

Study of the Degree to which Three Land Trusts' Conservation Easements Protect Biodiversity

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Abstract Conservation easements are a useful tool for the protection of natural resources on a piece of land in the United States. Easements as legal documents divide the bundle of property rights between the land trust and a private owner. This study examined the mission statements and conservation easements of three land trusts: The Nature Conservancy (TNC), Peninsula Open Space Trust (POST), and Marin Agricultural Land Trust (MALT). Conservation easements from each land trust were compared in terms of the level to which they protect biodiversity. This level was gauged through the listed restrictions and rights within each conservation easement. Variation between conservation easements was not as great as expected considering the different valued aspects of each piece of land. A predictive quantitative model for the level of biodiversity within the conservation easements was created. The measurements used to gauge aspects of this model came from common categories generated from the rights and restrictions and a conservation easement checklist from TNC. Results indicated that conservation easements from TNC reflected the highest mean protective measures in terms of biodiversity, followed by POST, and MALT. In addition, results showed that the land trusts' Restrictions and Rights for the grantors (private owners) were very similar. The similarity is an indication that the land trusts, although not explicitly targeting biodiversity may indirectly protect aspects of biodiversity.

Introduction

With the spread of urban sprawl and dwindling land resources in the United States, land preservation for the protection of ecosystems and wildlife is a priority. In the state of California, land preservation is especially important with the growth in population and as areas become overwrought with individuals whose priorities are not environmental concerns. Conservation easements in recent years emerged as a valuable tool for protecting land resources. The California legislature declared in 1979, “the preservation of land in its natural, scenic, agricultural, historical, forested, or open-space condition is among the most important environmental assets of California. The legislature further finds and declares it to be the public policy and in the public interest of this state to encourage the voluntary conveyance of conservation easements to qualified nonprofit organizations” (CA Civil Code 815).

Conservation easements protect the integrity of land resources through a joint effort of a land agency and the original owner of the land. A land agency depending on whether their focus is biodiversity protection, natural habitat protection, or agricultural use, identifies a piece of land as valuable through its unique qualities. If the original owner agrees to enter into an agreement with a land agency, the landowner becomes the grantor and the land agency becomes the grantee to the land. While, the grantee buys the rights to the land, the grantor holds the original power to these rights and a conservation easement ultimately rest on the grantor’s decision to transfer specific rights (Diehl 1988).

In the state of California conservation easements are a “limitation in a deed, will, or other instrument” (CA Civil Code 815.1). This means, conservation easements are any agreement in which the property management is restrictive with the intent to conserve some aspect of a piece of land. Conservation easements are unique conservation tool in the fact that that each is different and uniquely tailored to every type of land. Although the basic set up of a conservation easement may be the same, each easement protects specific characteristics of the land that is unequal in any other easement (Barrett 1983).

As conservation easements are a relatively new tool, little literature concerning the different types of conservation easements has been published. Most resources only cover formation of easements or are a comprehensive review of easements in different regions. An interesting subject to cover concerning conservation easement would be the effectiveness of the easement in protecting the land.

In the San Francisco Bay Area, there are several factors land agencies look for when determining acquisition of a piece of land. In general easements are typically agricultural, preservation, scenic, open space, trail, forever-wild, conservation restrictions, or restrictive covenants (BAOSC 1991). Key aspects to these easements were their conservation values and the protection with in the rights and restrictions given to the grantor (land agency) and the grantee (private owner).

Conservation Easements from three local land trusts were sampled to show the level in which they reflected the protection of biodiversity. Biodiversity¹ is defined as the diversity in genes, species, and habitats (Stein 2000) in this study. The land trusts, The Nature Conservancy (TNC), Marin Agricultural Land Trust (MALT), and Peninsula Open Space Trust (POST) were chosen based on their proximity to University of California, Berkeley and the type of lands they protected. The study was conducted to ascertain the way in which conservation easements restrict land management for the protection of biodiversity and the different levels in which biodiversity is protected within the easements. As conservation easements are a relatively new tool in the state of California, few studies with similar intentions have been conducted. This study was intended to show an aspect of the ultimate evaluation of the effectiveness of conservation easements as land protection tools. The idea was to show that the representation of biodiversity and the intent of each land agency for protection of land resources were aligned within the easements, TNC with the highest level of reflection, followed by POST and MALT.

