

VI. SUMMARY OF FINDINGS

This research serves as a first step in gaining an understanding of the legal language used in working forest conservation easements across the country as well as the techniques and methods used to monitor these easements. This study focused on evaluating two aspects of WFCEs: trends in easement language (from the years 1985 to 2003) and current monitoring techniques and methods. This research develops an understanding of the trends in easement language and status of current monitoring.

VI.1 Easement Language Results

Eighty-two WFCEs representing all regions of the country were collected, read, and applied to a matrix that catalogued easement purposes and restrictions. In the reading of these 82 easements the following themes were identified: water, technology/extraction, development, forest management, ecosystems/rare species, and recreation. For each theme, easement language was examined to identify important trends related to region, easement holder, easement age, and easement size.

Table VI.1 below provides a summary of the frequency with which theme-related easement purposes and restrictions appeared in the 82 WFCEs analyzed. It should be noted that these figures are not based on every purpose and restriction for a given theme, but rather on two purposes and four restrictions (the recreation theme was based on one purpose and three restrictions) for each theme as being the most relevant. These purposes and restrictions were identified, with the advice of professional staff at The Nature Conservancy, as being the most relevant for each theme. For a list of the themes and the associated purposes and restrictions, refer to Appendix C.

Table VI.1 Percentage of 82 easements with purposes and restrictions in each easement language theme and the average number of purposes and restrictions in those easements.

	Purpose		Restrictions	
	% of Easements	Avg # Purposes	% of Easements	Avg # Restrictions
Water	53.7	1.4	90.2	2.5
Technology and extraction	35.4	1.1	91.5	2.1
Development	65.9	1.1	98.8	3.3
Forest Management	82.9	1.6	84.1	2.0
Ecosystem / Rare Species	78.0	1.6	65.9	2.0
Recreation	68.3	1.0	72.0	2.0

Several themes revealed disconnect between the frequency with which purposes and restrictions are mentioned. The literature has suggested that restrictions will be more defensible when linked with a purpose (Lind 2001b). In the “water” and “development” themes the frequency with which restrictions were included was greater than the frequency with which purposes were included. Water restrictions may have been mentioned more frequently because in some cases they achieve other purposes, such as ecosystems and rare species. However, water-related restrictions that cannot be directly tied back to a water-related purpose may not be entirely defensible in court. As mentioned earlier, development restrictions were likely mentioned more frequently than purposes because they satisfy other purposes. Additionally, the purpose section of easements is usually reserved for the conservation goals of the easement. Clearly then, development-related purposes would likely not be mentioned frequently. In some cases, as with the “ecosystem and rare species” theme, the complexity of managing and protecting ecosystems makes it a challenge to identify appropriate restrictions. This is a possible explanation for why purposes were mentioned more frequently than restrictions for this theme.

Careful review of the easement comparison study data showed that several restrictions experienced considerable increases in frequency over time. The mention of “BMPs” has increased over time, likely because they provide a current, standardized, and accepted approach to management and because they have become more prevalent over time. Additionally, as “BMPs” tend to be focused on water quality issues, they may be referred

to in lieu of multiple water-related restrictions. Restrictions against the “manipulation/alteration of water bodies” have likely increased over time because this is a more easily monitored restriction than other water-related restrictions, for instance “pollution of water bodies.”

Two technology-related restrictions, “mining” and “drilling” were mentioned with increasing frequency over time. This finding may reflect an increasing knowledge and understanding of the detrimental effects of these two activities on ecological integrity. Also, increasing interest among landowners to generate revenue from their land, and a corollary demand for energy exploration, may have spurred easement drafters to explicitly restrict these activities.

Two specific forest management restrictions were mentioned with increasing frequency over time. The first, the use of “FMPs,” follows recommendations from the literature that landowners use this tool to manage forestlands. The use of FMPs allows for flexibility in management and adaptability to changing conditions over time. The second forest management restriction that increased over time, use of a “professional forester,” infuses competent science and legitimacy into forest management. Also, as WFCEs have become more popular in recent years, easement drafters have used this restriction to ensure high standards of forestry. The final restriction in this theme that increased over time was “maintain wildlife habitat.”

