The paper park tempest of Sochi: Describing analyzing and strategizing protection of the complex of protected natural areas in the greater Sochi region of Russia

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The Paper Park Tempest of Sochi
Describing, analyzing and strategizing protection of the complex of protected natural areas in the Greater Sochi Region of Russia

By

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Ecocentrists believe that natural systems are the basis of all organic existence, and therefore possess intrinsic value: humankind is an element within rather than the reason to be of natural systems, and is hence dependent upon intrinsic value; ethical human actions (actions which promote the good life for humankind) necessarily promote all life on earth (preserve such intrinsic values as diversity, stability, and beauty).

(Oelschlaeger, 1991, p. 294)

From an Ecocentric point of view, human impacts on the environment can sometimes be baffling. I stood on a pier at midnight looking out across the Black Sea and bent low to examine the gurgling flow coming from the end. Raw sewage poured out, offering explanation for the pea-green water which contrasted the crystal shores a hundred kilometers away and the frequent outbreaks of hepatitis and gastro-intestinal disease in the city. The sight and smell justified my repulsion at swimming in the murky water. And it answered my curious questions about why so little sea life flourished along those well-visited beaches.

The Black Sea is now 90% biologically dead—largely due to human activity. Nearby, Caucasian bison are gone forever from the Caucasus Mountains. Restricted to a small population in a narrow belt of the Caucasus earlier this century the bison were wiped out in wholesale slaughter by hunters—in their place are modern hybrids from Europe. The Caucasian snow leopard is gone as well. Forever. Thirty-five hundred year-old endangered and protected trees in a protected forest in a protected national park are being knocked down by bulldozers in pursuit of fine wood. This is our legacy, our treatment of our world. We have been short-sighted stewards.

It is easy to get lost in a short time-scale, to see only how people are acting and being affected now, while more important is a larger vision of what we can create into the future—for our own species and for many others. One is compelled to do no less than fight for the intrinsic right of every other species to have a niche free of impending doom—even as human population and consumption continue their diverse and unwieldy rise. There is a movement afoot in some countries to create regional-wide ecological protection schemes that sustain intact vast systems of habitat, corridors, and sanctuary for other species (“The Northern Rockies.” 1994; Foreman, 1993). When the economic benefits of such long-term, landscape-ecosystem level approaches to land management are explained, such approaches seem imperative. After all, we have taken so much.
altered so many landscapes, decimated too many species, and tinkered, ignorantly and dangerously, with our own life-support systems.

It is time for repair.

Somewhere along life’s path and sundry work promoting the value of the wild. I realized that attempts to protect biodiversity might be more effective if I didn’t restrict myself to state or national boundaries. About that time I had the fortune of meeting a young Russian whose mind grappled with the same issues, hopes and concerns. This story, then, is of the work that grew out of that partnership and the work that is being done to help protect a small corner of Wild Earth. The complication, of course, is that “conservation is far more a social challenge than a biological one” (McNeely, 1989, p. 157—his emphasis). Managing resources means managing people instead of controlling the wild, its denizens, rocks, trees, minerals, air and water. This work faces this social challenge head on.

Acknowledgments

The work done in the complex of natural areas near Sochi, Russia, would have been little more than a dream had it not been for the timely arrival and gracious assistance of Olga Yurievna Maiboroda, a young Russian linguist with budding interests in the environment of her homeland. Through her efforts I was able to secure a visiting position with the Institute for Mountain Forestry and Forest Ecology in Sochi, Russia. Gennady Constantinovich Solntsev and his staff welcomed us royally, guided and assisted our research, provided transportation into the mountains and arranged visits with other institutions. A number of other Russians were helpful during the first summer of work in Russia. Mikhail Vasilivich Pridnja deserves special mention. A busy scientist at the Caucasus Biosphere Reserve, Mikhail cleared his schedule, met with us regularly, took us into the reserve and invited us into his home.

On the American homefront, my parents have long been an inspiration with their love of the wild, intrigue with people and cultures, and adventurous travels. Bruce Jennings, Professor in Environmental Studies, bravely leapt into the unknown by agreeing to advise me in my pursuit. Professors Jill Belsky, Steve Siebert and Bill Cunningham rounded out my committee by contributing challenging and useful questions, offering feedback and enduring my travails. A research scholarship from the B. and B. Dawson Fund aided my summer abroad.
I extend a note of appreciation to the mass of Russian people themselves who are coming out of an authoritarian system and entering a brave new world. In the midst of the economic and political turmoil they are extraordinary hosts. Lastly, and ultimately, as it should be, I give thanks to Wild Earth and whatever makes it tick. hum. burgeon. slide. slip. swell. pour. grow and heal.
# Table of Contents

**LIST OF TABLES** ........................................................................................................................ vi

**LIST OF FIGURES AND ILLUSTRATIONS** .................................................................................... vii

1.0 **INTRODUCTION** ............................................................................................................................. 1

   Biogeographical and cultural setting ................................................................................................ 4
   Managing Wild Lands ......................................................................................................................... 6

2.0 **METHODOLOGY OF RESEARCH** ................................................................................................. 8

3.0 **LITERATURE REVIEW AND BACKGROUND** .............................................................................. 12

   3.1 Biodiversity imperative ............................................................................................................. 12
   3.2 Protected areas ........................................................................................................................ 13
   IUCN Categories .............................................................................................................................. 14
   Russian conservation ..................................................................................................................... 16
   3.3 Ecological-social issues from the international forum ......................................................  24
   Philosophy of the issue ................................................................................................................ 24
   Issues in international protected area management .................................................................... 28
   Administrative and financial factors of management ................................................................. 33
   3.4 Making headway in the Baikal area with Russian-American efforts ................................... 36

4.0 **DESCRIPTION OF INSTITUTIONS AND INDICATORS OF PROBLEMS** ................................. 38

   4.1 Profile of Sochi and surrounding region ............................................................................. 38
   Tourism .................................................................................................................................. 40
   Local populations—non-homogenous nature of the area ......................................................... 41
   Resource use ............................................................................................................................. 44
   Sochi citizen and city perceptions of the environment ............................................................ 45
   4.2 Caucasus Biosphere Reserve—a zapovednik .................................................................. 47
   Description of endemism and other unique characteristics .................................................... 48
   Administrative organization ....................................................................................................... 51
   Issues and problems at the Biosphere Reserve ......................................................................... 54
   4.3 Sochi National Natural Park ................................................................................................. 60
   Differences between the Park and Biosphere Reserve ............................................................. 61
   Administrative organization ....................................................................................................... 67
   Issues and problems of the park ................................................................................................. 72
   4.4 Institute for Mountain Forestry and Forest Ecology and its Zakaznik ......................... 80
   4.5 Committees for the Protection of Nature ("Goskomecologia") ........................................ 81
   4.6 Russian Academy of Sciences ............................................................................................... 82
   4.7 Other organizations in the Sochi area, including NGO’s .................................................... 82
List of Tables

§ Table 3.1 — IUCN categories .................................................................................................................. 15
§ Table 3.2 — Russian scheme of land protection .................................................................................... 18
§ Table 4.1 — Ethnic mix of Sochi ........................................................................................................... 41
§ Table 4.2 — Sochi poll on the environment ............................................................................................ 45
§ Table 4.3 — Forest characteristics of the Caucasus Biosphere Reserve ........................................... 49
§ Table 4.4— Animals of the Biosphere Reserve ...................................................................................... 50
§ Table 4.5— Characteristics of Sochi National Natural Park ................................................................. 62
§ Table 4.6— Composition of zones in Sochi National Natural Park ...................................................... 64
§ Table 4.7— Goskomecologia Recommendations to Park and Sochi ............................................... 79
§ Table 6.1 — Rough calculations for a bed tax ...................................................................................... 105
List of Figures and Illustrations

f  Figure 1.1 — Map locating the Black Sea coast ................................................................. 1
f  Figure 1.2 — Map of the Black Sea Region ............................................................................ 1
f  Figure 1.3 — Map of the Greater Sochi Area and Complex of Protected Natural Areas .......... 2
f  Figure 4.1 — Map of Russian Oblasts and Krais ..................................................................... 39
f  Figure 4.2 — Map of the political divisions in the Greater Sochi Area ................................... 39
f  Figure 4.3 — Map denoting small mountain villages in the Greater Sochi Area ..................... 42
f  Figure 4.4 — Typical administrative structure of a biosphere reserve ..................................... 52
f  Figure 4.5 — Administrative structure of the Caucasus Biosphere Reserve ......................... 53
f  Figure 4.6 — Map of management zones of Sochi National Natural Park ............................ 65
f  Figure 4.7 — Map of forest zones in Sochi National Natural Park ......................................... 66
f  Figure 4.8 — Existing administrative structure for Sochi National Natural Park ...................... 69
f  Figure 4.9 — Proposed administrative structure for Sochi National Natural Park ................... 71
f  Figure 4.10 — Recreation corridor map of Sochi National Natural Park ................................. 77
f  Figure 5.1 — Pridnja’s concept of politics at the Biosphere Reserve ...................................... 90
f  Figure 6.1 — Conflict management and planning process ...................................................... 109
1.0 Introduction

Figure 1.1—Map locating the Black Sea coast

Figure 1.2—Map of the Black Sea Region
Introduction

We’ve inherited an ecological disaster
—Russian President Boris Yeltsin (Edwards, 1993)

The size of our country and its riches encouraged this ecological carelessness
—Soviet President Mikhail Gorbachev (1990)

Historically, Russia has had a great de-facto wilderness. Very little of this land actually receives protective management, however. In contrast to Russia’s 1% protection of land coverage the World Conservation Union (IUCN) reports a world-wide range of protected area coverage as high as Costa Rica’s 24% and the United States’ 11% (“1990 United Nations List,” 1990).

While the great mass of Russian land remains unprotected. Russia has an opportunity to protect far more of its land and functioning ecosystems than many other countries. Russia plans to expand each of the zapovednik (nature reserve) and national park systems to 3% of its landmass (Drosdov, 1993; Maykeyev, 1993; pers. comms with Danilina; Kommerchesky; Solntsev). Like many Russian dictates however, there are no timelines and little funding to achieve the goal (Danilina, pers. comm.).
Originally I was interested in the expansion of the nature reserve and park systems and the available lands in the Sochi region that might be added to these systems. In traveling to Russia and investigating the system of nature protection, specifically in Krasnodar Krai in the South along the Black Sea, I planned to get answers to three basic questions. First, what is there, culturally and ecologically, that affords an opportunity for further conservation? Second, should remaining wild areas be protected, and if so, with what degrees of protection and use? Third, what is the legal framework for getting such areas protected?

It quickly became apparent that a fourth issue—immediate management problems—was more pressing. The complex of protected natural areas near Sochi—comprised of Sochi National Natural Park, Caucasus Biosphere Reserve, and Golovinsky Zakaznik—is unable to effectively manage “protected” natural areas for maintenance of their ecological values or to avoid conflict over the use and management of these areas. The result is the management of “paper parks” that exist on paper and not in reality. These problems, described in detail in this paper, prevent conservation of existing or proposed areas from being effective. The question is not what to protect but how to protect. In the words of my research partner, you can’t conserve what you can’t protect (Maiboroda, pers. comm.). This paper asks questions fundamental to the predicament of these paper parks: why are these protected areas in this corner of Russia unprotected, what pieces are missing from successful management, and what can be done to address many of the problems?

This region of Russia was chosen for study due to extraordinary subtropical endemism and biodiversity. High visitor use along the coast sets up a potentially high recreation impact in nearby protected areas. With an increasing population, world markets opening up for tourism and resource extraction, and a troubled Russian economy that makes many people search for food, natural resource demands are likely to escalate. A study of the protected natural areas in this region is necessary to understand and define the stress lines between the changes and growth that will occur and the protected natural areas which abut the human developments.

This paper on the management of protected areas emerges from research conducted in Krasnodar Krai and Moscow, Russia, in the summer of 1993 with my research partner, Olga Yurievna Maiboroda. A secondary goal of our presence in the city of Sochi was to establish an environmental center to act as a focal point and forum for environmental issues affecting the Northern Caucasus and Black Sea.
recommendations stemming from my research on protected natural areas would be among of the first issues taken up by the fledgling environmental center.

Biogeographical and cultural setting

The greater Sochi area, at the western end of the Caucasus, encompasses a range of biogeography from the high tundra and glaciers of the Caucasus, through mid-elevational belts of coniferous and deciduous forests, to the lower agriculturally-rich piedmont plains and Black Sea. The Northern Caucasus extend from the Sea of Azov, an arm of the Black Sea dividing Russia from the Ukraine, to the Caspian Sea in the East. The mountains rise in a long chain, stretching from the Northwest to the Southeast, and mark the border between Georgia and Russia. Further East, near the Caspian Sea, the mountains form the border between Russia and Azerbaidzhan. Mt. Elbrus, the tallest mountain in Europe, rises 5633 meters (over 18,000 feet) in the center of the range. Warm, wet winds sweep off the Black Sea and the high humidity and rainfall in the west, near the Black Sea, decrease as one moves east (Curry-Lindahl & Harroy, 1972). The western end of the chain is lush—up to two hundred inches of rain fall each year (Knystautas, 1987) and the Caucasus have 1400 glaciers raking moisture from the air before it drops to the arid east (Curry-Lindahl & Harroy, 1972). Some of the highest mountains Elbrus, Kazbeck (5046 meters) are extinct volcanoes (Curry-Lindahl & Harroy, 1972).