Methods

Conservation easements are unique to the piece of land they protect and to the land agency to which they belong. I collected easements from three land agencies: The Nature Conservancy (TNC), Marin Agricultural Land Trust (MALT), and Peninsula Open Space Trust (POST). These organizations are private, non-profit, and are located in the San Francisco Bay Area. Also, these land trusts have different land interests. From TNC, I received a total of 14 easement documents spanning Central and Northern California as well as parts of Nevada. These easements were given to me by a representative of TNC and were meant to represent a typical TNC easement. TNC is a national land trust and many easements are pending, therefore no exact figure as to the number of conservation easements TNC had for California could be found.

¹ See Appendix A

MALT had a total of 43 easements. I chose 10 using a random generator for my sample size. POST did not have as many easements as the other organizations, their representative sent 6 – of their 12 recorded easements. All easements received² from the land organizations were recorded easements³.

The conservation easement document in general contains these sections of interest: the protected values or conservation values of the land and the retained rights and restrictions of the grantor and grantee. As each easement is unique to the land agency, the mission statement (or goal) for acquiring land is also important to the evaluation of the easements in terms of biodiversity.

To analyze the level of biodiversity reflected within an easement an equation was created. This equation in form of a chart added the frequency of specific restrictions that protected a piece of land in a conservation easement. First, the mission statements for each land organization were compared in terms of its aim⁴. Within the mission statements general categories of protection were identified: species, habitats, open space, forests, scenic/aesthetic, agricultural, scientific, and historical. The easements for each organization in general sought to protect one or some of those categories (Gustanski 2000). The protected (conservation) values of the easements should reflect the mission statement of the land organization. In fact, this section should specifically identify the aspects to the land that make it desirable to the agency.

Finally, the rights and restriction are the practices that will preserve the conservation values of a piece of land. As conservation easements are legal documents, the Rights and Restrictions portion of a conservation easement is key providing information as to the aspects of the land that belong to the grantor and grantee. The listed Rights and Restricted uses for a piece of land mean to support the integrity of the land. In other words Rights and Restrictions protect why the land was chosen by a land trust. This section provides the most information as to the level of biodiversity protected. (It is assumed that the rights and restrictions are enforced and practiced consistently.) The data used for the measurement of biodiversity in each easement came from this Rights and Restrictions section.

The general categories generated from the idea the protection of biodiversity involves the protection of land and water resources. Therefore restrictions that involve air, water, soil, plants,

² see Appendix B

³ see Appendix A

⁴ see Appendix C

and animals are associated with biodiversity and included in this study. Common restrictions were decided based on frequency. If a restriction was mentioned in at least 5 easements it became a category. These categories were then applied to the Conservation Checklist that TNC uses to create their conservation easements. It was assumed that because TNC's mission was to protect biodiversity their conservation easements and process of creating easements would reflect that mission. From the categories and the checklist a series of conservation easement components were designed to reflect aspects that would protect biodiversity. Three rankings were used to categorize the degree to which biodiversity is protected with each component of the easement under consideration (2,1,0). The ranking was based on whether the component within the easement was protective of biodiversity or detrimental. My mentor, Jim Gaither, and I determined the ranking system based on the ideal conservation easement that protected biodiversity⁵. A conservation easement component received a high score of 2 if it protected biodiversity and a low score of 0 if it was detrimental to biodiversity.

High total scores represent easements that focus intentionally and directly on the protection biodiversity⁶. A t-test was conducted on the scores⁶ to indicate whether there is a significant difference between the conservation easement scores from the land trusts. A chi-squared test showed there was a significant difference in how the components represented biodiversity with each conservation easement. These tests were performed on similar sample sizes of conservation easements from POST and TNC (6 from each).

