

Landowners' Incentives for Forest Conservation Around El Yunque National Forest: Obstacles and Opportunities

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Introduction

Rapid changes in urban and built-up areas around El Yunque National Forest (EYNF), the largest protected area in Puerto Rico managed by the US Forest Service (USFS), have been identified as a major threat to the forest and the services it provides (e.g., López, 2010; Lugo et al., 2004). Different mechanisms for the conservation of peripheral forest lands have been put into place to minimize the potential negative effects of urban expansion. These include, for example, a regional zoning plan developed by the Puerto Rican government in 1983 (Lugo et al., 2000), land acquisition for conservation by the USFS, and collaboration with local non governmental organizations to purchase lands for conservation through memorandums of understandings (C. Krupp, personal communication).

Unfortunately, these mechanisms have been less successful than expected. Due to poor enforcement of the zoning plan, for instance, approximately 85% of the new urban/built-up expansion during the last two decades has occurred in “non urban” zoning districts (e.g., in agricultural, forest zoning districts) (López Marrero and Villanueva Colón,

2006; Lugo et al., 2004). On the other hand, economic and political factors limit land purchase for conservation (C. Krupp, personal communication).

As monetary resources for land acquisition become scarcer and more competitive, the need to explore other initiatives for forest conservation around EYNF has become imperative. Forest conservation of privately owned lands – specifically landowners' incentives for forest conservation – is one initiative that has been identified by the USFS Lands and Special Use Program in Puerto Rico as a potential mechanism to increase (or maintain) forest cover around EYNF to support its functioning and the services it provides. There is, however, a lack of knowledge about landowners' attitudes towards incentive-driven land conservation programs and their willingness to take part in them. The present study helps filling this gap by providing information on landowners' knowledge about, and willingness to participate in three incentive-driven land conservation programs for landowners: conservation easements, land donation, and the purchase of private lands for conservation (Box 1). Specifically, the objectives of this study were to:

- Assess landowners' knowledge and interests about the above-mentioned conservation programs.
- Identify opportunities and limitations for forest conservation and programs' implementation.

Box 1. Incentive-driven land conservation programs for landowners

In conservation easement programs, landowners receive tax credits for approved conservation practices. It constitutes a legally binding process through which landowners and a governmental or non profit entity agree upon permanent land use restrictions for the property aiming at granting its enjoyment for conservation. Landowners retain both tenure and enjoyment of their property. Likewise, landowners who donate their land for conservation purposes receive tax credits

Source: Centro de Estudios para el Desarrollo Sustentable (2008)

Methods

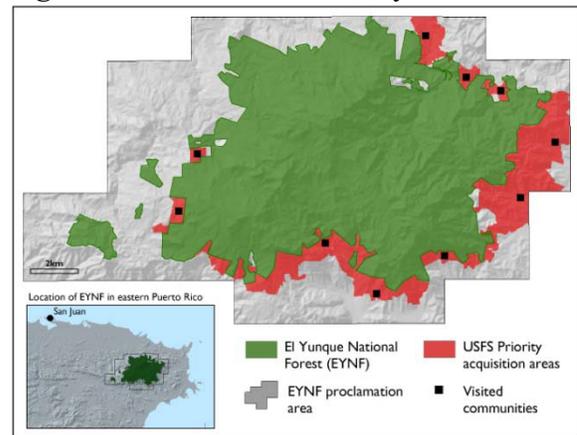
A total of thirty structured interviews were conducted between September and December 2009 with landowners from 10 randomly selected communities within the USFS priority acquisition areas in the proclamation area of EYNF (Figure 1). Interview questions were composed of both closed and open ended questions, and were designed primarily to obtain qualitative information. The interviews were carried out in the homes of participants, were conducted in Spanish, and lasted from 30 minutes to an hour. Two to three landowners were interviewed in each community.

The first part of the interview included questions regarding the attributes landowners appreciate of their land, means of land acquisition (i.e., if it was inherited or purchased), current land cover and preferred future land cover (i.e., whether they prefer land cover to stay similar or if they would not mind it becoming more urbanized), and preferred future landownership (i.e., whether they preferred their land to remain a family property or not).