The final two restrictions mentioned with considerable increasing frequency appeared in the ecosystems and rare species theme. The first, “introduction of non-native species,” reflects a growing concern over the harmful effects of invasive species and relates directly to the second restriction that increased over time, “ecological restoration.” This restriction likely indicates that conservation organizations are interested in not only protecting existing conservation values but also in restoring degraded ecosystems.

What follows is a series of easement language research questions that guided this research and answers to those questions.

- How has easement language (purposes & restrictions) addressing water issues changed by easement holder, by age, and by size?

Water purposes were mentioned infrequently relative to both other purposes and water-related restrictions. It should be clear then that many water restrictions that occurred in the 82 WFCEs were not necessarily associated with a water-related purpose. Water purposes were found more frequently in privately-held easements (60.5%) than in publicly-held easements (48.7%). The same was true for water restrictions, with 94.7% of privately-held WFCEs mentioning them compared to 87.2% of publicly-held WFCEs. Water purposes experienced an increase in frequency from 11.1% in 1990 to 1994 to 60.6% in 1995 to 1999. In comparison, water restrictions experienced a consistently high frequency over time; however, over time the average number of restrictions per easement increased. Water purposes increased in frequency with the size of the easement parcel: they were found most often in the two largest size classes (20,001-50,000 & 50,001 and larger).

- How has easement language (purposes and restrictions) addressing technology and extraction issues changed by easement holder, by age, and by size?

Technology and extraction issues were the least frequently mentioned purposes of any theme, appearing in only 35.4% of WFCEs. Restrictions, however, were mentioned in 91.5% of WFCEs, due primarily to the frequency with which WFCEs mentioned mining and drilling. Technology and extraction purposes and restrictions displayed no trend by holder or age. While technology and extraction purposes also displayed no trend with regard to size, the average number of restrictions mentioned increased with easement size.

- How has easement language (purposes and restrictions) addressing development issues changed by easement holder, by age, and by size?

While development purposes were only found to occur with moderate frequency (65.9%), development restrictions appeared in 98.8% of WFCEs, mentioned on average 3.3 times per easement. This apparent disconnect is likely explained by the fact that restrictions on

development often serve other purposes, such as preservation of biodiversity, and “restrict development” is not often considered a purpose in itself. Development purposes and restrictions displayed no trend by holder. Every easement analyzed in the first three age classes mentioned at least one restriction. However, in the 2000 to 2003 age class, the percentage of easements that mentioned at least one restriction (97.4%) was much higher than the other age classes. Development purposes have been consistently mentioned with moderate frequency regardless of the age of the easement. Development restrictions were mentioned with consistently high frequencies across age and size.

- How has easement language (purposes and restrictions) addressing forest management issues changed by easement holder, by age, and by size?

Due to the centrality of this issue to WFCEs, forest management purposes were mentioned more frequently (in 82.9% of easements) than purposes for any other theme. Restrictions appeared with high frequency as well, in 84.1% of easements. Privately-held easements were found to mention forest management purposes and restrictions slightly more frequently than those held publicly. Private holders mentioned purposes in 84.2% of WFCEs and restrictions in 86.8% of WFCEs. Public holders mentioned both purposes and restrictions in 79.5% of WFCEs. While purposes remained relatively constant over time, restrictions became more frequent, appearing in 92.1% of WFCEs in the 2000 to 2003 age class. It makes intuitive sense that purposes would remain constant over time because the goals remain the same. Restrictions, however, may have increased in frequency as easement holders found the need to be more prescriptive regarding forest management as new practices are developed and science is advanced. Forest management purposes and restrictions both appeared with relatively high frequency across all size classes.

- How has easement language (purposes and restrictions) addressing ecosystems and rare species issues changed by easement holder, by age, and by size?