Results

The mission statement of The Nature Conservancy explicitly states its intention to preserve biodiversity. TNC also had the highest followed by POST and MALT⁷ represented in Graph 1. POST and MALT did not explicitly state 'biodiversity' as a part of their mission statement. In addition, MALT did not provide a ready mission statement for this study⁸.

From the conservation easement components scores comparison, there was little variability found among the MALT conservation easements. In addition, there was no significant difference found between POST and TNC conservation easements (df =30, t-value = 1.02,

⁵ See Appendix D.1

⁶ See Appendix E.1

⁷ See Appendix C

⁸ Robert Berner, MALT representative provided MALT's website as a source of information about MALT.

p=0.31). However, a significant difference in those components represented in the conservation easements of each land trust was found through a chi squared test (chi squared test = 0.011). In other words, there is an important difference between the components of biodiversity within POST's conservation easements and those of TNC.

By averages alone, TNC had overall the highest scores and the highest variability among scores (Graph 2). Though MALT almost an identical structure for all their conservation easements, its average score was relatively high in comparison to TNC and POST. POST had an intermediate average score between MALT and TNC.

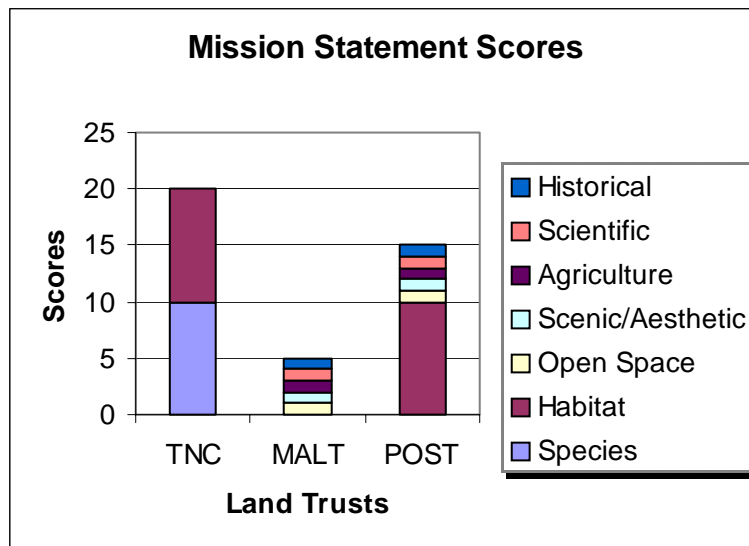


Figure 1 – Land Trust Mission Statement Scores – Points awarded for aspects or mention of biodiversity.

Discussion

Though there was no significant difference found between the components used to measure biodiversity in the respective conservation easements for TNC, MALT, and POST, this does not mean that the levels of biodiversity reflected in them significantly differs. There are many reasons for this result. First, the sampling size of conservation easement from each land trust varied. In addition, the types of land that each land trust aimed to protect varied. Finally, the method of biodiversity measurement may have affected the results.