The second part of the interview focused on questions related to the three incentive-driven land conservation programs. First,

we asked if they knew about any conservation program for landowners. Then, we specifically asked if they have heard or knew about the three conservation programs: conservation easement, land donation, and the purchase of private lands by the USFS. In case they had heard of them, we asked what they knew about them. Otherwise, we briefly described what each program was about. After this brief explanation, we asked if they would be interested in receiving more information about the programs and, if so, which would that be. Finally we asked if they would consider taking part in any of these programs and, if so, which would it be. If their answer was negative, we asked them to explain the reasons for their unwillingness to take part in them.

Figure 1. Location of the study area



Landowners' characteristics, land attributes, ownership, and land cover

A total of 19 male landowners (63.3%) were interviewed, compared to 11 (36.7%) female landowners. On average, landowners have lived 39.7 years on their land. The majority (80%) of the interviewees inherited the land, while six participants (20%) purchased their land. Most of the interviewees (90%) would like their land to remain a property of their family.

Quality of life – including tranquility, social relationships, and contact with nature – was the most mentioned benefit (preferred attribute) of living on their land, cited by 90% of all participants. This was followed by cool temperatures (86.7%), clean air and forested landscape (50% each), and access to water (46.7%). Other less cited benefits included access to minor crops (30%), scenic value (30%), abundant rainfall (23.3%), and the presence of fauna (23.3%). Participants related these attributes to being located in a rural, forested landscape in general, and to their proximity to EYNF specifically. In fact, all respondents would like both their land and the adjoining areas to stay the same in terms of land cover (forest, pasture and shrubs, minor crops, mixed uses); they would not like the area to become urbanized.

Knowledge and willingness to take part in land conservation programs

Overall, participants did not know about any incentive-driven land conservation programs for landowners. This was also true as related to the three programs in question. Some landowners (33.3%) had heard of the purchase of private lands for conservation by the USFS, followed by the donation program (16.7%). Conservation easement

was the least known program, with just one landowner knowing about it.

After briefly describing each program, most of the landowners (70%) stated not to be interested in receiving more information about these programs. Just five respondents (16.7%) said they would be interested in receiving information about the land purchase and the conservation easement programs; none was interested in receiving information about the donation program. Similarly, most participants (24 out of 30 or 80%) said they would not consider participating in any program. Just four participants (13.3%) said they would consider taking part in the easement or the land purchase programs. In the case of land purchase, respondents asserted that selling their land to the USFS would depend on the price (one determined by the market value) and on how fast the process could be completed (without much of a bureaucratic hassle). None of the landowners would consider donating his/her land for conservation to the USFS.

Not trusting governmental programs was the most cited reason for not been interested in taking part in any conservation program. More than half of the 24 landowners that were not interested in participating in any program provided this reason (Table 1). The second most cited reason, mentioned by 50% of these landowners, was related to future decisions about the land. Specifically, landowners do not want to encumber their inheritors' property; they want them to be able to make free decisions about the land (e.g., land uses, whether they would like to keep it or sell it). The third reason, cited by 45.8% of respondents, was related to joint inheritance and land tenure. Many of these lands are inherited by many people, which means that no action could be taken unless all inheritors agree. Moreover, resolving inheritance matters involves legal

processes that require monetary resources and consensus among all inheritors. In most cases, people do not have the economic resources, or there are disputes among family members; both of which makes it very difficult to settle land inheritance and tenure issues. Other less cited reasons included landowners' perceptions that the extension of their land was too small for being of any interest to conservation program, and owners not being interested in getting involved in governmental bureaucracy.

Table 1. Reasons mentioned by landowners for not being interested in taking part in any conservation program

Reason	% of landowners ^a
Do not trust governmental programs	58.3
Do not want to encumber their inheritors' property	50.0
The land is a joint inheritance	45.8
Believe their land is too small for conservation	29.2
Not interested in governmental bureaucracy	25.0

^a Percentages are based on 24 landowners not interested in any conservation program.

Landowners' incentives for forest conservation: obstacles and opportunities

The first obstacle for promoting incentive-driven land conservation programs among landowners is the lack of knowledge about these programs. Even those who said having heard about the programs did not necessarily know what they consisted of or how they worked. In this respect, developing easy-to-read materials about the programs and making them accessible to landowners is a must. For instance, one

landowner interviewed recommended disseminating this type of information through regional newspapers and by placing informative handouts in residents' mailboxes.