The Caucasus are slightly more richly endowed with nature reserves than the rest of the former Soviet Union. Within Russia, less than 1% of the landmass is set aside in nature reserves or other protected areas (Knystautas, 1987; pers. comms. with Kommerchesky; Koval; Pridnja; Setrov). Since many of the reserves of the former Soviet Union are now in other republics, the Russian reserves are few in number and not representative of the unique biogeography of the mountain range and coastal environments (Pridnja; Setrov, pers. comms.).

The scientists we met with showed a great degree of interest in endemism which is considered, ecologically, to be one of the greatest characteristics of the region (Knystautas, 1987; pers. comms with Kommerchesky; Koval; Pridnja; Silnov; Solntsev). The isolation of the high ridge of Caucasian mountains between two seas and lowlands to the North and South isolated the Northern Caucasus as a biogeographical island. For millions of years, unique flora and fauna have evolved and adapted to the region (Knystautas, 1987; Vereshchagin, 1959).
Major wildlife species in the region include brown bear, wildcat, lynx, roe deer, wild boar, and the hybrid European Bison. The bison carry some of the genes of the native, endemic population which was extirpated by local hunting parties in the mid 1920's (Curry-Lindahl & Harroy, 1972; Pridnja, pers. comm.; Vereshchagin, 1959). Endemic species of the area include the snow partridge, two species of mountain goats, West Caucasian Tur, Long-clawed mole, and the Caucasian Snowcock (Curry-Lindahl & Harroy, 1972; Knystautas, 1987). Other species were not as fortunate to survive. The Caucasus were recently host to a wealth of megafauna—Caucasian elk, cave lions, tigers and cheetahs—which are now extinct throughout the mountain chain (Vereshchagin, 1959).

Native salmon runs still occur in two rivers with headwaters in the Caucasus Biosphere Reserve. Scientists at the Caucasus Biosphere Reserve were unsure who was monitoring the salmon to determine whether their populations are stable (Evanyentko; Pridnja, pers. comms.). A primary threat to the population, agricultural waste of fertilizers and pesticides and raw sewage, are not well regulated (O. Ruibak; Trunyev, pers. comms.).

Ethnically the region has a rich and diverse history. In the last century, however, the mountain regions have languished in a culturally-neglected stage of development in comparison with the rest of the former Soviet Union (Radvanyi, 1987). Ethnicity in the region is largely Russian, but over 100 groups are represented (Mashenko & Sergeyev, 1992).

The economic base is tourism and agriculture. On the Black Sea coast, the city of Sochi was centrally-planned as the premier Soviet resort destination and annually receives millions of visitors (Pachulia, 1985). Resource use and production centers around agriculture. Tea, fruits and vegetables are the primary crops. Other resource production includes timber which is being harvested in Sochi National Natural Park. There is little mining on the Black Sea coast—most mineral development in the Caucasus occurs in the North-East Caucasus. Oil development exists primarily North of the mountains (Ruibak, pers. comm.)

There are important reasons to address land conservation issues in this region. Endemism is extremely high, the human population is emerging from a history of authoritarianism and disempowerment, economic pressures for development are burgeoning, and expansion decrees for the system of reserves and of parks will triple the volume of protected areas.
Managing Wild Lands

In a discussion of the designation and management of protected natural areas Saharia (1984) outlines four basic approaches to thinking about protected wildlands:

- Ecological (species, relationships, health of overall systems)
- Economic (value of resources to different segments of the economy)
- Cultural (historic patterns of use, valuation and access; beliefs)
- Normative (society’s institutions, rules and regulations)

A balance of these four approaches is necessary in modern conservation. Each perspective has important constraints to consider and insights to offer. Separating these approaches in a conservation context is difficult, since the elements are deeply interconnected.

Historically, parks and protected areas were characterized by a “top-down” model of American national parks which embodied strictly protected areas. This model often was imposed on local communities resulting in a number of conflicts which degraded protected areas and increased hostility in surrounding communities (Sharma, 1991; West & Brechin, 1991).

Beginning in the early 1980’s a new model emerged which was more holistic in nature. It directly addressed the needs, uses and cultures of local peoples and sought to involve them in decisions, management and self-determination (Hough, 1988; Sharma, 1991). Empowerment of locals involves locals and their needs and expertise and can result in greater satisfaction through accommodating and incorporating their uses. A second result is important from a conservation perspective—satisfied, involved and educated people with a fair distribution of resources may alter or impact the protected natural areas less (Leisure & Mehta, 1992). Hence, there is a positive sum situation—people are more content and the ecological resource is more protected. This “bottom up” style of thinking characterizes this recent movement in international conservation work toward a more holistic, people-oriented scheme of nature protection that emphasizes local cultures.

Sharma has critiqued both of these models as they have been applied in the designation and management of protected areas. He claims that while the second, more-holistic model, has much to offer, it does not adequately address cumulative impacts resulting from increasing populations, shrinking habitats and changing resource needs.
He suggests a new model of protected area management which proactively addresses each of the approaches raised by Saharia by extending park management beyond park borders to work in and with communities to define and develop alternatives to resource use from park areas (Sharma, 1990; Sharma, 1991). For Sharma, the importance of Saharia’s approaches is not in their insular nature but in their creative and adaptive synthesis of insights and offerings. This “marriage” of conservation interests, social needs and pro-active management—a “top down” meets “bottom up” and “spreads out” approach—is considered in greater detail in the literature review.

Sharma’s framework of concepts applies directly to the situation in the region around Sochi, Russia. A broad pattern of ecological deterioration, poaching, illegal harvesting of endangered species, power and resource struggles between institutions, lack of public involvement and empowerment, and absence of critical data suggest that “protected” natural areas in the region are paper parks lacking true protection. An investigation of these problems and their root causes must ask what incentives and mechanisms exist to eliminate illegal logging in the area, develop cultural programs, empower local needs and concerns, secure funding for protected areas, and encourage cooperation between protected area institutions and the city of Sochi.

Following a discussion of methodology and a review of literature, this paper divides into three major sections—description of Sochi and the complex of protected natural areas, and interpretation of problems to root causes with analysis of missing pieces. In the last major section of the paper—recommendations—I will explore the potential role and conflicts of using non-governmental organizations in the process of ecological information gathering, social impact assessment, and the formation of institutional linkages.
2.0 Methodology of research

I spent three months in Russia, including one month in St. Petersburg developing language skills, six weeks in Sochi, a town on the Black Sea in Krasnodar Krai, and two more weeks in Moscow, doing research at the Ministry of Nature and the national library. My own language skills were rudimentary so Maiboroda translated all of our interviews.

Since Maiboroda and I knew little about the existing protected natural areas in the region—their location, status, condition, goals or management—an intense orientation period began upon our arrival. Our host institution, the Institute for Mountain Forestry and Forest Ecology, advised us to work closely with the Caucasus Biosphere Reserve (Koval, pers. comm.; Silnov, pers. comm.; Solntsev, pers. comm.). The director of the Institute and his assistants said the Reserve has been centrally involved in the push to preserve land in other reserves and new areas. Additionally, the reserve has the best information on the four categories of information that Saharia (1984) defined as important:

- Social attitudes and perceptions about protected areas;
- Normative aspects of land management including legal framework of institutions and conservation processes;
- Ecological base of the region; and,
- Incentives for conservation (economics).

We worked closely with the Biosphere Reserve, and also reached out to include other institutions engaged in protected natural area work. In Sochi, Maiboroda and I conducted a series of interviews with individuals at state and local agencies. We met with the Institute for Research in Mountain Forestry and Forest Ecology, Caucasus Biosphere Reserve, Russian Academy of Sciences—Sochi Branch, Sochi National Natural Park, and Sochi Committee for the Protection of Nature (Goskomecologia). At this time, there are no non-governmental organizations in the area working on conservation.

Through the research I was able to collect data in four primary areas: existing ecological resources and problems; normative aspects of institutions lacking outreach, communication, understanding and empowerment; legal frameworks; and the possible expansion of the reserve system. Sociological and economic data was collected to a lesser degree.
Data was collected through interviews with representatives of the institutions. Most interviews lasted between thirty minutes and two hours. Several were stretched out over the course of an entire day and, in one case, several days. We would prepare for meetings by typing out a list of questions that we hoped to ask, including questions to cross-check details between interviewees.

After meetings we would go over our notes, discuss observations and ideas, and type notes into a computer for future reference. We would also identify questions prompted by the interview and mark them for future interviews.

We were able to make only a few trips into the mountains where the protected areas are due to poor transportation, limited time and a serious illness that prevented two field trips. In addition, we were warned against visits to the mountains by Academy scientists who said that due to violence in the Caucasus, ethnic clashing spilling over from Georgia, and mountain populations of rebels, no expeditions had been conducted for two years. Others similarly advised that we avoid risking excessive travel in the region.

In August we returned to Moscow and met with a representative of the Ministry of Environmental Protection and Natural Resources of Russia to get an overview of the national nature reserve and park systems. I spent an additional week working at the National Lenin Library, the equivalent of the Library of Congress, reading publications in English, including a series of environmental abstracts from Russian environmental and ecological papers.

Throughout, we compiled an extensive bibliography listing all resources utilized, all contacts referred to us by people we met or interviewed, and detailed descriptions and comments about agencies, individuals and printed material.

Some circumstances which altered our research included:

- Mapping of the ecological condition and zones of the Northern Caucasus has not been systematically approached. Many scientists, when asked if anyone was doing it, would simply say, "that's a good idea" (Pridnja; Ruibak; Solntsev; Trunyev, pers. comms.). Likewise, mapping of endemism, endangered species and overlaps of critical habitat has been done only in select locations (Setrov; Trunyev, pers. comms.).

- In the transition from the Soviet state to the independent Russian Federation, there is a carryover of some literature, law, and institutions. Much has not been carried over, however. Trying to understand what has been transferred to the Russian system can challenge even native Russians.

- The best maps available were war maps from World War II which were copied from the archives at the University of Montana. These had no land management markings. Other map sets were incomplete or inaccurate. The Biosphere Reserve provided us a set of maps partially covering the area, but
these were not complete. Other maps lacked specific areas such as the park or showed incorrect boundaries.

- Printed data is often unavailable due to the high cost of printing and copying. As a prime example, Gorbachev and Yelstin's decrees to expand the systems of nature reserves and national parks were widely known, but none of the reserve staffs, or the Ministry of Nature in Moscow had the dictates available on paper. Getting printed copies of reports, species lists, and other documents was often impossible.

The sheer difficulty of translations deserves discussion as well. Culturally imbued meanings for such words as propaganda, utility, wilderness, public participation, environment, legal, and recreation all necessitate careful translation. This difficult research effort was assisted by having a research partner who was a native of the area. Maiboroda's knowledge of the Russian system of meetings, transportation, and her ready interpretation of cultural insights allowed us to build a working relationship that grew stronger with each meeting.

Attempts to meet with the local Socio-Ecological Union (SEU), the Russian Geographical Society (which had recommended that part of the park be transferred to the reserve), the Sochi City Committee on Nature Protection were fruitless. In each case, representatives of the organizations worked for institutions with which we were meeting. Historically, many of these organizations were simply extensions of the government and the Communist party (Golovina, 1991). In other cases people either were not available, or they directed us elsewhere, believing they had nothing to offer. When we called and asked the SEU in Moscow about their perceptions of the reserve system we were referred to the Ministry of Nature. The failure to find an interested party at the SEU was particularly surprising since the Russian government, plans to expand the system of nature reserves on the advice of the Socio-Ecological Union (Drosdov, 1993; Maykeyev, 1993).

Identifying representative users of the park area was also difficult. To the best of our knowledge there are no collection groups or citizen alliances. The large population of Sochi is diffuse in its interests. To get an accurate sense of how different groups of locals value the park and where they focused their gathering and recreation efforts will be difficult. This is one of many areas in which much more research needs to be done to achieve an accurate understanding of local management issues.

Despite the difficulty of the research the international nature of this project resulted in an active interchange of ideas which should benefit all the parties involved. After many decades of a relatively closed culture, Russians are excited to be able to learn

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from and share ideas with the rest of the world. Mikhail Pridnja at the Biosphere Reserve
told us that no one has asked the kind of institutional and organizational questions about
Russian reserves that are explored in this paper. The information gathered, analyzed and
compared with other protected area systems represents a unique offering to this region
and the Russian literature.
3.0 Literature review and background

3.1 Biodiversity imperative

Every country has three forms of wealth: material, cultural, and biological. The first two we understand well because they are the substance of our everyday lives. The essence of the biodiversity problem is that biological wealth is one taken much less seriously. (Wilson, 1992, p. 311)

Wilderness and the complex study of its diverse denizens, interrelationships and homeostatic variances over time need no justification — protection is needed. While the intrinsic value of life processes is beyond measure, monitoring its destruction has become a dominant theme in contemporary literature. Globally, about three species are going extinct each hour, particularly in biodiverse areas, areas with high endemism and areas facing development (Wilson, 1992). A 20% extinction in total global diversity by the year 2022 is a strong possibility if the present rate of environmental destruction continues (Wilson, 1992). While some researchers have claimed that protective land management is, “a ‘western’ idea, ‘...outgrowths of Western conservation needs, fears and values...’” (Hough, 1988, p. 129), there are very sound biological reasons for conservation.