Ecosystems and rare species purposes were mentioned in 78.0% of easements with an average of 1.6 purposes per easement. Restrictions were mentioned in fewer easements,

or 65.9%. Privately-held easements mentioned ecosystem and rare species purposes and restrictions more often than publicly-held easements. Privately-held WFCEs addressed purposes in 84.2% of easements and restrictions in 76.3% of easements. Publicly-held WFCEs addressed purposes in 69.2% of easements and restrictions in 53.8% of easements. Ecosystem and rare species purposes and restrictions both experienced pronounced increases over time, perhaps indicating a growing recognition of the importance of ecosystem health in forest management. Purposes and restrictions also increased in frequency with regard to size. This suggests that at larger sizes, WFCEs can address landscape-scale protection that is necessary for ecosystem health.

- How has easement language (purposes & restrictions) addressing recreation issues changed by easement holder, by age, and by size?

Recreation purposes and restrictions were found to occur with moderate frequency in the 82 WFCEs analyzed, 68.3% and 72.0%, respectively. Publicly-held easements mentioned recreation purposes and restrictions more often than those held privately, correlating to the likely demand for public recreation and access on easement properties purchased with public funds or held by public agencies. Recreation purposes and restrictions showed no discernible trend over time. Recreation purposes were found more frequently in WFCEs of larger size, probably due to the increased opportunities for recreation.

VI.2 Survey Results

To analyze the monitoring practices used in a sample of the large WFCEs across the country, surveys were conducted for 39 easements. Twenty-three monitoring professionals, some of whom monitored more than one easement in the study set, were interviewed by phone. Each survey was custom designed using the specific purposes and restrictions for each easement. Survey questions addressed the individual monitoring techniques (e.g. ground-level monitoring) and overall method(s) (e.g. combination of meeting with the landowner, ground-level monitoring and aerial monitoring) used to monitor each easement. Moreover, the surveys included questions about the extent to

which specific easement restrictions and purposes were considered in the monitoring regime. Data was collected regarding whether each restriction was considered in the baseline documentation, how frequently each restriction was monitored, and how effective the monitoring method was in determining whether or not a restriction had been violated. The same information was collected for each easement's purposes.

- How many easements in the study set are being monitored and what is being monitored on these properties?

The results of the survey revealed that a high percentage of easements were monitored to some extent (39 of 45 easements, or 87%). Overall, six easements were not monitored, three of which were signed in 2003 and were without a monitoring regime at the time of inquiry. If these three easements signed in 2003 are removed from the sample, the other three easements that were not monitored represent 7% of the remaining 42 easements. These three easements were all publicly-held, ranged in size from under 10,000 acres to over 100,000 acres, and were signed between 1998 and 2002. A full year had not passed since the signing of one of these easements at the time the survey was conducted.

Within the 39 easements that were surveyed, the average percent of restrictions monitored was 94% with a range of 46% to 100%. For 23 of the 39 easements, 100% of the restrictions in the easement were reported as monitored. On average, easements covering more acreage tended to have fewer restrictions monitored.

Restrictions that were mentioned in easements were compiled and then evaluated to determine the frequency with which each one was monitored. Restrictions that were found in ten or more easements were compiled. From this list, many restrictions that fell into the "most monitored" (100% monitoring) category were related to development, alteration of topography, water, forestry, and agriculture. Forestry-related restrictions appeared 11 times, comprising 32% of the most monitored list. Restrictions pertaining to development were mentioned five times (or 24%). Water-related restrictions appeared five times out of 34 (or 15%). Two agriculture-related restrictions (6%) were also monitored 100% of the time.

At the other end of the spectrum, restrictions that were monitored in relatively few of the easements, including restrictions relating to recreation and chemicals. Of 17 restrictions falling into the least monitored category, nine (or 53%) related to recreation and three (or 18%) related to chemicals. Several monitoring professionals suggested that the dichotomy between “most monitored” and “least monitored” restrictions was largely driven by the visibility of potential violations. For example, clear-cutting and the construction of buildings would be more visible than an alteration of water chemistry.

➤ What monitoring techniques are being used across the study set?

Ground-level monitoring (walking and/or driving) was by far the most common technique used. Aerial monitoring, meeting with the landowner, and satellite imagery were often used in some combination with ground-level monitoring. See Table VI.2 below for a complete list of the monitoring methods, individual techniques, and how frequently those techniques were used.

Table VI.1 List of monitoring methods and techniques and the frequency of use.

