Connecting Southern Californians with Nature

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Ecosystem services is a term used to describe the benefits to people from natural areas (Millennium Ecosystem Assessment, 2005). Services to humans can range from food production to water purification to aesthetics. The Millennium Ecosystem Assessment (MEA) was initiated in 2001 to assess the consequences of ecosystem change for human well-being and the scientific basis for actions needed to enhance the conservation and sustainable use of those systems. The assessment involved more than 1,300 experts worldwide. Key messages from the assessment (2005) include these:

- Everyone in the world depends on nature and ecosystem services to provide the conditions for a decent, healthy, and secure life.
- Humans have made unprecedented changes to ecosystems in recent decades to meet growing demands for food, fresh water, fiber, and energy. But at the same time, they weakened nature's ability to deliver other key services such as preservation of air and water, protection from disasters, and the provision of medicines.
- Pressures on ecosystems will increase globally in coming decades unless human attitudes and actions change. Measures to conserve natural resources are more

Chavez, D. 2006. **Connecting Southern Californians with Nature.** Proceedings of the Hawaii International Conference on Social Sciences. May 31-June 3, 2006

likely to succeed if local communities are given ownership of them, share the benefits, and are involved in decisions.

Ecosystem services can be categorized as cultural services (such as providing outdoor recreation locations), regulating services (such as protecting water quality), provisioning services (such as timber for houses and paper), and supporting services (such as nutrient cycling) (see Fig. 1). These services are important because they are linked to human well-being (MEA, 2005). In particular, the items in the right column are linked to security (personal safety, secure resource access, security from disasters), basic material for a good life (adequate livelihoods, sufficient nutritious food, shelter, access to goods), health (strength, feeling well, access to clean air and water), and good social relations (social cohesion, mutual respect, ability to help others). These all contribute to freedom of choice and action.

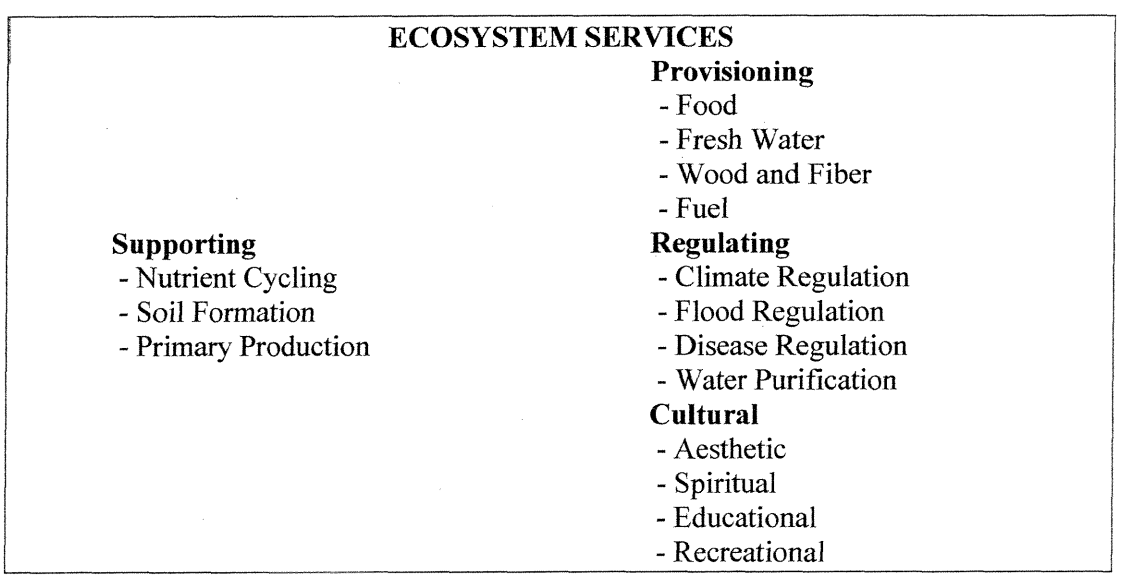

Figure 1. Ecosystem services components

It is unclear how familiar urban residents are with the ecosystem services provided by natural areas. Research conducted in southern California addressed people's beliefs about natural areas and how those areas should be managed. Objectives of the study were to understand people's connections to public lands (e.g., do they spend a lot of time or little time in natural settings--woods, mountains, desert, lakes, ocean), their perceptions about how natural areas ought to be managed (e.g., for long-term study of the relationships between weather, fire patterns, plants, animals, and soils or should they be open to outdoor recreation opportunities), and their perceptions about whether there are currently enough natural areas set aside for particular purposes (such as for camping or for the protection of wildlife).

Methods

A self-administered survey was provided to recreation visitors at day use sites on the San Antonio and San Gabriel Canyons on the Angeles National Forest in southern California in summer 2005. Both canyons are within an hour drive of more than 10 million people. Survey instruments were available in English and Spanish. Respondents (n=509) filled out the surveys on-site and returned them to data collection team members. Response rate was 56 percent. Data were entered, coded and analyzed using SPSS.

Particular items in the instrument measured two components of ecosystem services. Most measured the "cultural" component given their focus on recreational opportunities (such as camping). A few other items measured "regulating" services (such as improved air quality). This list of items was used in two sets of questions. The first

questions asked how important it is to manage natural areas for each item (5-point Likert-type scale), while the other asked if there are enough natural areas available within this urban landscape for each purpose (3-point Likert-type scale).