Distribution of Scores

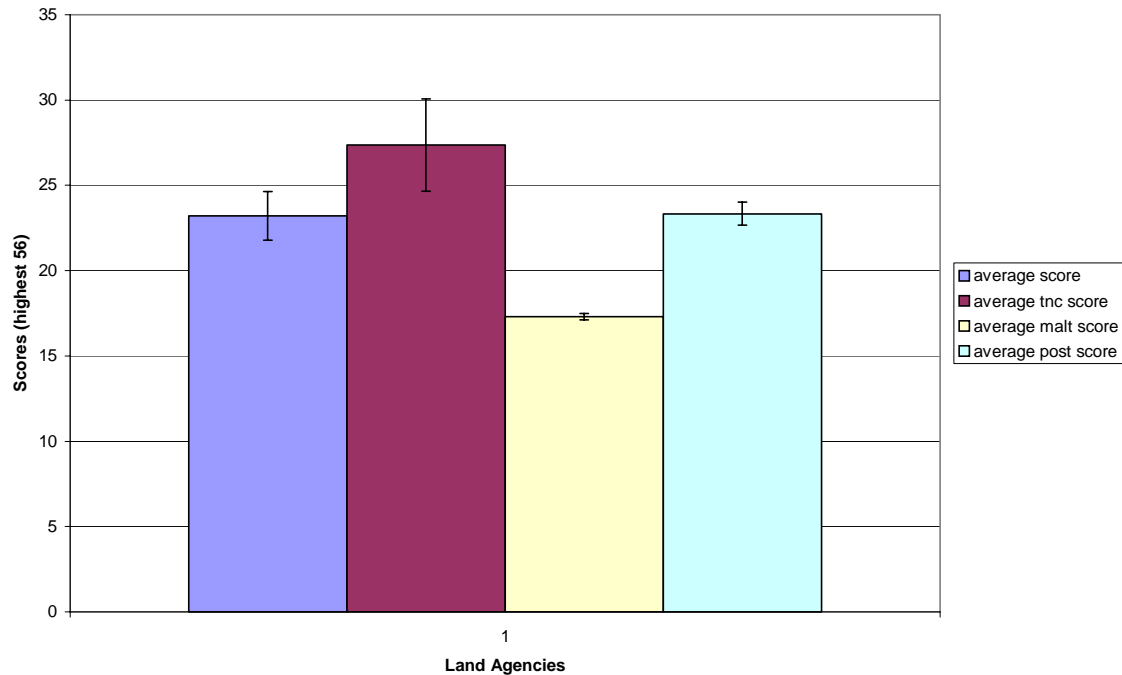


Figure 2 – Total Scores for Protection of Biodiversity Components calculated from the Components of Conservation Easement Chart from TNC, MALT, and POST. The lines on the bars show the

As conservation easements are a relatively new tool for protecting land resources, there is little on the literature about the subject of effective land conservation using conservation easements. The components used to measure biodiversity were selected from TNC’s checklist for creating a conservation easement were combined with general trends among all conservation easements used in this study. Generated categories were then fitted into the checklist questions. Though this sounds arbitrary, most restrictions and rights within the easements were similar. MALT’s conservation easements samples did not vary enough to compare with TNC and POST to generate any meaningful conclusions. The only conclusion to draw from MALT’s small amount of variability is that the easements chosen did not differ highly in the range of conservation components represented. This may be attributed to MALT’s use of a model easement for their protection of land (MALT 2001, pers. comm.).

It is important to acknowledge that as a legal document a conservation easement exists in perpetuity. Thus, nothing can be taken for granted within the conservation easement as being protected unless it is specifically stated. As such, the equation for measuring the level of biodiversity represented, within each conservation easement, was based on the fact that any mention of a specified component was indicative of some intention that would protect biodiversity. An ideal conservation easement would represent each of these components entirely

and specifically (receiving a total of 56 points). The average score among all easements was almost half that score (23.2).

Since TNC's mission statement reflected idea of biodiversity, and the other organizations did not, there was a built in bias to the study as its conservation easement checklist was used and considered the most comprehensive (Gaither 2001, pers. comm.). The little variation among MALT conservation easements suggests that they themselves are a sort of checklist. In addition, MALT does not aim to protect biodiversity, yet its practices may inadvertently protect aspects of biodiversity reflected through its average score. This variation is observed through the POST and TNC conservation easements, which are tailored to the piece of land and its resources more specifically. Still, POST like MALT aim to protect an aspect of biodiversity, not biodiversity in its entirety lie TNC. The closeness in the range of scores from the components of conservation easements the land trusts and the difference in scores for the mission statements is explainable through the interpretation of the mission statement as an advertising disclaimer for each agency. Jim Gaither (2001), my mentor, clarified that the mission statement was a broad umbrella statement meant to catch the attention to potential investors and grantors – though it reflects the ideas of the land agency it is not legally binding.

