, land has been perceived as valuable for its ore and minerals, its agricultural and timber productivity, its connection to water rights, and as real estate for development. These activities define the land's utility on the basis of consumptive and exploitive needs. There is an increasing awareness, however, of the land's utility in an aesthetic and emotional context.

Partly in response to this move-

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ment, a considerable body of evidence has evolved that demonstrates a significant market in undeveloped land with the intent of preserving its natural, scenic, wilderness, or wildlife habitat character. There are several distinguishing features of this specialized segment of the real estate market. First, the lands are typically either rare or outstanding in one or more attributes that make them desirable for public use or appropriate for protective status. Second, from a value perspective these same attributes tend to be intangible—possessing more intrinsic value than economic value. Finally, the purchasers of the properties are not motivated by what the land can maximally support in an economic sense. Buyers' motivations often reflect the commitment of unique or increasingly scarce land resources for an infinite period of time to benefit the public at large.

Despite the distinguishing characteristics of this specialized market, the valuation of natural lands can be approached within the framework of traditional real estate appraisal methodologies, using accepted concepts of market value and highest and best use.

THE CONCEPT OF MARKET VALUE IN NATURAL LAND VALUATION

Market value presumes that both buyers and sellers are acting prudently, that each faces multiple options in a competitive arena, and that neither party is under undue duress in the transaction. As mentioned above, there is a significant market in scenic, recreational, wilderness, and wildlife habitat properties. This market primarily, though not exclusively, involves

public agencies (federal, state, or municipal), environmental or conservation organizations like The Nature Conservancy and The Trust for Public Lands, and numerous smaller land trusts as acquirers. In addition, it is not uncommon for these groups or agencies to find themselves bidding against private development interests for the same property. Nor are these individuals and organizations faced with limited purchasing options. In fact, the U.S. Forest Service, the U.S. Fish & Wildlife Service, and The Nature Conservancy all have relatively comprehensive and sophisticated procedures for identifying and prioritizing properties for acquisition.

Government agencies are expected to act knowledgeably and prudently given the economic and political context in which certain acquisitions occur. It can also be assumed that the frequency and expertise with which groups like The Nature Conservancy and The Trust for Public Lands acquire and sell land provide them with the experience to act knowledgeably and prudently. In addition, sellers can be expected to act in their own interests within the context of the alternative uses to which their land can be put (e.g., agricultural, forestry, or natural habitat). There is also an assumption that adequate time exists for a transaction within this context to occur, since it may take several years to consummate a natural habitat transaction.¹ Sellers, acting prudently and with self-interest, may see their use options, which maximize the property's present value, as economic (forestland or industrial development land) or noneconomic (land with significant cultural or archaeological value).

1. For example, the State of Alaska and the Seldovia Native Association have been negotiating a land exchange since 1979.

RATIONALE

The concept of valuing natural lands has been prominent in the assessment of wilderness and recreational land resources since the late 1960s. Value is attributed to lands that are undeveloped, have scenic beauty, or are unique in the wealth and productivity of their natural life forms. In addition, either the lands themselves or the life they produce are commonly used by segments of the public for various recreational purposes.

This concept of natural land value is closely related to that of "option value." Option value has several related meanings, all of which are relevant in considering the value of scarce natural environments. In one sense, while actual visitors to the site benefit from its being preserved and open to public access, nonusers also benefit because they and their children have acquired the option to visit the site at a later date.

From the point of view of land and resource planners, the significance of option value is that they have gained the option to preserve the resource in its present state or develop it later. This is a significant value—since the supply of these resources is limited, additional wilderness lands cannot be artificially produced, and once they have been developed they cannot be returned to their natural state.

Finally, from the viewpoint of the seller, option value is the value, in addition to present economic value, which arises from retaining an option to a good or service for which future demand is uncertain. As natural wilderness areas become increasingly scarce, their value to society is increasing. By selling now, the seller gives up the option to sell in the future and pos-

sibly realize a significantly higher price. Each of these facets of value shows a benefit gained through the preservation of natural land areas.

PRECEDENTS

A number of cases have set a precedent for the consideration of option value in decisions concerning land valuation and land use. One of the most widely known examples involves the debate over the Hells Canyon reach of the lower Snake River.² At issue was whether a hydroelectric power project that would degrade the scenic character and rich habitat of the canyon should be constructed. The controversy between resource developers and environmentalists continued for over a decade, largely caused by the difficulty inherent in the attempt to assign a dollar value to the canyon in its undeveloped state, to allow comparison with the estimated value of the proposed dam.

The dilemma was resolved by an analysis presented by economist John Krutilla in which he observed that it was not necessary to establish an amenity value for the canyon, only to show that its value was greater than that of the dam. Although no measure of value was available for the canyon at that time, there was strong evidence that the rate of its value growth could be expected to increase over time. Consequently, it was concluded that the initial or present value of the canyon could be very low, yet the projected growth of the value over time would still be worth enough to make preservation economically superior to development of the dam. In other words, the value of the option to retain the canyon in its original state in anticipation of its

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2. *Udall v. Federal Power Commission* 387, U.S. 428, (1967). For discussion, see also John V. Krutilla and Anthony C. Fisher, "The Economics of Natural Environments," *Resources for the Future* (WADC 1975).

rapidly increasing scarcity and value in the future increased its present value substantially.

After presentation of the analysis the case was soon resolved, resulting in the preservation of the canyon in its natural state and the construction of the dam at an alternative site. In this case it was determined that the option value made the value of the land when preserved as a wilderness resource higher than the value of that same land under the most highly valued development scenario (economic highest and best use).