Goal number one, according to E. O. Wilson and Michael Soulé (Wilson, 1992; Soulé & Simberloff, 1986), is to save endemic hot spots: “The only realistic hope lies in the rapid recognition of the threatened habitats that contain the largest number of endangered endemic species (the hot spots)” (Wilson, 1992, p. 313). The Caucasus range is an endemic hot spot. An opportunity exists to protect some of this unique habitat in a large, relatively undisturbed and fragmented condition.

Recognition of the biodiversity imperative is not limited to Western scholars. Speakers attending a conference at the Russian Academy of Sciences in Russia recently discussed the biological imperative and Russia’s endangered species and considered this theme a top priority (Wallace, 1993). The Soviet Red Book, predecessor of the Russian Red Book, was first published in 1974 and the classifications follow those developed by the World Conservation Union (IUCN) (Pryde, 1987). At a Russian level, discussion about conservation has been at a relatively high level. Protecting ecosystems instead of just species is a primary goal (Atmosoedarjo, Daryadi, MacKinnon, & Hillegers, 1984).

The greatest biological diversity in the former Soviet Union is along the far southern border (Gavva & Yazan, 1983b). The Western Caucasus are one in a list of eleven areas in all of the former USSR with high diversity (Gavva & Yazan, 1983b).
Pryde’s analysis of the 1985 Soviet Red Book demonstrates that the Caucasus have a high density of endangered species compared to the rest of the former Soviet Union (Pryde, 1991). Hamilton adds that “Mountains are banks of biological diversity often harboring endemic and threatened species and the last stronghold of others that have been extirpated in adjacent lowlands” and cites the Caucasus as a prime example (Hamilton, 1993). Indeed, some estimates state that there are 4700 authochthonous species of Caucasian flora. Endemism is about 42.5% and forty genera are endemic for the Greater Caucasus and Colchis (Kolakovskii, 1989).

The primary means of protection in the Russian and Soviet system is nature reserves. One nationwide assessment in the early 1980’s categorized the reserves into three groups: 1) ecologically stable and self-regulating, 2) stable with minimum anthropocentric influence but likely to change, and 3) unstable areas organized to protect only one or more component of the natural system. The last two groups are greater in quantity and are growing in number (Gavva & Yazan, 1983b). Biodiversity is not being well-conserved in Russia, even in the most protected areas (Drosdov, lecture; Mekayev, 1981; Pridnja, pers. comm.).

In a survey of Russian articles available on the Caucasus, a number of biological research articles were found but there were few on the effectiveness of management, or the relationship of biology to land conservation. This may be due to a preoccupation with utility and agriculture when considering natural resources. Articles focus on soil stability, run-off and sedimentation, particularly on the northern slope of the Caucasus which drains onto one of the prime agricultural piedmonts of Russia.

### 3.2 Protected areas

Internationally, the primary means of conserving biodiversity and other elements of species and ecosystems protection has been through land and water conservation efforts. The IUCN and the Bruntland Commission of the United Nations state that a minimum of 10% and 12% of a country’s land mass, respectively, should be set aside in well-protected reserves to preserve biodiversity (Miller, Furtado, De Klemm, McNeely, Myers, Soule, et al., 1985; Noss, 1994). Some conservationist biologists’ estimates are as high as 25 to 75% (Noss, 1994).

Currently, about 5% of the world’s landmass is in protected areas (Noss, 1994) with 100 million hectare Greenland National Park, administered by Denmark, accounting for 40% of that total (Hamilton, 1993). Since the largest country on Earth, Russia, has less than 1% of its land in protected areas it is imperative that existing reserves be made
functional and new reserves be added. The arrangement and restrictions of land use necessary for biological reserves, however, is the source of considerable debate. An important first step is to make the Russian system of nature protection compatible with the international standards of the IUCN.

### IUCN Categories

The IUCN protected area classification system shown in Table 3.1 is used in the international conservation community to identify and describe objectives, degrees of protection and use in protected areas. National parks in two countries, for example, might have widely divergent land management practices. English national parks are largely private and allow a range of commercial uses. National parks in America, on the other hand, allow few commercial uses and only a few extractive uses such as fishing and berry picking. While these are both called national parks, the English parks are best fit into IUCN category V. Protected Landscapes. Most American national parks are described as IUCN Category II (Harmon, 1991).

The strongest form of nature protection is the IUCN sanctuary, a Category I area which has the primary objectives of maintaining sample ecosystems in natural states and conserving genetic resources. They are most notable for prohibiting human use of the areas:

Natural processes are allowed to take place in the absence of any direct human interference; tourism, recreation and public access are generally prohibited. Ecological processes may include natural acts that alter the ecological system or physiological features, such as naturally occurring fires, outbreaks, storms, earthquakes and the like, but necessarily exclude (human made) disturbances. The educational function of the site is to serve as a resource for studying and obtaining scientific knowledge.


When people think of protected areas they often think of national parks. The IUCN classification system describes many national parks as IUCN Category II areas. The goal of a Category II area is both ecological conservation and people-oriented values such as rural development, recreation and education (Brechin, West, Harmon, & Kutay, 1991). Davis says, “The primary purpose of a national park is the protection of nature and natural ecological processes and to provide for public recreation that does not interfere with these processes” (Davis, 1993, p. 63). Similar to IUCN Category I areas, Category II areas prohibit exploitation of natural resources such as mining, hunting.
Table 3.1 — IUCN categories

International categories of protected areas and corresponding conservation objectives

<table>
<thead>
<tr>
<th>Primary Conservation Objectives</th>
<th>Strict Reserve (I)</th>
<th>National Park (II)</th>
<th>Monument/Landmark (III)</th>
<th>Managed Reserve (IV)</th>
<th>Protected Land-Scape/Seascape (V)</th>
<th>Resources Reserve (VI)</th>
<th>Anthropological Reserve (VII)</th>
<th>Multiple Use Area (VIII)</th>
<th>Biosphere Reserve (IX)</th>
<th>World Heritage Site (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain sample ecosystems in natural state</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Maintain ecological diversity and environmental regulation</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Conserve Genetic resources</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Provide education, research, and environmental monitoring</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Conserve watershed condition</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Control erosion, sedimentation; protect downstream investments</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Produce protein and animal products from wildlife; permit sport hunting and fishing</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Provide recreation and tourism services</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Produce timber, forage, or marine products on sustained yield basis</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Protect sites and objects of cultural, historical, and archaeological heritage</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Protect scenic beauty and open space</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Maintain open options; manage flexibly; permit multiple use</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Stimulate rational, sustainable use of marginal areas and rural development</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Adapted from IUCN, 1978a

Note: 1 — Primary objective for management of area and resources; 2 — not necessarily primary but always included as an important objective; 3 — included as an objective where applicable and whenever resources and other management objectives permit.

(adapted from West & Brechin, 1991)
fishing and timbering (Davis, 1993). Unlike the sanctuaries described as Category I, Category II areas do emphasize people:

It is recognized that within the boundaries of certain national parks there are existing villages, towns, communication networks, and the on-going activities connected with them. Provided that these areas do not occupy a significant part of the land and are de facto zoned and so arranged that they do not disturb the effective protection of the remaining area, the will not be considered as a basis for exclusion from this category. ("1990 United Nations List," 1990)

The authors of the Baikal report suggest that "existing traditional land uses within national parks may continue if they do not threaten the natural integrity of the ecosystem, but should not be expanded" (Davis, 1993, p. 64).

Managed reserves, general Category IV, are often semi-protected areas which allow some sustainable extractive uses. The Baikal authors observe that "existing land uses, such as subsistence hunting and fishing that do not threaten the natural integrity of the ecosystem may be continued but not be expanded" (Davis, 1993, p. 68).

Category V areas, Protected Landscapes, are also semi-protected areas which can include a number of sustainable extractive uses including open space recreation with hunting and fishing, environmental education, roadside pull-offs, picnic facilities, and gathering of plant materials such as nuts, berries, mushrooms (Davis, 1993).

A biosphere reserve, Category IX, integrates many of the goals of the other categories of IUCN protection through a multiply-zoned system. "Theoretically, a biosphere reserve integrates the goals and strategies of conservation, development, research and education" (Gomez-Pompa & Kaus, 1992, p. 274).

**Russian conservation**

Lenin signed a decree which created the reserve and park systems during Russia’s “Gold Age of Ecology” on September 16, 1921 (Pridnja, pers. comm.; Pryde, 1991). While many reserves were established no national parks were created until fifty years later (Pryde, 1991). Currently, the system of land use in Russia derives from article 4 of the “Land Law of the Russian Federation” under the Soviet system (1991).

Russian land conservation is achieved primarily through three public land designations: *zapovedniki*, reserves operated as IUCN Category I sanctuaries; *national park* areas, intended for recreation and conservation and variously operated as IUCN Category II (Davis, 1993) through Category V (Pryde, 1991); and *zakazniki*, which are short-term, single purpose areas that may have serious alteration or conflicting uses. In
addition, much of the land is held in forest lands—leskhoz—which are the equivalent of IUCN Category VI or VII areas. Most land managers and scientists with whom I talked do not consider zakazniks to be a serious land use classification for protecting natural landscapes or biota (Ananchenko; Koval; Setrov; Solntsev, pers. comms.). Likewise, the leskhoz are managed almost exclusively for the “rational extractive use” of natural resources and are not intended to sustain biodiversity (Koval, pers. comm.; Pryde, 1991).

During the Soviet era, the system of protected areas fluctuated wildly with the zapovedniks (literally, “forbidden areas”), growing rapidly until utilitarian mandates under Stalin and Kruschev reduced the system first by seven eighths in 1951 and then by a third in the early sixties. Not until the mid 1980’s did the system return to the size it was in the late forties (Pryde, 1991).

Even today, land designation and management planning are often not as refined as in other countries. Proposing to use zoning laws with new rigor in the Baikal area, Davis says.

> In the past, use zoning has not been widely used for economic development and environmental protection in the former Soviet Union. Certain areas have indeed been ‘zoned’ for protection—designated, for example, as zakazniks, zapovedniks, national parks, or water supply protection areas. But so far as is known, a comprehensive zoning that allocates land uses in a consistent and coherent fashion as the principal tool of land development policy has not been used. (Davis, 1993, p. 29)

Currently, no enabling legislation exists to define zapovedniks and park agencies (Danilina; Kommerchesky; Pridnja, pers. comms.). Until 1992, zapovedniks were managed by twenty-six or more different ministries of the government and most national parks are managed by the “Department of Especially Protected Areas” in the Federal Forestry Service (Solntsev, pers. comm.). National parks and zapovednik systems each account for less than 1% of the Russian land (Danilina; Kommerchesky, pers. comms.). No wild and scenic river system exists and no single agency oversee the Red Book, the equivalent of the American Endangered Species Act (Pridnja, pers. comm.; Pryde, 1991). With special exceptions, there is little enforcement of endangered species protection (Pryde, 1987; pers. comms. with Shevelev; Ananchenko; Pridnja).

Laws relating to wildlife, flora and protected areas include the Soviet “Law on the Animal World” which gives ownership of all wildlife to the people of the country, allows public organizations to assist in the process of protecting wildlife and prohibits hunting, trapping, fishing or otherwise taking of animals in zapovedniks or other protected areas.
§ Table 3.2: Russian conservation lands

*List of the Main Types of the Protected Natural Territories Grouped According to their Purpose*

<table>
<thead>
<tr>
<th>type of territory</th>
<th>preservation of representative ecosystems</th>
<th>protection of gene pool of organisms</th>
<th>restoration and reproduction of resources</th>
<th>maintenance of favorable ecological balance</th>
<th>environmental protection</th>
<th>providing possible recreation</th>
<th>environmental education</th>
<th>IUCN equivalent (added by Menning)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 nature complexes and zakazniks: landscape complex and hydrological</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>IV, V, VIII</td>
</tr>
<tr>
<td>2 zapovedniks</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>I</td>
</tr>
<tr>
<td>3 biosphere reserves</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>I, IX</td>
</tr>
<tr>
<td>4 botanical nature complexes</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>5 micro zakazniks</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>III</td>
</tr>
<tr>
<td>6 botanical gardens, dendranums (arboretums), plantations of rare plants, zoological gardens, places for rare animals (refuges)</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>7 Natural bodies of water and marshes, protected according to international conventions</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>V</td>
<td></td>
</tr>
<tr>
<td>8 botanical zakazniks including forest zakazniks</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>IV, V, VIII</td>
</tr>
<tr>
<td>9 zoological zakazniks and hunting zakazniks, places where they hunt sea animals (marine hunting territories), protected coastal waters (continental shelf)</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>IV, V, VIII</td>
</tr>
<tr>
<td>10 protected spawning grounds</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>11 fishes hatcheries; aquafarms</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>12 state forest hunting areas (half extractive reserves, half national forests)</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>IV, V, VIII</td>
</tr>
<tr>
<td>type of territory</td>
<td>preservation of representative ecosystems</td>
<td>Protection of gene pool of organisms</td>
<td>restoration and reproduction of resources</td>
<td>maintenance of favorable ecological balance</td>
<td>environmental protection</td>
<td>providing possible recreation</td>
<td>environmental education</td>
<td></td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>-------------------------------------------</td>
<td>-------------------------------------</td>
<td>-----------------------------------------</td>
<td>--------------------------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td></td>
</tr>
<tr>
<td>13 areas where animals are raised to be hunted (not sure whether this is an area that is wild or a heavily managed territory)</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>IV, V, VI</td>
<td></td>
</tr>
<tr>
<td>14 Siberian cedar extractive reserves (no cutting- collect cones), and forest plantations</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>15 Forests with non-timber uses (reserved forests)</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>16 climate regulating forests</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>17 small forested areas in forest steppe</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>18 riparian forests</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>19 hedgerows to protect soils from water and wind</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>20 special regimes of nature use</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>21 forests planted along roads and railways (windbreaks)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>22 Forest parks and green zones around cities (greenbelts): resort forests</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>23 protected coastal areas (coastline)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>24 National Natural Parks</td>
<td>3</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>25 historic or cultural and natural museum reserves</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>26 parks, monuments of garden art (sculpture gardens?)</td>
<td>3</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>27 experimental educational forests reserves for schools</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

(Borodin, Krinitsky, & Isakov, 1983, p. 61 63)

It is notable that little of the Russian literature contains discussion of human values other than recreation and education, which is mentioned as one goal of a biosphere reserve (Borodin, et al., 1983). The only general discussion on economics of these areas is an indirect economic argument that "Nature reserves add to natural riches, permitting hunting loads on game animals in the adjoining territories to be increased and thereby providing an economic effect" (Gavva, Krinitsky, & Yazan, 1983a, p. 3). One work from Russia considers surrounding communities but this socialist-era work espouses party control and the greater good of society without offering great specificity (Deshkin, 1985).