A factor that makes the similarity in POST and TNC conservation easements interesting is the local and national aim of each land trust respectively. TNC has more money and resources to protect the land, as it is a national organization. The Conservation Checklist used for this study is indicative of an organization that uses conservation easements more regularly to protect land. The size of TNC would also a reason more easements were received than from POST, who is local. TNC may also be able to cover an aim like biodiversity because it is a larger organization and has the funds to monitor more specific regulations. TNC as a national organization also attracts a lot more investors and grantors – its appeal is like that of a brand name. Hence, TNC also has the ability to employ more scientists and has access to more land (entire U.S.). This could provide an explanation why TNC had an available checklist and covered more of the conservation easement components.

The result that there is not a significant difference between POST and TNC's conservation easements is interesting because it suggests that though TNC strives to protect biodiversity and may do so within their conservation easements that POST does so as well. Despite the small sampling size, there was a relatively small standard error between POST's conservation

easements, suggesting that those easements selected truly represented the concepts that POST supported. The question of whether protection of open space protects biodiversity at the same cannot be answered solely through an analysis of the components in a conservation easement. A chi squared test showed there was a significant difference between those components within the restrictions of POST and TNC. This might imply that if POST tightened up its restrictions and added some other restrictions its easements would better protect biodiversity. Still, it is interesting that a smaller land trust that does not aim to protect biodiversity has such a high level represented in its conservation easement and fairs well under the terms of TNC's conservation easement checklist.

In reference to adding and expanding restrictions, POST does not include restrictions or indications for restoration practices, anything about the use of land for research purposes, or mention introduction of specific species or the reintroduction of native species in their easements. Though this does not mean POST easements do not reflect a level of biodiversity in their protections, this does indicate that POST does not construct their easements for the specific purpose of protection of species like some of TNC's. The level of species invasibility of a site affects the protection of biodiversity, the more controls placed on species introduction and restoration the higher the level of protection (Smallwood 1994). If POST did aim to protect specific species their Rights and Restrictions would have specifications like a restriction on certain predatory animals that would harm the protected species.

Still, another explanation would be that six POST easements were too small of a sampling to indicate whether or not POST did protect specific species. However, their mission statement does not reflect such an intention and the chi-squared test showed that TNC covered a broader range of components in their easements. This leads to the conclusion that though there is similarity between easement structure, those components missing in POST easements prevent them from protecting biodiversity in the same way TNC does.

In addition, the similarity in the ways POST and TNC protect land may also indicate that the protection of Open Space land is more conducive to the protection of biodiversity than the protection of agricultural lands. Though no statistical test could be done between MALT and POST, the simple fact that there was variation in POST's easements suggest that they were specifically designed for land that was not used for agricultural means. POST as included items in their easements that MALT did not. These components include general categories like

mineral excavation and utility development indicating that POST was not using the land for economic gain and other values for the land was considered.

Recommendations In answering the question, ‘To what level is biodiversity represented in a specific conservation easement,’ many other questions arise. For example, what is biodiversity, what to measure biodiversity with, and is protecting biodiversity the aim of the conservation easement? In future studies these would be factors to modify and manipulate the variables. A different definition of biodiversity may be used, different components of conservation easements created and used, and different land trust may be chosen for representation. Also, different weights and points could also be assigned to the conservation easement components. In this model, each component was weighted equally and some categories overlapped to indicate important aspects to categories. However, an alternate point system may place more emphasis on introduction of specific species rewarding more points for the regulation and control of specific species (Freyer 2000).

An overall recommendation would be to create a more involved model to predict the level to which biodiversity is represented through conservation easements. As legal documents, the Rights and Restrictions portion of easements is the area judges look to settle any disputes, discrepancies in responsibilities for land management, thus deserve the most focus. However, the monitoring and de facto practice of the easement is equally as important. As there was a high incidence of agriculture allowed in all land trust’s represented, it would be interesting to study the effects of different types of agriculture and the intensity of agriculture allowed within the easement as a function of biodiversity.