Results

Demographic Measures

The majority of respondents were male (62%). Half of the respondents were Latino (50%). Others were white (28%), multi-ethnic (7%), or Asian (5%). On average, the respondents had completed 13.4 years of schooling (n=494; SD=3.9). The majority were English speakers (50%). Others spoke Spanish (29%) or both English and Spanish (15%).

Group Characteristics, Use Levels, and Activities

Most respondents were recreating with family (61%) and/or friends (45%). Less than 10 percent were recreating alone or were with an organized group. Most groups stayed four to six hours (35%) at the day use sites or more than 6 hours (31%). More than two-thirds were repeat visitors to the sites (70%), and more than three-quarters planned to return to the day use sites within the next year (83%). More than half visited other natural area sites within the past year (52%). The most frequently mentioned activities participated in while on the visit included: hiking (46%), picnicking (44%), swimming/wading (32%), camping (26%), spending time in camp (22%), photography (22%), fishing (15%), nature study (14%), and rock climbing (12%). More than half spend a lot of time in natural settings (62%).

Ecosystem Services

Respondents were told that the Forest Service manages public lands, including natural areas that are set aside for various purposes. For each item on a list (some were cultural services and others were regulating services) they were asked how much they agreed or disagreed that it is important to manage natural areas for that particular item. They were also asked to think about each item and indicate if more areas are needed for that purpose, if there is the right amount set aside now, or if there are too many areas set aside for that purpose.

Cultural Services – For this survey the MEA (2005) component focused mostly on recreational opportunities (see Table 1 for full list of items). The items considered most important to manage natural areas for are these: camping, day hiking, educational purposes, scenic value, watching wildlife, visitor safety, sightseeing, stream play, and swimming (see Table 1). Similarly, respondents reported more areas need to set aside for: camping, day hiking, educational purposes, scenic value, visitor safety, watching wildlife, stream play, and swimming, but also picnicking at developed sites.

Regulating Services – For this survey the MEA (2005) component focused mostly on natural resource protection (see Table 1 for full list of items). The items considered most important to manage natural areas for are these: protection of water quality, protection of wildlife, improved air quality, and protection of plants (see Table 1). Similarly, respondents reported more areas need to set aside for: protection of water quality, protection of wildlife, improved air quality, and protection of plants.

Table 1. Average scores on ecosystem services component measures of cultural services and regulating services by the importance of managing areas and the availability of natural areas

	Importance for Managing Area*		**Natural Areas Available****	
	Mean	n	Mean	n
Cultural Services				
Camping	4.5	476	0.7	464
Day Hiking	4.5	473	0.7	439
Educational purposes	4.5	469	0.7	439
Fishing	4.0	450	0.4	428
Horseback riding	3.8	453	0.3	414
Mountain bike riding	3.8	461	0.3	427
Off-highway vehicle riding	3.2	448	0.1	426
Picnicking at developed sites	4.2	481	0.6	455
Scenic value	4.5	465	0.7	450
Sightseeing	4.3	465	0.6	431
Snow play	4.2	466	0.5	438
Stream play	4.3	476	0.6	453
Swimming	4.3	477	0.6	459
Visitor safety	4.4	486	0.7	458
Watching Wildlife	4.5	477	0.7	463
Regulating Services				
Improved air quality	4.5	466	0.8	437
Long-term biological studies	4.3	451	0.7	422
Protection of plants	4.5	489	0.8	460
Protection of water quality	4.7	487	0.8	463
Protection of wildlife	4.7	480	0.8	459

* Rated on scale of 1 to 5, where 1 = strongly disagree and 5 = strongly agree
** Rated on scale of -1 to 1, where -1 = less areas needed and 1 = more areas needed

Conclusions

Experts around the world have identified ecosystem services that benefit humans (MEA, 2005). These ecosystem services are provided by natural areas, such as those managed by the Forest Service. It is important to understand both public perceptions

about the importance of particular ecosystem services and their perceptions about the availability of natural areas to provide these ecosystem services. This study of recreationists to Forest Service day use sites in two canyons in southern California examined these perceptions.

The recreationists were mostly repeat visitors to these sites who had also been to other recreation sites in the last year and had plans to visit these canyons again within the next year. Most said they spent a lot of time in natural settings.

These recreationists strongly agreed with the importance of managing natural areas for several of the cultural services items and almost all of the regulating services items. In order of importance, they felt it was most important to manage natural areas for regulating services such as protection of water quality, protection of wildlife, improved air quality, and protection of plants, as well as cultural services such as camping, day hiking, educational purposes, scenic value, and watching wildlife.

These respondents also felt that more areas needed to be set aside for particular regulating and cultural services. In order of most needed, these included protection of water quality, protection of wildlife, improved air quality, and protection of plants, as well as camping, day hiking, educational purposes, scenic value, watching wildlife, and visitor safety.

Although we did not define these services as "cultural" or "regulatory" to the respondents, it seems that the ecosystem services provided in natural areas resonate with them. Therefore, managers of these natural areas in southern California might want to consider communication and educational programs focusing on describing the benefits to people from natural areas, especially emphasizing regulating and cultural services. It

might be an opportunity to increase knowledge levels of what natural areas do for people. Awareness can lead to an informed public and protected natural areas.

References

Millennium Ecosystem Assessment. 2005. Ecosystems and human well-being synthesis. Island Press, Washington, D.C. 155 p.