There is scant Russian literature on nature reserves—as distinct from Soviet reserve literature—due to the recent cultural transition. Indeed, much of the literature available on nature conservation in the former Soviet Union is clouded by having to serve the intent of the Soviet State.

What literature does exist is often questionable in academic rigor. In order to evaluate the system of zapovedniki in Eastern Russia, for example, one scholar rode his bike in a long line East across the Ukraine, interviewing the people working at the reserves, and made proposals for things he saw along the way. One sight from his bike was "a ravine to the North of Berezovka, Odessa Oblast," which he concluded should be a reserve simply because it was "virtually unplowed on the slopes" (Mekayev, 1981). This point about rigor of research is further developed in the interpretation section.

Following is a closer description of the various conservation designations. The distinction between zapovedniki, which are operated as sanctuaries, and national parks, which are people-oriented in their emphasis on recreation (Gavva, et al., 1983a), is particularly important to the situation in Sochi.

**Zapovedniki—IUCN Category I areas**

In the USSR nature reserves are the highest form of nature conservation, set up to achieve the natural progress of processes in nature ecosystems; to preserve the genetic fund of living organisms peculiar to a specific landscape subdivision; to carry out research work. To be able to perform these tasks the nature reserves enjoy the right of permanent and isolated
utilization of land and water; natural objects are exempt from economic uses.

(Gavva, et al., 1983a, p. 1)

Since Lenin's decree in 1921, the zapovednik system has been at the core of Russian conservation. The system has not been stable, however. Growing populations, utilitarian themes and demand for more agricultural lands created two extinction spasms. The first, under Stalin, changed the “inviolable” purpose of the reserves from studying and protecting nature, to being areas where scientists would learn to master and transform nature to serve the economy (Pryde, 1991). During this first reduction, between 1951 and 1952, the system shrank by 88 units and covered only 12% of its former landbase—a total land area not to be protected again until the 1980's. The second reduction, intended to increase agricultural lands, occurred between 1961 and 1964 and reduced the system by 27 units and dropped the total area by one third (Pryde, 1991; Weiner, 1988).

Estimates of the total land mass conserved in zapovedniks range from less than half of a percent of the Soviet Union in the late 1980's (Knystautas, 1987; Pryde, 1991) to nearly 1% of Russia in the summer of 1993 (Danilina; Pridnja; Setrov; Timokhin, pers. comms.). All zapovedniks are federal Russian land and all are now administered by the Ministry of Nature and the Environment. Some report directly to the Ministry while others report to sub units or regional offices and other divisions within the ministry (Danilina, pers. comm.).

The purpose of the reserves has changed somewhat over time, but the guiding principle has always been isolated, restricted sanctuaries. Historically these have been intended for scientific study (Borodin, et al., 1983; Krasnitski, 1983; Pryde, 1991) and have specifically excluded tourism and recreation (Knystautas, 1987). Research is intended to compare human-impacted systems with systems not directly affected by extractive or recreational use. Reserves also provide isolated systems for studying global processes.

The organization of a reserve is intended to be divided into two zones: core and a less-regulated outside zone. Studies of environmental change are intended to occur in the outer zone. Core areas are for preserving ecological processes and species and are for scientific study (Fischer, 1981; Knystautas, 1987). Research is a critical component of Russian reserves (Gavva, et al., 1983a,). This includes addressing issues beyond the boundaries of the areas by identifying “the role of the protected territory in the system of nature reserves, estimating its scientific importance to the region and the country”
The reserves contain a network of measuring stations to identify abiotic pollutants (Izrael, Rovinsky, & Gorokhov, 1984). While the science theme is utilitarian, it has important repercussions for wildlife. The designation of these areas as reserves, which are sanctuaries free of human use, helps sustain charismatic megafauna, complete ecosystems, and gene pools (Pridnja, 1991; Borodin, et al., 1983).

In addition to studying and carrying out the purposes of ecosystem and species conservation and monitoring, the reserves sometimes have additional purposes. It is not uncommon to have experimentation going on in the reserves such as "improving soil fertility, controlling pests, introducing or improving commercial animal species, etc." (Pryde, 1991, p. 8). We saw sample plantations of Douglas fir and coastal redwood in the Caucasus Biosphere Reserve.

Though reserves are technically not supposed to allow visitation or use, several reserves have been used heavily for recreation (Pryde, 1991). In fact, despite being closed to tourism, one area had 100,000 visitors per year (Fischer, 1981). Fischer commented, "To an outsider, it is not quite clear how the statutes governing the use of nature reserves are compatible with such activity" (Fischer, 1981, p. 514).

When a reserve is protected, so are the mineral rights and everything else—from the air space above the land down deep into the earth (Pridnja, pers. comm.). This contrasts with the American system where mineral, water and air space rights might not be owned or managed. Reserves are considered the most stable form of protection with permanent status (Pridnja, pers. comm.; Setrov, pers. comm.).

A litany of problems occurring in and around zapovedniks has been reported: funding is a problem throughout the system and is very uneven (Pryde, 1991); introduction of exotics has become epidemic (Gavva & Yazan, 1983b); and game wardens are understaffed, un-uniformed, and often un-armed (Baklanov, 1984). Pryde says that the pervasiveness of the poaching problem is evidenced by the large number of articles in the Soviet Press in the last few years. He cites 16 articles in the condensed and translated Current Digest of the Soviet Press from 1982 to 1984 alone. There has been little attempt, however, to look for causes of poaching (Pryde, 1991).

Over time, the singular purpose of the Soviet Union's reserve system caused a few problems. There have been numerous conflicts when areas have had to serve several purposes, for example, recreation, science and conservation of gene pools. The issue has  

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1 A few reserves are set aside for archaeological values (Pridnja, 1993d) and there are a few cultural zapovedniks (Fischer, 1981).
been forced by needing to utilize the same lands for multiple, often conflicting purposes by not having new lands set aside in reserves (Borodin, et al., 1983). The conflict over preservation of species and ecosystems and the uses of recreation spurred the creation of people-oriented national parks.

**National parks—IUCN Category II, V or VIII**

National parks have a dense network of roads, recreation sites, hotels, nutrition facilities, tourist equipment, hire depots, shops, communication services, etc. (Gavva, et al., 1983a)

National parks are not the most protective form of land withdrawal in the former Soviet Union and Russia. Instead, they are reactions to the people’s need for recreation alternatives to the zapovedniks which are IUCN class I sanctuaries (Gavva, et al., 1983a; Pryde, 1991; Fischer, 1981). This people-orientation of the parks is reflected in dialogue about the park system when the first park was created in Russia: “In the zoning of park territory, alongside stretches of complete reservation, recreation and tourism, there are envisaged territories with national methods of economic activities, land cultivation, traditional handicrafts” (Gavva, et al., 1983a, p. 3). As of the early 1980’s, before there were any parks in Russia, the Soviets were planning to develop a park system mimicking the American system (Fischer, 1981).

The first national parks were created in Russia in 1983 and suggestions for the Sochi area included the current Sochi National Natural Park and Lake Ritsa, just across the border in Georgia. Sochi National Natural Park became the second national park in Russia in 1983. Parks were created by Soviet republics, and so there never was a Soviet agency or national management policy (Pryde, 1991). Currently, the Federal Forestry Service of Russia manages the parks of Russia through the division of “Especially Protected Forest Areas.”

Pryde claims all Soviet national parks are divided into three zones: restricted zones, similar to zapovedniks; intensive recreation zones; and zones of economic activity (Pryde, 1991). The actual divisions vary in Sochi National Natural Park but do follow this general scheme of zonation.

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2There was considerable debate about whether to call parks “national” since all Soviet lands were national. One proposal was to call the parks “natural” parks. Some ended up having a mix of names (Pryde, 1991). The Park in the Sochi region is officially called “Sochi State Natural National Park.” I am deliberately using “national” instead of “state” to avoid confusion for American readers. In Russian, the adjective for state, “gosudarstvenny” is used interchangeably with the more familiar to us “nationalny.” For the sake of simplicity, I call the park Sochi National Natural Park.
Zakazniks, leskhoz, and other areas

Secondary forms of nature conservation include nature complexes—small, local areas—and multipurpose zakazniks (Davis, 1993; pers. comms with Pridnja; Setrov). Almost three thousand Zakazniks, whose name evolved from the old Russian “hunting reserve” contain 48 million hectares in the former Soviet Union—2% of Russia’s predecessor country. Their purpose can be recreation, zoology, botany, hydrology, or geology. While each area may have one or more purposes, most have a primary purpose and the most common form is a hunting zakaznik. These areas are not usually used for protecting rare, endangered or migratory species (Fischer, 1981; Pryde, 1991). When they are used to conserve species, other uses may go on so long as they don’t disturb the species for which the reserve was created (Pridnja, pers. comm.; Setrov, pers. comm.; Davis, 1993).

Zakazniks are politically unstable areas, whose status can be quickly changed and which often have limited lifetimes. Managed by a host of agencies and ministries, these areas are caught in a struggle for rearrangement among various agencies (Pridnja, pers. comm.). Many zakaznik lands are heavily altered landscape and may bear little resemblance to the native ecosystem (Koval; Solntsev, pers. comms.). These semi-protected areas are sometimes used as an intermediary step while restoring area to zapovednik condition (Pridnja; Setrov, pers. comms.).

A leskhoz is similar to an American national forest, or district of a national forest with individual management (Kommerchesky, pers. comm.). The emphasis in these areas, which cover much of the 38.5% of Russian land in forest, is timber production and other extractive uses (Lobovikov, 1994; Pridnja, pers. comm.; Pryde, 1991).

3.3 Ecological-social issues from the international forum

The protection of nature in Russia does not exist within a vacuum. Considerable literature and experience exists around the world. Many concepts of park protection have been tried and through experience found to be successful or flawed. Placing the Russian system into the context of this dialogue is an important step when considering existing and potential modes of conservation in Russia. A discussion of international models and experience in land conservation follows.

Philosophy of the issue

The message is clear that Nature does not recognize Man’s laws and boundaries and that laws by themselves do not change human habits and traditions. Protected area management must therefore consider the
The historic dichotomy between social and ecological agendas has only come to be fully discussed in the last decade. Hatley neatly contrasts the historical patterns that have characterized the recent cleavage in natural resource management: “ecologists, and other ‘pure’ scientists, have tended to regard human economies as outside the boundaries of natural systems and, particularly in the Third World, a direct obstacle to their optimal functioning.” Likewise, amongst development planners, “the application of biological science is still viewed as a separate kind of enterprise: one that involves unaffordable parks, quixotic attempts to save rare birds, and seemingly irrelevant and arcane research on ecosystem function” (Hatley & Thompson, 1985, p. 367).

Science and application of the Western model of restrictive national parks have characterized the early model of park protection. This “top-down” model, which parallels Hatley’s concept of “ecologists,” has been heavily criticized for failing to address the uses and concerns of local people, issues of distribution of resources and wealth, ecological effects on park resources by impoverished people, and questionable data about the impact of human populations (Gomez-Pompa & Kaus, 1992; Griffin, 1990; Hough, 1988; West & Brechin, 1991). The result has often been that park areas become degraded due to overuse by poor rural people who depend on resources for a living and have little share in the economic benefits that accrue from conservation and development (Griffin, 1990; Hough, 1988; West & Brechin, 1991).