Conclusion

It was found that there was not a significant enough difference between The Nature Conservancy and Peninsula Open Space Trust conservation easements. Hence, the conclusion is that both TNC and POST protect the same level of biodiversity. MALT’s conservation easements had little variation – this organization used a model easement – so it could not be compared to TNC or POST’s easements. However in the spectrum of conservation easements, MALT garnered the lowest scores for biodiversity. This aspect coupled with the unchanging restrictions, suggest that MALT does not tailor its conservation easements to its land. Therefore, MALT does not choose land according to the level of biodiversity represented in the land – thus, MALT conservation easement represent a low level of biodiversity in comparison with TNC and

POST. Though, TNC and POST represent a higher level of biodiversity in its conservation easement components, TNC's easements have a broader range and all of the components are touched on it at least one easement. POST could then add the left out components to their easements and effectively protect their lands with a focus of biodiversity. There is no indication of what economic cost this is to the land trust.

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Appendix A

List of Terms and Definitions

Agricultural – land set aside because of farm values, farming, ranching, grazing, soil fertility (c.v.)

Air – category that comprises any mention of transportation, use of chemicals

Biodiversity – genetic, species, ecological, landscape diversity, includes ecosystems and natural communities

Building – maintenance, repair, relocation of constructed buildings

Chemicals – biocides, herbicides, pesticides, etc.

Conservation (Protected) Values (c.v.) – section of the easement that lists the specific characteristics that make the land important for preservation purposes

Habitat – where species, population, or communities can exist

Historical – land set aside for future peoples, charitable, and specifically for historical reasons (c.v.)

Hydrology – alteration of stream, pond, lake, irrigation, usage of water resources (see also water)

Marin Agricultural Land Trust – Non-governmental, private, local land trust that seeks to protect agricultural land and preserve other aspects of agricultural land (like open space and natural values) in Marin and surrounding areas.

Mission statement – clearly stated goal of a land agency for the purpose of acquiring land

The Nature Conservancy – Non-governmental, private, national organization that strives to protect and restore biodiversity through land management.

Open Space – land set aside for open space, forests (in the conservation values section)

Peninsula Open Space Trust – Non-governmental, private, local land trust that endeavors to protect open space and other habitat values to opens space, wild lands in the San Francisco Bay Area.

Recorded Easements – conservation easements recognized by the state government and legally binding.

Easements that not recorded are not legally binding and may be still in the process of formation or dispute.

Restrictions/Rights – inconsistent and consistent uses (respectively) of a piece of land, also a part of the easement document that are the legal responsibilities of the grantor/grantee

Scenic/Aesthetic – land set aside for beauty, recreation (c.v.)

Scientific – land set aside for natural, wildlife habitat, diversity, , ecological, watershed, soil resources (c.v.)

Soil – category that comprises any mention of land – building, farming, excavating

Soil Practices – soil erosion, presence of chemicals, presence of minerals, leaving land to lay fallow (see also soil)

Species – group of individuals capable of interbreeding

Water – affected by air and soil quality (runoff, rain), category that comprises any mention of watershed, water rights,

Appendix B

List of Collected Recorded Conservation Easements

abbreviations

The Nature Conservancy

Carson Valley – Sturgis Easement	TNC1
Circle “S” Ranch Easement	TNC2
Denny Ranch Easement	TNC3
Howard Ranch Easement	TNC4
Romero Ranch Easement	TNC5
Ruby Valley 7H Ranch Easement	TNC6
Ruby Valley UX Ranch Easement	TNC7
Kneppel Easement	TNC8
Horizon Organic Dairy Easement	TNC9
Ragsdale Easement	TNC10
Allen Easement	TNC11
Wilder Easement	TNC12
Consumnes River Preserve Easement	TNC13
Machado Easement	TNC14

Marin Agricultural Land Trust*

Dolcini Ranch Easement	MALT1*
Satori Ranch Easement	MALT2*
Maloney Ranch Easement	MALT3*
Burbank Ranch Easement	MALT4*
Straus Home and Daily Ranch Easement	MALT5*
Mazza Pomi Ranch Easement	MALT6*
Respini Ranch Easement	MALT7*
Walker Ranch Easement	MALT8*
Barboni Ranch Easement	MALT9*
Pozzi Ranch Easement	MALT10*

*Marin Agricultural Land Trust uses a model easement for all the land it acquires.