The majority of the landowners interviewed showed lack of interest and unwillingness to take part in conservation programs, mainly because of a general distrust in the government and governmental programs, and because they do not want to be involved in bureaucratic processes. This was the initial reaction based on the brief explanation we gave about each program. Here again, we would like to emphasize the need to provide more information to landowners about how these programs work. In this respects, it might be worth identifying landowners that have taken part in these programs, particularly easement programs, and document their experiences (e.g., how was the process, how they felt about taking part of the program, what benefits were obtained). This information and experiences could be shared with landowners who demonstrate some interest in conservation programs.

Perhaps, one of the main obstacles is the inheritance and land tenure situation. Since many landowners inherited the land, and in many cases there are many inheritors, inheritance matters of land tenure has not been settled. In such cases, even if landowners were willing to participate in these programs, they would not be able to do so. Related to this situation is a lack of an analysis of land tenure in the area. Up to now, the USFS has identified priority acquisition areas (see Figure 1); yet there is a lack of detailed and up-to-date analysis of land ownership of those areas. For instance, some interviewed landowners mentioned there are parcels of lands whose owner does not live on them, and most probably does not know about the existence of the

conservation programs. Additionally, during the interview process we noticed many parcels of lands for sale. It might be worth trying to identify their owners, and provide them with information about the programs, and see whether they would be interested in any of these programs. Finally, there might even be lands that are property of the Puerto Rico government. If that is the case, there might be opportunities for negotiating the conservation of those lands with the Puerto Rican government. In any of these cases, the USFS in Puerto Rico should be more proactive in promoting these incentive programs. So far they have relied mainly on people going to the USFS office to offer their lands for sale. It might be time for the USFS personnel to go into the field and learn more about the situation of the priority acquisition areas and about their landowners.

While we identified various potential obstacles for implementing incentive-driven land conservation programs for landowners, we also discovered opportunities for developing parallel initiatives for the conservation of privately owned lands around EYNF.

Landowners recognized and valued forest benefits. Moreover, all participants said they would like their lands and surrounding areas to stay as they are, i.e., rural, forested, mixed uses. In fact, some landowners mentioned they would even like to have more trees on their property. This could represent an opportunity for the USFS to develop and promote tree planting programs among landowners, and in that way support EYNF continuity. Here, an analysis of the kind of trees to be planted should be made to assure that, on the one hand trees support EYNF functioning and ecosystem services, and on the other hand are attractive to landowners because of the benefits for themselves and to their land (e.g., provide

fruits, are a natural fertilizer to their lands). Additionally, information regarding management practices that support EYNF ecosystem services and that can benefit landowners could be developed and promoted. Initiatives like these would be feasible among landowners even if they were reluctant or unable to participate in land conservation programs. Particularly, this could be an option for those landowners who support forest and conservation, but who are unable to engage in any conservation program because of inheritance and land tenure situations.

Final Remarks and Recommendations

The results of the study show that the USFS in Puerto Rico can not rely solely on these landowners' incentive programs for the conservation of peripheral EYNF lands. While we interviewed just 30 landowners, data gathered provide base information for forest managers and show clear trends: lack of knowledge about conservation programs and unwillingness to take part in them. On the other hand, landowners valued forest benefits and appear to support forested landscapes. This should be viewed as opportunities to develop and promote other initiatives among landowners for the conservation of forested lands around EYNF. Consequently, in order to promote land conservation programs among landowners, and to develop parallel conservation initiatives we recommend the following:

- To develop and provide “easy-to-read” information about landowners' incentives conservation programs, both to landowners that live on the lands and to those that live elsewhere.
- To document the experience of people who have participated in

these programs, particularly easement conservation programs.

- To explore other options that could be attractive to landowners, such as tree planting and reforestation programs.
- To discuss alternative land uses and practices with landowners.
- To make an analysis of landownership, particularly in the areas identified as a priority for acquisition.
- To identify landowners with large parcels of land, and access their knowledge about, and willingness to participate in conservation programs.
- To identify parcels of land for sale and their owners, and provide them with the information about the conservation programs.
- To identify lands that might be owned by the Puerto Rican government and explore the possibility of negotiation or agreements for land conservation.

Finally, since this was a pilot study to provide base information to the USFS Lands and Special Program, we recommend a more in-depth and extensive study following up and adding to the findings of the present work.

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