A second model of park conservation that is less restrictive and more holistic appeared in the 1980’s and took form in the Bali Declaration at the 1982 World Congress on National Parks. This declaration recommended that the conservation community:

- Recognize the economic, cultural, and political, contexts of protected areas;
- Increase local support for protected areas through such measures as education, revenue sharing, participation in decisions, complementary development schemes adjacent to the protected area, and, where compatible with the protected area’s objectives, access to resources.

(“The Bali Declaration, 1983, p. 73)

West and Brechin point out that wilderness areas—sanctuaries free of human use—have often been created on the assumption that any human presence or use will damage the areas and their functioning systems and “the multiple objectives of ecosystem preservation, protection of rare and endangered species, and the protection of natural genetic diversity” (West & Brechin, 1991, p. 385). In many cases, rural communities
have been ignored, displaced, forced to change their lifestyles and economies or otherwise disrupted. From a moral standpoint this is questionable. From a practical standpoint it may also be dysfunctional. As Brechin et al. note: “Stirring up discontent among the people at the doorstep of a protected area does not bode well for its future” (Brechin, et al., 1991, p. 18).

Indeed, the early model of national parks was heavily criticized for imposing authority from the top down and outside researchers and consultants failed to deal with the importance of local context:

Many of the techniques and analytical tools are creatures of Western society and culture and there is a danger that simply transplanting them to other cultures in developing societies may be, at best, ineffective, and at worst, counter-productive.

(West & Brechin, 1991, p. 238)

The literature is filled with the mistakes of researchers from other cultures who imposed their own systems or mistakenly interpreted local problems and cultures. In discussing the danger, naïveté and occasional arrogance of these foreigners, Bidol lists failure to understand local customs and cultures, mind lock on predetermined ideas, uncreative problem solving and cultural arrogance as common mistakes (Bidol & Crowfoot, 1991). The holistic people-oriented model emphasizes involving people from the “bottom up.” “The main conclusion,” says Caldecott “is that there is a need to involve local people at all stages of project design, establishment and implementation, and this local participation is a mandatory precondition for success” (Caldecott, 1992, p. 12). West and Brechin call this process of including human considerations “a conversion of thinking from blind ecological imperative to more honest recognition of painful moral dilemma” (West & Brechin, 1991). The holistic model argues that land managers must be accountable in two directions—down toward local users and upward toward national and international conservation agendas and organizations (Hatley & Thompson, 1985).

There are a number of reasons why conservationists need to work closely with local populations. First, it is often claimed that local people know the areas best and have, through long periods of occupation, actually created the systems of which they are a part (Beede, 1991; East, 1991; Mishra, 1984; Hatley & Thompson, 1985)—although other researchers note that local populations have often severely reduced biodiversity, particularly of large animals (Wilson, 1992; Weber, 1991; Jefferies, 1984). Second, increased awareness of protected area values often results in more successful conservation (Jacobson, 1991; Leisure & Mehta, 1992). Third, accommodating local
needs and perpetuating local uses can prevent destructive vandalism and obfuscation of park efforts while decreasing tension in communities (Leisure & Mehta, 1992; Saharia, 1984; Brechin, et al., 1991). Poor communication, planning and involvement with locals can breach trust. Brechin, et al (1991) note that distrust can damage future relationships. Fourth, people need protected areas for a number of utilitarian and aesthetic reasons (Oelschlaeger, 1991; Sharma, 1991; Wilson, 1992). Baker (1989) states it succinctly when he says that healthy forests can generate more income and employment than a razed one.

This holistic model has been both acknowledged and criticized by Sharma (1991) who notes that models emphasizing a “bottom up” participation and local use do not adequately address the resource pressures of growing populations, decreasing availability of resources and changing cultures. Sharma contends that local populations are usually not inert. The idea that locals know best how to manage local areas fails to take into account the technological power and introduction of exotics which are putting new pressures on the land quite unlike the people in those areas traditionally applied (Sharma, 1991). While people may have occupied for thousands of years many of the areas designated as protected areas they have not had the same impact that they do or will have.

Wilson corroborates this perspective from the perspective of conservation biology. The recent rate of extinction has been 1,000 to 10,000 times the historic norm through history and that is due to humans (Wilson, 1992). Human populations usually have a serious effect on wildlife and flora and biodiversity is usually reduced by their presence (Wilson, 1992; Weber, 1991; Jefferies, 1984).

People are a critical and limiting factor in protected area management, however. The early protected area model inadequately addressed the needs of locals and disempowered them. The more recent holistic model has tried to accommodate people within park boundaries and to empower rural local people to participate in the management of protected area lands. Sharma emphasizes a different approach. Like McNeely, he focuses on the creation of incentives for conservation (McNeely, 1989a). He goes one step further, however, by advocating that protected area management become directly involved outside the park boundaries. One suggestion is to help rural local people replant deforested lands and thereby decrease pressures on the park for natural resources: this is done by encouraging biomass energy technology instead of inefficient burning and scavenging of fuelwood from park areas. In short, Sharma recognizes that cultures are changing and that their pressures are resource demands are
growing and that in many areas decreased human use will greatly benefit functioning ecosystems and wildlife while decreasing park-people conflicts (Sharma, 1990; 1991).

Long term stability of parks in developing countries is assisted if benefits clearly flow to surrounding communities (McNeely, 1989a; Sharma, 1990). The creation of incentives is the key that bridges the gap between depleting resources and valuing them. Since the goal of conservation is to protect wildlife, plants and land spaces, such utilitarian arguments are essential. Simmons and Kreuter observe that “the best way to protect elephants is to give its citizens the opportunity to benefit from their presence.” They tout the idea of preserving by taking a little: “support conservation through utilization” (Simmons & Kreuter, 1989, p. 34).

As Sharma states in his article on the successes on one program in Nepal. “The old concept of shielding parks from outside human influences must gradually evolve to adapt to changing socio-economic realities while still fulfilling the primary objective of nature conservation” (1990, p. 133). The goal of conservation must be to choose neither human societies nor the environment, but the best combination of both. These are “positive sum” relationships in which both people and the land benefit (Hatley & Thompson, 1985, p. 370). Sharma’s model diverges from the bottom up model, however, in suggesting that communities will change and it is the roll of the protected area to assist in the effort to minimize conflict (Sharma, 1990; 1991).

Some issues are not well addressed by Sharma, such as funding and possible effects of eco-tourism. These are discussed in greater detail later in this literature review.

Issues in international protected area management

An examination of literature on environmental conflicts shows eight key obstacles to establishing processes for the effective management of national park-local people conflicts:

1. The institutional environment of national parks may unnecessarily exclude acceptable uses
2. Lack of trust between park authorities and locals
3. Difficulty in communication between parks and their surrounding human communities
4. Difficulty in defining the number of stakeholders involved
5. Large differences in power between government-backed parks and local people in rural areas
6 Risk in entering into discussions to reduce conflict—stakeholders have to be willing to sacrifice and have to believe they have something to gain. Also, uncertainty, caused by lack of clarity and incomplete scientific understanding can break down trust and make issues unclear.

7 Agreements are difficult to enforce between local people and the government.

8 Stakeholders may have alternatives to participating in the process such as authoritarian control from the manager's perspective, or poaching from a user's perspective. (Hough, 1988, p. 129)

Bidol and Crowfoot offer four suggestions to reduce conflict: interactive planning, holistic social impact assessment, multi-cultural interactions, mediation/negotiation, joint problem solving (Bidol & Crowfoot, 1991). These elements are supported by one of the most comprehensive approaches to involving local people which is comprised of the three major ways to deal with the needs of resident people suggested by Brechin, et al (1991). This bottoms up approach includes.

- **Social impact assessment** (SIA), in which future impacts due to a course of action are anticipated. The goal is to foresee and avoid or minimize conflicts.

- **Conflict management** which can be exceptionally difficult with limited human resources and complex environmental issues that stretch over long time periods and involve many subtle factors. This often requires the people with power to take the first steps in working toward consensus agreements.

- **Co-management** which involves substantial sharing of protected-area management responsibilities and authority among government officials and local people.

Co-management dives immediately to the heart of the problem of modern conservation: "Conservationists fear sacrificing their ideals to local interests, while local people fear losing their control over resources to others" (Brechin, et al., 1991, p. 25). Brechin, et al. also observe that such management can be difficult to implement but when strategies are agreed upon through true co-management, there will be greater trust of the government: "...conservation strategies, when agreed upon in a true co-management framework, will be viewed as more legitimate by local people, and consequently will be supported by them" (Brechin, et al., 1991, p. 25).

In this spirit Pardo takes issue with the "conventional wisdom" that if given control over the forest, rural people would rapidly strip the land bare for profit (1993, p.
He claims that a new wisdom has emerged—local people are better able to manage forests than under-financed governments and this means that all forests, other than those protected should be turned back to community and traditional control. While his argument is intriguing, he does not cite evidence to demonstrate that systemic health and conservation of species diversity would be maintained. In fact, he barely touches on these important issues. It is for these reasons that Sharma diverges at this point.

Sharma's local involvement model focuses less on co-management and more on institutional outreach, assessment and assistance. The staff of Royal Chitwan National Park in Nepal has reached out to surrounding communities to help plan in surrounding landscapes to assist the local efforts and thereby reduce pressure on the park. Management is no longer restricted to within park boundaries (Sharma, 1990).

I hoped to draw comparisons between Russia and countries that have related histories and have undergone similar socio-political changes. These countries could include Eastern Europe, Poland in particular, and China. The literature on protected areas in these countries, however, is still formative and with rare exceptions does not discuss the bio-social interface. Since many land managers were trained under authoritarian systems they have not quickly embraced social issues as much of the rest of the world has.

The literature on other countries is often copious. Many states, such as Korea (Woo, 1991a) and Great Britain (Harmon, 1991), have long histories of land tenure and the problems they face with heavily managed private landscapes are quite different than those in Russia in which the vast majority of the land is still owned by the state and historic patterns of use were largely disrupted with widespread resettlement and cultural change over the last century.

The absence of biological consideration and concern for system integrity of relatively undisturbed systems that makes the British model an unsavory choice to model conservation on. Harmon even states that the Countryside Commission is not legally required to protect park ecosystems (Harmon, 1991).

Nepal has been a leader in the movement toward the twin goals of conservation and local development. Mountain parks of Langtang and Sagarmatha, and the lowland Royal Chitwan National Parks are examples of parks working to sustain denizen species and systems while proactively working with surrounding communities (Lehmkuhl, Upreti, & Sharma, 1988; Sharma, 1990: 1991).

After a careful discussion of the traditional model of imposing strict parks on developing areas and the more recent holistic people-parks model, Sharma argues for a
synthesis that contains the best of both approaches. In the traditional model of national parks, "local people generally view such parks as a foreign idea to foster tourism while they are deprived of traditional resources" (Sharma, 1991). The countervailing efforts of the last decade have been to dispense with the top-down coercive system and promote a bottom-up approach instead in which park resources are managed by sharing power with the local communities in ways that benefit the local people. Sharma criticizes both this bottom up approach and the traditional top down approach, saying,

> Conceptually, it can be argued that strict control on park resources against exploitive pressure is essential in the long-run to resolve the conflicts between national park management and the local people. Only effective law enforcement against the exploitation of the park resources provides necessary conditions to motivate the people to intensify the management of their own lands rather than relying on the park for essential subsistence commodities. Intensification of production of these commodities on public and private land outside the park will not happen if the park provides resources freely.

(Sharma, 1991, p. 218)

Sharma’s thinking incorporates long-term ecological stability in the face of mounting pressures and shorter-term social pressures which include access and traditional use. This idea promotes minimal extractive use in core protected areas and more intensive social uses in surrounding areas:

> The concept presented here is different from both the traditional protective philosophy and the more recent trend toward controlled access to park resource. This proposal calls for strict control of park forests and forests adjacent to the park and it mandates that park management implement programs to produce natural resources on public and private properties outside the park by intensifying the land use. At the same time, the concept is flexible enough to allow harvest of resources from the park if such resources are necessary on a short-term basis until long-term programs begin to yield results. In additional, exemptions may be made where resources are critical for local subsistence and cannot be produced elsewhere provided that such resources can be partially exploited from the park without any adverse effect to the ecosystem.

(Sharma, 1991, p. 220)

Many differences exist between Russia and Nepal. One is the rural nature of Nepal which has less than 10% of its population in cities or towns (Pardo, 1993). The area of Russia under discussion is more urban, and the national park actually contains the city inside of it. Russia also has a much more authoritarian history of land control, so the kind of peasant uses and informal uses common in less developed countries like Nepal are less likely in Russia. Russia is an odd mix of undeveloped because of its economic

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collapse and cultural isolation, and developed due to its transportation, communication and government infrastructure.

Other salient issues affecting park management include questions about distribution of resources and wealth. Smil and Machlis note in China that poverty is linked to environmental degradation (Machlis & Johnson, 1987; Smil, 1984). Solutions to problems of distribution include allocating conditional privileges such as certain economic activities which are allowed to certain populations to gather forest products or guiding tourists, and restrictions on harvests of fish and game: providing standardized wages for guides; allocation of specific user rights to areas of land (Caldecott, 1992).