Peninsula Open Space Trust

DRAP Easement	POST1
Michelson Easement	POST2
Mudd Easement	POST3
Nack/Cox Easement	POST4
North Cowell Easement	POST5
Rose/Basich Easement	POST6

Appendix C

Mission Statement Chart

	TNC	MALT*	POST
Species (10)	X		
Habitat (10)	X		X – encourages
Open Space(1)		X	X
Scenic/Aesthetic (1)		X	X – beauty, recreation
Agriculture(1)		X	X
Scientific(1)		X – biological	X – diversity
Historical (1)		X	X – for people now and future

Total

*MALT does not have an explicit mission statement on its website or in any of its materials¹⁰.

¹⁰ Robert Berner, MALT’s representative told me to look on the MALT website for any information regarding MALT’s conservation easements. POST and TNC sent me information regarding their mission statements.

Appendix D.1

Protected Biodiversity Components of Conservation Easements

2=protective of biodiversity

1=neutral towards biodiversity (intermediate)

0=detrimental to biodiversity

If not mentioned within the conservation easement a score of 0 was assigned.

Components of Conservation Easements	Score
1. Conservation Values (2=Habitat, Biodiversity, Natural systems, 1=Open Space, Scenic Value, Recreation, 0=Agriculture)	
2. Restoration Restoration of habitat or natural systems? (2=Yes, 0=Not mentioned or not allowed)	
3. Access Access to inspect and enforce terms of easements (2=Yes, 0=No)	
4. Research Right to conduct scientific research, make observations, and study ecosystems? (2=Yes, 0=No)	
5. Control Non-Native Plants Control or eradicate weeds and non-native plants? (2=Yes, 0=No)	
6. Controlled Burns Controlled burns allowed? (2=Yes, 0=No)	
7. Restore Native Plants Plant or restore native plants? (2=Yes, 0=No)	
8. Control Non-Native Animals Control or eradicate feral animals and non-native animals? (2=Yes, 0=No)	
9. Re-introduce Native Animals Re-introduce native animals? (2=Yes, 0=No)	
10. Fencing Construct new and additional fencing? (2=No, 1=Yes, with restrictions, 0=Yes)	
11. Alter Waterways Alter, destroy, or harm existing streams or waterways? Alteration of water courses, shores, marshes, or other bodies of water? (2=No, 0=Yes)	
12. Restore Water Sources Restore bank stability, streams and rivers and wetlands to their natural condition? (2=Yes, 0=No)	
13. Buildings May the owner construct many new buildings? (2=No, 1=Yes, with size restrictions, 0=Yes)	

<p>14. Recreational Facilities May the owner construct private recreational facilities that destroy habitat such as private golf course, tennis courts, etc? (2=No, 1=Yes, with size restrictions, 0=Yes)</p>	
<p>15. Commercial Improvements May the owner build commercial improvements such as hotels, golf courses, tennis courts, animal breeding facilities, race tracks, camp grounds, etc? (2=No, 1=Yes with restrictions, 0=Yes)</p>	
<p>16. Roads May owner build new roads? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>17. Grazing and ranching (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>18. Agricultural crops (2=No, 1=Yes with restriction, 0=Yes)</p>	
<p>19. Fertilizers Application of biocides, pesticides and fertilizers? (2=No, 1=Yes with restrictions , 0=Yes)</p>	
<p>20. Controlling predatory animals (native wolves, mountain lion, etc.)? (2=No, 0=Yes)</p>	
<p>20. Develop Water Resources Development and maintenance of necessary water resources, like stock ponds and reservoirs (not streams)? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>21. Timber Harvesting timber? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>22. Utility May owner construct utility structures or lines? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>23. Subdivision Subdivision of the Property into smaller parcels? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>24. Off-road Vehicles Operation of off-road vehicles? (2=No, 1=Yes, with restrictions, 0=Yes)</p>	
<p>25. Dumping May owner dump garbage or hazardous materials? (2=No, 0=Yes)</p>	
<p>26. Excavating Filling/excavating/dredging/mining/drilling on <u>or</u> below the surface? (2=No, 0=Yes, There is no 1.)</p>	
<p>27. Intro of Specific Species Is the owner prevented from introducing specific and identified weeds (such as star thistle)? (2=Yes, 0=No)</p>	
<p>Total (out of 56 points possible)</p>	