Monitoring Methods	Easements	% of Easements
Ground (walk/drive)	15	38
Ground/aerial/meeting	8	21
Aerial and ground	7	18
Ground and meeting with landowner	4	10
Aerial photos/ground/map/aerial video	1	3
Meeting with landowner	1	3
Satellite/aerial/ground	1	3
Satellite imagery/ground/meeting	1	3
Volunteers walk property/ground (staff)	1	3
Use of Individual Techniques		
Ground	38	97
Aerial	17	44
Meeting with landowner	14	36
Satellite imagery	2	5

➤ How effective are available monitoring techniques perceived to be?

The study evaluated the perceived effectiveness of the various monitoring methods by interviewing the monitoring personnel. Respondents were asked to rate the effectiveness of the monitoring technique for each restriction (five point scale: 1 = ineffective and 5 =

highly effective). Ratings of easement effectiveness ranged from 2 to 5, and averaged 3.7. The most noticeable findings included:

- No consistent trends were found across easement size in the monitoring effectiveness rating. It did appear, however, that a lack of aerial and/or satellite imagery on larger properties may have reduced monitoring effectiveness ratings on these properties.
- The addition of the monitoring technique “meeting with landowner” increases monitoring effectiveness ratings.
- While ground-level monitoring was the most common technique used, it received the lowest effectiveness rating when used alone. However, the addition of both landowner meetings and aerial monitoring to ground-level monitoring increased the average effectiveness from 3.1 to 3.9 out of a 5.0 rating.
- There may be a link between those restrictions that are least regularly monitored and those which are rated as least effectively monitored. The frequency with which a restriction is monitored appeared to correspond with the restriction’s monitoring effectiveness rating; in other words, the more frequently a restriction was monitored the more effective it was rated. For example, development-related restrictions, such as structures and roads, were monitored most often and rated as effectively monitored. Similarly, restrictions relating to chemicals/fertilizers and recreation were rated as ineffectively monitored, and these categories comprised the group of restrictions that were least often monitored.

➤ Is monitoring for easement purposes being performed?

In order to determine how monitoring professionals are monitoring for purposes, two categories of purposes were considered: forest health and ambient conditions (e.g. water quality). As in the restriction section of the survey, the purposes listed in each survey were found in the easement language. Of the easements surveyed, 69% received some form of monitoring for purposes in these two categories. There were very few (if any) monitoring experts using new techniques or methods to monitor for the purposes. When

monitoring, the same techniques used for compliance monitoring appeared to be used for purpose monitoring.

The portion of purposes monitored varied, but purpose monitoring tended to be more of an “all-or-none” activity than did restriction monitoring. For 17 easements (47%), monitoring was being conducted for 100% of the purposes in these two categories. Several monitoring experts explained that these purposes are actually indirectly monitored through the compliance monitoring process. There was no purpose monitoring being conducted for 11 easements (31%).

VI.3 Synthesis of Results

- How are changes in easement language over time reflected in current monitoring techniques? (Do monitoring techniques used on WFCE properties reflect changes in easement language over time?)

The exclusive use of ground monitoring was most common for older easements: 83% of easements from 1985 to 1994 used this method. Monitoring for newer easements tended to involve a greater variety of methods/techniques, with the use of video technology and satellite imagery appearing in only the newest category. This relationship may be due to the trend in larger size of newer easements.

- What are the significant disconnects between important changes in easement language and shortcomings in current monitoring?

There were apparent discrepancies in trends in easement language and current monitoring efforts. For example, restrictions related to chemicals have been increasingly included in easements; however, many of these restrictions are not monitored, and when they are, they receive low effectiveness ratings. Similarly, restrictions related to non-motorized recreation have increased over time and they also appear to be difficult to monitor. It is unclear from the analysis whether these restrictions are being included more frequently due to insufficient consideration of monitoring during the easement drafting process, or if drafters are consciously including these restrictions to attain future benefits that outweigh

negative implications of monitoring difficulties. There were also examples in which trends in language appeared to coincide with monitoring ability. For example, ORV-specific language has decreased over time, which may be related to the fact that when it is included in easements, monitoring professionals rate it as not effectively monitored (2.9 out of a 5.0 rating).