One of the most important aspects of any conservation and development program is a thorough social assessment—the social equivalent of an ecological assessment. Like an ecological assessment, a social assessment is used because conservation and development can have unintended or severe results that should be anticipated. As Hough states.

Though protected area authorities have traditionally focused on biological issues, the growing realization that conservation and development are inseparable and that protected areas cannot continue to exist as islands surrounded by hostile land uses indicates a need for protected area planners and managers to become familiar with the potential and practice of Social Impact Assessment (SIA).

(Hough, 1991, p. 274)

SIA involves systematic gathering and analysis of social data. Methods include observation, interviewing local residents and leaders, surveys, collection of demographic and economic statistics. Well done SIAs have often resulted in the collection of information that was not otherwise known or understood. Mkanda and Muthali, for example, found that local people generally knew the local park’s purpose but not its benefits and Croft learned that uses on certain islands in Lake Malawi were much lower than anticipated (Croft, 1991; Mkanda & Muthali, 1994). The result, which identified specific uses desired by locals, helped change park management from protection to allowing some sustainable use (Mkanda & Muthali, 1994). The long term goals of the survey were not only to collect data but to change people’s attitudes toward the park to be more positive, and win their support for wildlife conservation, resulting in long-term wildlife survival.

Multiple use buffers can be important transitions between core areas and more heavily populated and used areas (Leisure & Mehta, 1992). Leisure’s study in Nepal showed people with buffers had “between positive and highly positive attitudes” toward
the park compared to the citizens of the locations without buffers. Why were buffers successful? People in the buffers felt they received benefits from the park and its buffers. People without these options felt that they were restrained from their desired resources (Leisure & Mehta, 1992).

At Royal Chitwan National Park in Nepal, Sharma suggests catering to surrounding villages' demands for firewood and fodder people by securing an impact zone around the park. He also suggests the holistic approaches of stabilizing cattle populations and promoting efficient use of available resources—holistic sustainable and cooperative efforts beyond park boundaries (Sharma, 1990).

The buffers themselves—intensive use zones—are proposed based on studies of the distances people walk for resources. Sharma argues that such actions will also improve attitudes about the park, since it will be clear that the park is working to accommodate people's needs (Sharma, 1990). In addition, the park also encourages reforestation outside the area and has participated in a program to get seedlings to people around the park. Enhancing biomass wasting to produce gas for fuel and improved compost from manure is another program (Sharma, 1990). The park is making a very proactive attempt to understand locals' needs and find ways to accommodate them in ways that don't denigrate the park.

Discussion of buffers has lightly entered Russian dialogue on protected areas. While general, they allude that buffers can be used to actively mediate economic, exogenous species or other effects before they reach the reserve (Gavva & Yazan, 1983b). Araova recommends concentrating recreation in buffer zones (Araova & Zykov, 1983).

Much of the literature from the former Soviet block is very general and avoids or simplifies difficult issues on the bio-social interface (e.g., Movcan, 1984). Many creative ideas will have to come from outside Russia. A host of useful comparisons can be drawn and adapted from the examples of other countries, particularly the Sharma model.

Administrative and financial factors of management

It is sometimes assumed that once an area is protected it will have few additional problems. If the protected area management fails to resolve issues with surrounding populations conflict and resource degradation is likely. Park staffs can often cause as many problems as they solve. Numerous examples exist of lesser-developed countries not having the administrative structure necessary to protect natural areas (Schwartzman.
34

1987; Bunting, Sherpa, & Wright, 1991; Jefferies, 1984; Martin, 1992). The result is often a worsening of the ecological integrity of the area.

Jefferies observes that a bottom up approach is not always ideal: “It should be noted that there are negative aspects to training local people, since they are subject to pressure for special consideration from relatives and friends in the local community” (Jefferies, 1984, p. 476). McNeely observes.

Most managers state that their area is ‘run by the rangers,’ so local, in-service training programmes must be developed and implemented for all levels of protected area personnel. The ultimate objective is to promote the establishment and recognition of protected-area management as a professional career of vital relevance to society.

(McNeely & Miller, 1983, p. 17)

This means higher salaries, more training, and perhaps exchanges between parks internationally.

 Quite often local protected areas do not have the flexibility to adaptively manage local resources. Woo points out that national standards of regulations are carried out in all Korean parks, not allowing for local adaptations (Woo, 1991a). This is similar to the American system.

Land tenure is another issue frequently raised when protected areas are discussed because people’s ownership in land affects both their long-term interests in sustaining the land and their impact on surrounding lands (Leisure & Mehta, 1992; Pardo, 1993). In Russia all issues of land tenure continue to be controlled and determined by the central Moscow government.

Funding is a primary problem around the world (McNeely, 1989a). Countries wishing to maintain a system of totally protected areas often don’t have the resources to do so by strict enforcement. Solutions include seeking external aid, increasing commitment of internal resources, focusing efforts on selected protected areas. Caldecott (1992) suggests that local people can also be motivated to help but it requires an incentive structure. Whelan (1991) echoes this, saying that protection is often only on paper due to a lack of funds and local support. Worldwide, only 0.1% of all aid goes to environmental programs (Durbin, 1992). Many otherwise-good studies also fail to recommend funding sources to carry out their recommendations (e.g., Leisure & Mehta, 1992).

In the cases of Japan, Nepal and Korea, like the United States, central governments provide funding for national parks (Mishra, 1984; Woo, 1991b). This was true in the Soviet Union, but even before its collapse Pryde cited problems with funding...
in protected areas and noted that there was no central agency to create a budget (Pryde, 1991). More recently, the budget to the nature reserves was cut 20%. With inflationary rises and no corresponding raises in the budget, the net effect was an 80% reduction in budget (Suokko, 1993). This caused a number of economic trade-offs of natural resources including new grazing and hunting, and clear-cutting in protected reserves (Suokko, 1993). Drosdov and Meyakev claimed the Ministry of Ecology suffered an 80% cut in funding at the same time that Yeltsin called for widespread improvements in environmental quality (Drosdov, 1993; Maykeyev, 1993).

McNeely itemizes a number of possible flexible solutions that can be adapted to the local area. One of his precepts is that solutions should be pursued through the marketplace (McNeely, 1989a). As we will see in the description section, these conditions do exist for the complex of protected natural areas in Sochi. McNeely's suggestions include:

- Entrance fees—which can incidentally discourage use by locals or the poor
- Watershed fees—money in return for a yield of clean, usable water
- Extractive resource fees
- Major development projects linked to conservation programs. For example, a new hotel might be required to clean a stretch of beach or buy and set aside a riparian park along a river corridor
- A revolving fund separate from park management has been used in Africa that collected money from hunting and extraction fees and resulted in more staff (11 to 26 in two years), with a corresponding decrease in major species mortality.
- Concessions—a tour operator can be given a concession in a part of a park with certain limitations on number of people and kind of use. That operator would then pay the park for non-extractive commercial use
- Debt for nature swaps—these require a massive scale and cannot be easily applied to a region that does not have a definable debt

Tourism based on visitations to natural areas is one economic solution that can benefit protected areas with funding. Past and present visitors, Glick (1991) says, are among the staunchest defenders of the area and this bodes well for their conservation.

Worldwide, the World Tourism Organization (affiliated with the UN) projects that tourism will be the world's largest industry by the year 2000 (Whelan, 1991). Tourism
is now the largest growth industry in the world, and by 1996 expenditures are projected to be more than $3 trillion. The fastest growing segment of the industry is adventure travel and ecotourism” (Davis, 1993, p. 156). Indeed, adventure travel captures 10% of that market as of 1989 (Whelan, 1991). In Costa Rica, 60% of the visitors want to see the national parks and nature adventure in a developing country is estimated to transfer $25,000,000,000 ($25 billion) to developing countries per year (Whelan, 1988; 1991).

Recognizing the potential economic benefits of ecotourism, the IUCN is trying to build bridges between that industry and protected natural areas. Jim Thorsell, director of Parks Commission of IUCN, said “We see the possibility for a much stronger alliance between tourism and conservation.” (quoted from Kutay 1989 in Glick, 1991, p. 69). While the immense financial benefits of ecotourism are attractive, the subject must be approached with caution. Glick reports, “Conservationists have found that tourism is a double edged sword—able to save the day if skillfully wielded, but liable to cut one’s leg off if handled carelessly” (Glick, 1991, p. 72). Whelan also notes that “The net financial and social benefits of ecotourism must be better than the next best alternative if the land under dispute is to be used to its best capacity” (Whelan, 1991, p. 18). A good question to frame the debate is one asked by Whelan, “How can ecotourism be planned so that it is both ecologically sensitive and economically productive?” (Whelan, 1991, p. 4). The problems and benefits of ecotourism will be considered later in this paper.

3.4 Making headway in the Baikal area with Russian-American efforts

The best model for international conservation cooperation in Russia has been the effort at Lake Baikal in Siberia. This Sharma-like effort includes significant outreach from protected area management to surrounding communities.

For the first time in the lands of the former Soviet Union, a model of economic development that is scientifically sound and environmentally sustainable is being proposed for a significant geographic area.

(Davis, 1993, p. 15)

Through the rigorous efforts of scientists and non-governmental organizations around the world, a massive watershed-wide Lake Baikal regional protection plan was endorsed by Presidents Bush and Yeltsin. Their agreement in 1992 stated their intention to cooperate to protect the area for environmental protection and basic scientific research.

Baikal, a lake on the Mongolian-Russian border is a world class area with remarkable ecological characteristics including over 1800 endemic species. The goals of the project include inextricably linking sustainable economic development and
environmental protection; preserving the natural ecological processes and biological diversity of the Lake Baikal Watershed; involving the people of the Baikal watershed in land policy decisions; and having at least one representative of each landscape ecosystem protected in the system (Davis, 1993).

The report was prepared by Russian and American experts and then sent to the public for comments. Twenty-one million of the total 32 million hectares in the Russian part of the watershed would be preserved for natural processes.

The governing commission is to be composed of government, administrative leaders from a variety of levels and potentially residents of the oblasts and a minority of non-residents. It would bridge all levels of government to implement the programs detailed in the report although projects would be reviewed and approved by the regional committees on ecology. Adaptive management would be emphasized with on-going monitoring, compilation of information and decision making. Outreach would include a number of interpretive visitor centers and proactive environmental education.

Funding for the massive project was recommended to be the burden of the Russian government. The project leaders also suggested that the international environmental community shoulder much of the cost. Additionally, use of natural resources from the basin should include a Baikal Environmental Surcharge. A “bed tax” on ecotourism is recommended. Proceeds would go to the commission and community development.

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4.0 Description of institutions and indicators of problems

4.1 Profile of Sochi and surrounding region

Unique in their beauty are the mountain gorges along the Black Sea coast of the Caucasus, the swift-flowing rivers and the picturesque lakes and waterfalls descending from great heights. Up in the high mountains virgin forest of Caucasian fir and beech have been preserved and subalpine meadows stretch along their upper fringe, and even higher up alpine meadows richly decked in bright colored grasses and flowers. Some mountain peaks are permanently covered with snow and ice, while at the foot of the mountains and in the wide coastal valleys gardens and parks abound in greenery all the year round and there are tea and citrus fruit plantations.

(Pachulia, 1985, p. 6)

Sochi is cradled in an idyllic setting of a subtropical environment ascending from Black Sea beaches to tundra and glaciers. Since the area was near the southernmost point of Russia it was a natural location for tourism development for Russia and the Soviet Union. Mountains rise immediately from the water along the coast and most of the development is in a long, narrow strip between the beaches and mountains, with some development extending up river valleys. None of the rivers are navigable, but they are “teeming with fish, especially trout” (Pachulia, 1985, p. 6).

Krasnaya Polyana, the major mountain town, is reachable by a narrow winding road about 45 kilometers up the Mzimta River. The town, whose name means “Red Field” in Russian is sandwiched between the national park and the biosphere reserve (Pridnja, pers. comm.).

A municipal area composed of a string of four small cities, Sochi extends over 100 kilometers along the coast. The city of 365,000 (Kommerchesky, pers. comm.; Mashenko and Sergeyev, 1992) is composed of four city districts -- Sochi Center in the middle, Lazarevsky to the West, and Xhosta and Adler to the East. The last city Southeast in the Sochi chain, Adler, ends at the Georgian border. Abkhazia, the scene of war over the last two years, begins south of the Georgian border and extends down the coast past the city of Sukhumi.

Administratively the system is broken into a five levels of jurisdiction beginning with the top level of the Russian Federation. Next come state-like regions called krai, oblasts, autonomous oblasts, or autonomous republics. Raions, or regions, are the...
equivalent of American counties. These are further divided into cities, settlements or rural areas, which, in turn, are broken into districts (Davis, 1993; Parker, 1992).

The complex of protected natural areas and the city of Sochi involve many of these jurisdictions. Krasnodar Krai contains all of Sochi. Sochi National Natural Park and most of the Caucasus Biosphere Reserve. Adygeyskaya Autonomous Oblast contains a part of the Biosphere Reserve, as does Stavropol Krai (see figures 4.1 and 4.2).

Under the Soviet government, this regional was part of a national developed economy, unlike many areas in other developing countries. Not all or even most resource production was local (Radvanyi, 1987).