Appendix E.1

Raw Data Results (Averages, Standard Deviations, Standard Error for each Component)

Components	avg	std	avg std error	tnc avg	tnc std	std error tnc	malt avg	malt std	std error malt	post avg	post std	std error post
Conservation Values	1.467	0.093	0.150756	1.857	0.363	0.104828	1	0	0	1.333	0.516	0.210819
Restoration	0.533	0.9	0.284268	1.143	1.027	0.2965	0	0	0	0	0	0
Access	1.733	0.691	0.166667	1.714	0.726	0.209657	2	0	0	1.333	1.033	0.421637
Research	0.333	0.758	0.261116	0.571	0.938	0.270666	0.2	0.632	0.2	0	0	0
Control Non-native Plants	0.6	0.932	0.284268	1	1.038	0.299572	0	0	0	0.667	1.033	0.421637
Controlled Burns	0.267	0.691	0.224733	0.571	0.938	0.270666	0	0	0	0	0	0
Restore Native Plants	0.267	0.691	0.261116	0.429	0.852	0.245845	0	0	0	0.333	0.816	0.333333
Control Non-native Animals	0.267	0.691	0.224733	0.429	0.852	0.245845	0	0	0	0.333	0.816	0.333333
Reintroduce Native Animals	0.133	0.507	0.224733	0.286	0.726	0.209657	0	0	0	0	0	0
Fencing	0.933	0.521	0.148647	0.857	0.663	0.19139	1	0	0	1	0.632	0.258199
Alter Waterways	0.933	1.015	0.301511	1.714	0.726	0.209657	0	0	0	0.667	1.033	0.421637
Restore Water Sources	0.2	0.61	0.224733	0.286	0.726	0.209657	0	0	0	0.333	0.816	0.333333
Building	1.133	0.507	0.174078	1.143	0.663	0.19139	1	0	0	1.333	0.516	0.210819
Recreation Facilities	1.533	0.819	0.166667	1.286	0.914	0.263813	2	0	0	1.333	1.033	0.421637
Commerical Improvements	1.267	0.583	0.148647	1.143	0.663	0.19139	1	0	0	2	0	0
Roads	0.767	0.817	0.25	1	0.784	0.226455	0.1	0.316	0.1	1.333	0.816	0.333333
Grazing/Ranching	0.9	0.305	0	1	0	0	1	0	0	0.5	0.548	0.223607
Agricultural Crops	0.933	0.365	0.123091	0.929	0.475	0.137014	1	0	0	0.833	0.408	0.166667
Fertilizers	0.9	0.481	0.112367	0.857	0.535	0.154303	1	0	0	0.833	0.753	0.307318
Control Predatory Animals	0.133	0.434	0.166667	0.214	0.579	0.167124	0	0	0	0.167	0.408	0.166667
Develop Water Resources	0.233	0.504	0.179435	0.5	0.65	0.187767	0	0	0	0	0	0
Timber	1.333	0.661	0.142134	1.429	0.852	0.245845	1	0	0	1.667	0.516	0.210819
Utility	0.667	0.844	0.224733	1	0.877	0.253185	0	0	0	1	0.894	0.365148
Subdivision	1.8	0.484	0.083333	1.714	0.611	0.176453	2	0	0	1.667	0.516	0.210819
Off-road Vehicles	0.9	0.548	0.148647	0.786	0.802	0.231455	1	0	0	1	0	0
Dumping	2	0	0	2	0	0	2	0	0	2	0	0
Excavating	0.967	0.964	0.27866	1.357	0.842	0.243035	0	0	0	1.667	0.816	0.333333
Intro of Specific Species	0.067	0.365	0.166667	0.143	0.535	0.154303	0	0	0	0	0	0
Total	23.2	7.779	2.794633	27.36	9.394	2.711814	17.3	0.675	0.213437	23.33	1.633	0.666667