A second precedent is provided by the Department of Interior's acquisition of some 8,000 acres of seabird cliff habitat within the Pribilof Islands chain in Alaska. The cliffs are known for supporting over 2.5 million seabirds. The land parcels involved were purchased in 1984 from two Alaskan Native corporations at a total price of \$5,120,000. The purchase price was established by an act of Congress³ and yields an average unit price of \$640 per acre. A subsequent real estate appraisal, made by the U.S. Fish & Wildlife Service, determined the highest and best use of the property to be for marginal homesites and reindeer grazing. This appraisal estimated the value of the lands to average about \$83 per acre. The important precedent set in this case is that Congress set a value for the property in the public interest roughly eight times greater than that set by standard appraisal based on the land's economic highest and best use. These two cases show how option value can be an important factor in determining highest and best use, and in establishing value in a noneconomic sense.

These cases also demonstrate another important point. When the lands are acquired they are taken

out of economic production. Taking them out of such production will require the buyer to pay at least the going rate for this particular type of land. In fact, he or she will probably have to bid a higher price—a price greater than the highest price at the land's *economic* highest and best use—to remove it from production.

THE CONCEPT OF HIGHEST AND BEST USE

The value of a property is based on its potential uses. Highest and best use, therefore, is the very cornerstone of the appraisal process. By definition the highest and best use of a property will be one that maximizes the net present value derived from the property. Although this has been commonly construed to mean what could be extracted from or developed on a property, there is a growing acceptance that certain natural land resources may have significant value that can only be realized when retained in a natural (or near natural) state. Given the increasing scarcity of such resources, this undeveloped value may indeed be higher over time, thus maximizing the present value of the property—as in the Hell's Canyon and Pribilof Island examples.

A frequently encountered issue in considering wilderness and wildlife properties as comparables is that many of them were previously valued based on an alternative economically productive use rather than their natural attributes. The motivations of the buyer and intended purpose of the land are key determinants of highest and best use in these cases. Consider, for example, a property that was appraised as commercial timberland but purchased by the U.S. Forest

3. 1984, Public Law 96-487.

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Service for addition to a wilderness area. In this instance the buyer would have paid at least as much as the timber value, and possibly more, in order to take it out of economic productivity. According to Richard Ratcliff, "In general, the land use which can most efficiently and productively exploit a given site will be able to command its use by outbidding all competing uses."⁴

OTHER USE OPTIONS

This is not to imply that when valuing natural lands alternative uses should be neglected in the process of estimating market value. As a part of the highest and best use analysis, such other uses as forestry, mining, recreational subdivisions, or speculation should be considered. If the analysis clarifies the fact that land retained in its natural state for conservation purposes will maximize the present value, then this should set the framework or context within which sales comparison evidence is gathered. This framework is shown graphically in Table 1. When the characteristics of a site determine the uses to which it can be put, values can be associated with the uses, and a highest and best use determined.

COMPARATIVE SALE EVIDENCE

It is generally accepted that highest and best use establishes the framework within which comparable sales evidence is selected. This principle is prevalent in *The Appraisal of Real Estate's* discussion of highest

and best use and the market approach to value:

"The highest and best use of a property to be appraised provides the foundation for a thorough investigation of the competitive positions of market participants."⁵

"The highest and best use of comparable properties should be the same or similar to that of the subject property. Therefore, there are two reasons to identify the highest and best use of land as though vacant in an appraisal: to estimate a separate land value and to identify comparable sales of vacant land."⁶ (Emphasis added.)

"The highest and best use of land as though vacant and property as improved should be the same for each comparable property as for the subject property. For example, it may be inappropriate to use a comparable property that has a highest and best use as offices in appraising a subject property that has a highest and best use as a hotel."⁷

Once highest and best use has been identified, the parameters of the comparative sale research have been substantially narrowed. It is then possible to ascertain the appropriate property attributes. One such attribute is the use to which the property is being put, possibly timberland, and the second is the use to which the land may be put, possibly as natural land. It would be expected that lower value patterns for some land uses and higher patterns for others would appear. In this context, the focus should be on natural land transactions if they set the maximizing pattern of value. Transactions in which

- The seller was motivated to maximize his self interest;

4. Richard U. Ratcliff, *Real Estate Analysis* (McGraw-Hill Book Co., 1961), 231.

5. American Inst. of Real Estate Appraisers, *The Appraisal of Real Estate*, 9th ed. (Chicago: American Inst. of Real Estate Appraisers, 1987), 270.

6. *Ibid.*, 273.

7. *Ibid.*, 274.

TABLE 1 Framework for Identifying Highest and Best Use

Property Attributes	Use Options	Value by Use Option (\$/Acre)
Steep to level topography	Mining	\$ 250
Rock outcroppings	Timber	\$ 450
Streams, waterfalls	Wilderness retreat	\$ 900
Wildlife	Preservation	\$1,000
Access by foot		

- The buyer's purpose was to preserve the lands;
- Both parties were knowledgeable, and acted prudently; and
- Neither acted under duress.

To go beyond these parameters when selecting comparative sales—for example, to use a transaction purchased for speculation or forestry—is inappropriate to the valuation process.

CONCLUSION

When valuing high-amenity natural lands, it is important, just as when valuing an office building, to include the following points:

- The purpose for the value study must be well understood;
- The character of the lands must be well understood;

- A careful study must be made of the alternative uses to which the lands might be put;
- Values, based on market forces, must be associated with the alternative uses;
- Highest and best use must be defensibly established; and
- The valuation process must take place within the parameters of highest and best use.

As a result of this process, it may be found that natural lands have values greater than alternative economic uses because of their unique natural characteristics, the high demand on the part of the public to preserve those lands, and the fact that the public must outbid other economic use options in order to preserve the lands.