Agriculture, particularly fruit, vegetables and tea, is the dominant local industry in the low lands and in river valleys extending up in to the mountains. The Caucasus Biosphere Reserve was in the process of recommending that two new areas be added to the reserve system in the Krai. When I asked Pridnja and Setrov what the limiting factors were in requesting new areas, they responded that there were no other areas that weren't heavily converted to agriculture (Pridnja; Setrov, pers. comm.).

Timber is harvested in the mountains, although there is little mining. Some grazing occurs in the higher country. Krasnaya Polyana has a ski area and some small tourist facilities ("Krasnodarsky Krai," 1990; "USSR Summary Map," 1974; pers. comms. with Evanyenko, Ruibak, Setrov, Solntsev). Without a doubt, however, the premier element of the economy is tourism.

The supply of resources to the area and the influx of money from the recreation industry resulted in a much higher standard of living in Sochi than in most of the rest of Russia (Maiboroda; Solntsev, pers. comms.). Data on socioeconomic conditions in Sochi has not been collected and released. Data available on the rest of the Soviet Union and Krasnodar Krai in particular would not provide an accurate representation of the economy here so it is not given.

Tourism

Tourism in the area is rooted in the 19th century. In 1920, following the October Revolution, Lenin signed a decree on medicinal localities of nation-wide importance and which guided the centralized-development of the Black Sea coast as an official tourist spot. Over time, Sochi’s position as a resort city was entrenched by centralized planning. In 1969, the Central Committee of the Communist Party of the Soviet Union (CPSU) passed a decree, “On Measures to Further Develop Tourism and Excursions in the Country,” which expanded the area as a tourist location (Pachulia, 1985).
Prior to the breakup of the Soviet Union, Sochi was known as the largest national health resort (Pachulia, 1985; Pryde, 1991). By 1985, Sochi accommodated over three million visitors each year (Pachulia, 1985) and tourism peaked at over 4 million visitors per year in the late 1980’s (Maiboroda, pers. comm.). A number of very large hotels, theaters and developed tourist facilities such as sanatoria and recreational beaches have been developed. Additionally, Sochi is among the largest seaports on the Black Sea coast and cruise ships on the Black Sea carried two million people a year by 1985 (Pachulia, 1985).

Historically, much recreation pressure in the mountains was concentrated at Lake Ritsa, a high mountain lake just over the border in Georgia. The lake offers major tourist facilities and a paved access road and there is no access comparable on the Russian side of the border (Pachulia, 1985). Since the breakup of the Soviet Union, most of the recreation and tourism from Sochi exists within or directly around the city (Solntsev: Koval, pers. comms.). Only a small percentage of visitors spend much time in the surrounding region, including the mountains (Kommerchesky and Sergeyev, pers. comm.).

Recent efforts have sought to expand the tourism market to a larger international base. A new international hotel is being built to Western standards by Radisson and the city is seeking to attract visitors from abroad by opening a new international airport (“Opening the secrets.” 1993).

Local populations—non-homogenous nature of the area

Mashenko and Sergeyev studied the ethnic population in the municipality of Sochi in 1989 and found an ethnic mix of over 100 groups, with a predominance of Russians and a clustering of many small populations of varying ethnicity:

Table 4.1—Ethnic mix of Sochi

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Ethnicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>60.5%</td>
<td>Russian</td>
</tr>
<tr>
<td>15.5%</td>
<td>Armenia</td>
</tr>
<tr>
<td>6.2%</td>
<td>Ukrainian</td>
</tr>
<tr>
<td>1.6%</td>
<td>Georgian</td>
</tr>
<tr>
<td>1.3%</td>
<td>Cherkess &amp; Adigei</td>
</tr>
<tr>
<td>1.2%</td>
<td>Greek</td>
</tr>
<tr>
<td>1.2%</td>
<td>Belarussian</td>
</tr>
<tr>
<td>remainder</td>
<td>other</td>
</tr>
</tbody>
</table>

(Mashenko and Sergeyev, 1992)
Indeed, Fondahl reports that the greater Caucasus region is among the most ethnically diverse areas on Earth. Native populations of Adygei, Assyrians, Cherkess, Abaza, Kabard, Karachai, Abkhazian people come from the area surrounding Sochi (Fondahl, 1993). Ethnic enclaves exist and some ethnic conflicts do exist although it is not clear what conflicts exist between which groups and over which issues (Mashenko and Sergeyev, 1992). Most ethnic groups are represented in elections and voted into office in proportion to their presence in the area (Mashenko and Sergeyev, 1992).

Additional differences between groups of people likely exist between economic classes and geographic locations. The largely-Russian tourism-dependent city of Sochi is probably quite different than the mountain villages located up river valleys. Radvanyi (1987) reports that the population for the mountain regions of Krasnodar is exceptionally small for such a large area. In 1987, Krasnodar Krai's total population was 4.8 million and the mountain population was only 50,000 and the mountains cover a large portion of the Krai (Radvanyi, 1987). None of the small villages are isolated within Sochi National Natural Park. Instead, they are cherry-stemmed in developed river valley corridors which extend up into the park (see figure 4.3).

Different from both populations may be the small mountain villages on the sides away from the Black Sea where access is poor, development was slow and tourism is not an economic input. Little data has been collected on these groups of people.

Figure 4.3 — Map denoting small mountain villages in the Greater Sochi Area
People in small towns remote from the urban centers often rely on hunting and subsistence collecting for a large part of their diet—mushrooms, meat, herbs (Evanyenko: Pridnja; Shevelev, pers. comms.). Vereshchagin mentions “herdsmen” on the North side of the Biosphere Reserve in the 1920’s although I heard no discussion of current nomadism or transhumance in the Sochi region (Vereshchagin, 1959, p. 377). Rapid development came to the mountain areas, including the Caucasus, in the 1960’s and transhumance was condemned because it was considered nomadic and undeveloped (Radvanyi, 1987). This is part of a larger program of Soviet top-down manipulation and rearrangement of human populations throughout the Caucasus.

Radvanyi reports a sweeping Soviet program of “liquidation” in the Caucasus which obliterated many small towns. After WWII the Soviet government moved entire ethnic populations to Siberia and Kazakhstan (Radvanyi, 1987). Administrators of the regions combined mountain areas with piedmont with the intent of using the piedmont areas to control ethnic populations in the mountain areas (Radvanyi, 1987). This policy also “had a major impact on settlement by fostering a slow, but irreversible movement of the mountain residents into the piedmont” (Shevelev, 1993, p. 212). The top-down Soviet approach to planning and controlling human populations is best expressed by the head of Azerbaijan in 1969:

The localization of some small villages constitute a negative factor in the organization of labor on collective and state farms... On that basis, we are planning to draw up a list of base villages and of villages with prospects of growth... all future construction is to be concentrated there. Any other construction, be it housing, service establishments, communal buildings, is to be prohibited elsewhere.

(Radvanyi, 1987)

No town smaller than 500 was allowed to remain in the mountains and 600,000 people were to be moved. Populations in the Georgian portion of the Caucasus declined by a third between 1959 and 1979 (Radvanyi, 1987). Radvanyi infers that the decline and simplification of mountain economies and the resulting drop in population were true on the Russian side of the mountains as well as Georgia (Radvanyi, 1987).

1 Note — Radvanyi’s article focuses on the Eastern Caucasus more than the western, although it does talk about Georgia. It may be that Soviet policies, largely Russian in origin, affected populations in other republics more than in Russia as they sought to more soundly subdue the other republics. This is pure speculation on my part. Of the two areas considered by Radvanyi on the Caspian, Dagestan, is Russian, although Azerbaijan is not.

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Resource use

While forests are still under state control, there is some speculation that some forests will become private in title or use. Lobovikov, a visiting doctor at the University of California-Berkeley working on forest economics, expected only about 5% of the land would be privatized. (Lobovikov, pers. comm.). Lobovikov expects forests to be leased to private interests for 10, 50 or 99 year increments with few requirements or development of land management plans. (Lobovikov, pers. comm.).

Through the midpoint of 1993, ownership of land was guided by the 1991 Russian Soviet Federation Socialist Republic Land Law (Davis, 1993). Tenure of private residences has just changed in the last year. Land tenure could change radically at any time.

It is common to see people picking and gathering herbs and mushrooms in mountain forests. I was continually impressed with the local knowledge of useful edible and medicinal plants and was often offered local nuts, fruits, herbs, mushrooms and home-brewed drinks. Knowledge of forests resources and their uses seems to be at a much higher level than in many natural environments in the United States. Very little data has been collected, however, about what products are collected, seasonality, variance with time and ecological effects. None of our interviewees knew of any formal studies on local uses, although all of them were active collectors.

Some people fish and salmon do run in two rivers (Evanyenko; Koval; Pridnja; Silnov; Solntsev, pers. communications.). Large extractive uses such as firewood, mining, and grazing, were not raised as issues by any of the protected area staff with whom we worked. Poaching was raised as a concern, however, by virtually all the people with whom we met.

Items that may be taken from protected natural areas near Sochi include a large variety of mushrooms; herbs; berries; wild fruit such as apples, pears, plums; firewood; nuts such as hazelnuts and chestnuts; wildflowers; crayfish; honey; pine pitch; medicinal plants; and leaves for fermenting into drinks. Some of these items have been seen in city markets and we speculate that it is occasionally collected in the complex of protected areas and sold for supplemental income. Some cooperatives are operate out of remote mountain communities and these supply commercial markets in Sochi with nuts, honey, medicinal plants, tea, and a few other products (Maiboroda, pers. comm.). Without additional information about uses, impacts, seasonality, ecological effects, and economic importance it is very difficult to make recommendations about use of the protected areas.
Sochi citizen and city perceptions of the environment

The Russian Academy of Science conducted a phone survey of Sochi residents inquiring about their concerns about the environment. A total of 336 randomly chosen people were called and asked to select from a set of options in the 1992 poll ("We’ll save ourselves," 1992).

<table>
<thead>
<tr>
<th>Table 4.2 —Sochi poll on the environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>How do you evaluate the ecological situation in the district where you live? (four options given, one choice allowed)</td>
</tr>
<tr>
<td>31.3</td>
</tr>
<tr>
<td>40.5</td>
</tr>
<tr>
<td>24.4</td>
</tr>
<tr>
<td>3.8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Which of the environmental components are the most critical? (respondents could choose any combination of options from the list)</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.5</td>
</tr>
<tr>
<td>56.8</td>
</tr>
<tr>
<td>34.5</td>
</tr>
<tr>
<td>33.3</td>
</tr>
<tr>
<td>28.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Who can change the situation in Sochi for the better? (respondents could choose any combination of options from the list)</th>
</tr>
</thead>
<tbody>
<tr>
<td>57.4</td>
</tr>
<tr>
<td>33.3</td>
</tr>
<tr>
<td>15.2</td>
</tr>
<tr>
<td>12.2</td>
</tr>
<tr>
<td>10.1</td>
</tr>
<tr>
<td>8.3</td>
</tr>
</tbody>
</table>

While no survey questions are asked directly about the complex of protected natural areas or wildlife there are several interesting results. First, the fact that no such questions were asked suggests that the researchers were thinking of the city and the sea as the areas major attributes and source of problems, not the mountains. Second, more than a third recognized that flora were damaged in some way. Third, people thought the city government was the most likely to effect change. Media was not an option, likely due to the fact that it is seen as an extension of the government (Sergeyev, pers. comm.). The fact that environmental groups ranked so low is probably due to the fact that none exist in the area. Fourth, while the people expected the government to make a difference a surprising number said that they could personally make a difference. The title of the study, as it appeared in the newspaper, was “We’ll save ourselves.” The article concludes
by saying the "future for solving environmental problems in Sochi is rather foggy" ("We'll save ourselves." 1992).

The city council put its opinion about the environment and environmental quality on paper in 1989 when it printed city directives on nature protection. Solntsev said institutions must respond to local dictates even if they are national in structure. So the demands created on national and republic agencies were binding (Solntsev, pers. comm.).

The opening statement notes that poor environmental quality is dangerous to the resort and the council observes that the existing network of government agencies does not provide a systemic approach to dealing with the problems ("How to Improve," 1989).

In contrast to the people's expectations that the citizens expected the government to take action, the city council stated "No one cares, no one is taking responsibility" ("How to Improve," 1989). To start the process of directing assessment and improvement of the environment, the council passed a plan to be effective during the years from 1989 to 1995. Suggestions included to

- Develop models of ecological interactions by 1992
- Complete development of a system of nature protection for recreation and ecological protection
- Establish a city green belt
- Raise ecological education of managers with seminars on environmental protection & writing pamphlets which would be delivered to "interested" organizations
- Publicize the "construction of nature protection objects" twice a year
- Create new city agency of nature protection
- Protect rare and endangered species in the city
- Analyze environmental health
- Create a database on the condition of the environment in Sochi
- Limit the number of people coming to Sochi
- Introduce payment for use of natural resources and have fines for damage ("How to Improve," 1989)

Clearly, the city government has a strong concern with the quality of its environment and more than just the kinds of environmental quality that immediately impinge on human health. Additionally, there is a indication that the city government believes that natural
resources have economic value and users should pay for them. It recognizes that as a tourist city, its economic livelihood depends on quality of environment.

To the best of my knowledge none of these goals was carried out beyond introductory stages due to the collapse of the Soviet Union and uncertainty about funding and the future (Koval; Solntsev, pers. comm.). In addition, Koval and Solntsev noted that the Institute for Mountain Forestry and Forest Ecology had attempted to give ecology lectures but that they were not well received due to a lack of interest—they were being given to dairy workers and employees in factories—and censored information (Koval, pers. comm.).

The values and goals of other groups of people remain unknown. Little is known about the perceptions of residents in outlying areas of Sochi or of the various mountain populations that are around Sochi and the complex of protected natural areas. Quite likely, these different populations have values, perceptions and expectations that are divergent from the Sochi City Government and the randomly sampled people of Sochi.

4.2 Caucasus Biosphere Reserve—a zapovednik

The 263,500 hectare Caucasus Biosphere Reserve was originally established in the 1890’s as the Grand Duke’s hunting preserve (Herrmann, 1993; Vereshchagin, 1959). After the October revolution, the area became one of the Soviet Union’s first zapovedniks. Early managers were instructed to protect the last population of Caucasian Bison (Pridnja, pers. comm.; Vereshchagin, 1959). In the mid 1920’s, however, the bison were hunted down. The majority were eliminated and disease nearly destroyed the remaining population. The last three animals were killed by herdsmen in 1926 (Vereshchagin, 1959). Pridnja claimed that the last were slaughtered by local people angry about being excluded from the area (Pridnja, pers. comm.).

During the first spasm of zapovednik reduction, in which seven eighths of the system was released for other purposes, this reserve was reduced in size considerably (Pryde, 1991). Over the years it was slowly built back up and recently added one area that was part of the reserve until 1961 when Kruschev’s plan of opening up lands for agriculture resulted in the decommissioning of the area. At this time the reserve’s primary work of identifying new lands suitable for reserve status is to restore areas that were decommissioned during the two extinction spasms (Pridnja; Setrov, pers. comm.).

In 1978 the zapovednik officially became a biosphere reserve (Pryde, 1991).

Currently, the reserve is operated as a sanctuary. Strict laws prevent recreational use although despite this recreational use was sanctioned until last year when the major
hiking corridor was closed. The reserve staff has been trying for many years to close it due to “safety reasons.” described as intense autumnal winds; “ecological problems”; and a lack of funding for maintenance. Recreation passes were previously sold by the state for the trail which had up to 200 people per day on it. Pridnja cited the creation of the National Park, intended for recreation, as a reason to close the hiking corridor and return the reserve to restricted status (Evanyenko; Pridnja, pers. comms.).

Buffers do exist around the reserve, except on the Georgian side. Georgia would not agree to create them. All of the buffers around the reserve are about one kilometer wide (Pridnja; Setrov; Timokhin, pers. comms.). The reserve has “ecological control” over these buffers but they are in the jurisdiction of other state lands, such as Sochi National Natural Park. Some buffers, Pridnja and Setrov told us, are specifically for recreational use (Pridnja; Setrov, pers. comms.). Buffers did not appear on any of the maps we saw and none of our other interviewees talked about them as special use zones or points of conflict between institutions. They likely exist in name only.

Description of endemism and other unique characteristics

The Biosphere Reserve includes three ecological provinces—Kolkhida, Kuban, Srednezemnominor—and has been compared to the Appalachians (Pridnja, pers. comm.). Herrmann types the reserve as the “Black Sea Caucasian-Hircan alpine-broad leaved world biogeographical province” (Herrmann, 1993).

Kolkhida, the southern macroslope of the Main Caucasus Ridge, is covered with mixed sub-tropical forests up to 600 m, chestnut and oak forests (600-1000 m), beech forests (1000-1500 m), fir forests (1500-2100 m), subalpine vegetation (2100-2200 m), alpine and nival belts (over 3000 m) (Herrmann, 1993). Additional species include hornbeam, maple, yasen, Ilm-Vyaz, and the endemics boxwood, melegrab and tis (Evanyenko; Pridnja, pers. comms.).

Cover on the northern Kuban macroslope is forest-steppe range (200-300 m), oak forests (500-1000 m), beech forests (1000-1500), fir-spruce forests (1500-2200 m), subalpine meadows (2200-2400 m), alpine meadows (2400-3200), nival belt (3200-3400 m) (Herrmann, 1993). Kuban is a little wetter and more overcast than Kolkhida with a cover of the same general tree species, but a different composition with more beech (Evanyenko; Pridnja, pers. comms.). Srednezemnominor, the third province, is to the far West (Pridnja; Setrov; Timokhin, pers. comms.).

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2 This is similar to Nepal, where the Parks are run by the Department of National Parks and Wildlife Conservation, and the buffers have independent oversight by the army (Leisure and Mehta, 1992).
Table 4.3—Forest characteristics of the Caucasus Biosphere Reserve

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>(Koval. 1986)</th>
<th>(Herrmann. 1993)</th>
</tr>
</thead>
<tbody>
<tr>
<td>forest</td>
<td>163,000 hectares</td>
<td>163,000 ha</td>
</tr>
<tr>
<td>non-forest</td>
<td>100,400 hectares</td>
<td>100,500 ha</td>
</tr>
<tr>
<td>alpine meadows</td>
<td>57,400 hectares</td>
<td>54,700 ha</td>
</tr>
<tr>
<td>steep slopes</td>
<td>43,100 hectares</td>
<td>41,100 ha</td>
</tr>
<tr>
<td>water</td>
<td>1900 hectares</td>
<td>700 ha</td>
</tr>
<tr>
<td>hayfields, roads, farmsteads</td>
<td>7000 hectares</td>
<td></td>
</tr>
<tr>
<td>forested landscapes cover</td>
<td>61.8%</td>
<td></td>
</tr>
<tr>
<td>meadow</td>
<td>21.5%</td>
<td></td>
</tr>
<tr>
<td>alpine landscapes</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>rivers and lakes</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>forest composition</td>
<td></td>
<td></td>
</tr>
<tr>
<td>coniferous (fir dominant)</td>
<td>44.7%</td>
<td>44.7%</td>
</tr>
<tr>
<td>beech forests with relic elements</td>
<td>30.8</td>
<td>30.8</td>
</tr>
<tr>
<td>birch forests</td>
<td>9.2</td>
<td>9.2</td>
</tr>
<tr>
<td>pine trees</td>
<td>5.7</td>
<td>9.23</td>
</tr>
<tr>
<td>spruce (oriental)</td>
<td>3.5</td>
<td>3.5</td>
</tr>
<tr>
<td>mountain maple</td>
<td>3.4</td>
<td>3.4</td>
</tr>
<tr>
<td>other deciduous (chestnut, yew, buxus, cherry, pear)</td>
<td>2.7</td>
<td>2.7</td>
</tr>
</tbody>
</table>

Elevation in the reserve ranges from 260 m to Smidovich Peak at 3360 m (11,023 feet). A separate unit, the boxwood forest near the city of Sochi’s Xhosta district is at 25-260 meters (Herrmann. 1993). Pridnja confirmed that direct nutrient cycling is taking place as soils are generally shallow and lack organic matter (Pridnja, pers. comm.).

Estimates of total number of vascular plant species vary from 1500 (Franklin and Krugman, 1979; Knystautas, 1987) to 1700 (Herrmann. 1993; Pridnja, pers. comm.). Over 3000 species exist when mosses, fungi, lichen and algae are included (Franklin and Krugman, 1979; Herrmann. 1993). The areas hosts 165 species of shrubs and trees, including 14 deciduous, 16 broadleaf evergreen, 7 coniferous species (Herrmann, 1993; Franklin and Krugman, 1979). Herrmann reports that there are 50 forest communities (Herrmann. 1993).

Endemics comprise 20% to 24% this total (Franklin and Krugman, 1979; Herrmann. 1993) with 22% relics and 30 rare and endangered plants (Herrmann. 1993). This is lower than Kolakovskii’s estimate of the percentage of endemism in the Caucasus.

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3 This figure is almost certainly a typographic error. It should read 5.7 if it is originally taken from the same source as the data in the left column.
of about 42.5% (Kolakovskii, 1989). Only about 50% of the region's endemics are found in the Biosphere Reserve (Pridnja, pers. comm.).

One prominent endangered flora is the boxwood tree. Many grow in the National Park and one small grove is contained in a special separate unit of the biosphere reserve. One book calls this boxwood grove “Xhosta’s main attraction” (Pachulia, 1985). Protected in the Russian Red Book, boxwood can live to be 3,500 years old (Evanyenko; Pridnja, pers. comm.). Boxwood in the Biosphere Reserve grove are as old as 700-800 years (Shumkov, pers. comm.).

The fauna of the reserve is also diverse and endemic. At least 24 endangered animals are included in the Russian Red Book and four animal species are in the international red book (Herrmann, 1993). Estimates of the number of species vary:

<table>
<thead>
<tr>
<th>Table 4.4—Animals of the Biosphere Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total animals (excluding birds)</td>
</tr>
<tr>
<td>70 sp.</td>
</tr>
<tr>
<td>Bird sp.</td>
</tr>
<tr>
<td>226 sp.</td>
</tr>
<tr>
<td>232 sp. (132 nesting)</td>
</tr>
<tr>
<td>192 sp.</td>
</tr>
<tr>
<td>Mammals</td>
</tr>
<tr>
<td>25+ sp.</td>
</tr>
<tr>
<td>59 sp.</td>
</tr>
<tr>
<td>59 sp.</td>
</tr>
<tr>
<td>Reptiles</td>
</tr>
<tr>
<td>18 sp.</td>
</tr>
<tr>
<td>Amphibians</td>
</tr>
<tr>
<td>10 sp.</td>
</tr>
<tr>
<td>Fish</td>
</tr>
<tr>
<td>6 sp.</td>
</tr>
</tbody>
</table>

Major species include aurochs, wild boar, roe deer, tur, bison, Caucasian deer, Caucasian chamois, Caucasian brown bear, wolf, jackal, fox, stone and pine marten, mink, weasel, badger, otter, West Caucasian goat, European wildcat and lynx (Franklin and Krugman, 1979; Herrmann, 1993; Vereshchagin, 1959).

The most famous species of the area is the bison. Pridnja said that after the Caucasian bison were killed, four European bison were imported from Europe to restock a similar species. They have some Caucasian bison blood and are of mixed genetics. About 800 are in the reserve and perhaps about 40 outside (Pridnja, pers. comm.).

Virtually all major animals of the northern Caucasus are represented in the reserve. The last snow leopard was killed in 1956, and the reserve staff hopes that some may occasionally migrate up from Iran (Pridnja, pers. comm.).

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4The museum at the Biosphere Reserve headquarters in Adler indicated that of 1200 bison 850 were in the reserve.
There are no known migrations of any mammals outside the reserve, although Evanyenko said that it was typical for deer to range beyond borders where they were often killed by hunters (Evanyenko, pers. comm.).

Two rivers in the Caucasus with headwaters in the reserve, Mzimta and Shahepan, have native stocks of salmon. Researchers at the reserve did not know whether the populations were stable or whether anyone researched them (Evanyenko; Pridnja, pers. comms.).

As is typical for Russian zapovedniks, scientific research is prominent in the reserve. The reserve collects data from two climatological stations, one run by the reserve and the other operated by Gidromet, the ministry of climate studies (Cherevatinkova; Pridnja; Setrov, pers. comms.). Earlier in the century the Biosphere Reserve experimented with exogenous tree species, including Douglas fir and coastal redwood. Pridnja said that they purposefully tried to not introduce trees that would hybridize or spread (Evanyenko; Pridnja, pers. comms.).

Additionally, the Biosphere Reserve engages in international cooperative studies. It has a research site in the northern interior which sends information to an UNESCO network on hydrogeology and chemistry. The station just received a special $5,000 budget extension to keep operating for one year (Pridnja; Setrov, pers. comms.). Additionally, Hubbard Brook Experimental Forest in the U.S. has just entered into a research agreement with the reserve to compare large watersheds; monitor ecosystem changes and biodiversity; investigate forest stand, litter and vegetation dynamics; and study watershed and nutrient release (Herrmann, 1993; Pridnja and Evanyenko, pers. comms.).

**Administrative organization**

Our primary contacts at the Biosphere Reserve were Director Nikolai Timofeyevich Timokhin who is a delegate to the IUCN representing Eurasia; Mikhail Vasilivich Pridnja, Head of the Laboratory on Mountain Ecosystems Protection and professor of Economics of Land Management at Sochi Institute of Ecology and Sochi Institute of Recreation and Tourism; Mikhail Ivanovich Setrov, Deputy Director of Research and professor of General Philosophy and General Ecology at the Russian Pedagogical University; and Felix Evanyenko, botanist. The reserve is staffed by ninety people who work on law enforcement and maintenance as forest protection staff, and 46 scientific researchers—the most of any zapovednik in Russia.
Figure 4.4—Typical administrative structure of a biosphere reserve

Source: Krásenský, 1983

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Caucasus Biosphere Reserve

Administrative Structure

- Director
- Business & Administration
- Science & Research
- Deputy Dir. of Research
- Chief Ranger
- Department of Protection
- Accounting
- Hydrology/Other Science
- Wildlife
- Soils
- North
- South
- East
- Southeast
- West
- Laura
- Psykh
- Other Area

source: M. V. Pridnja, Caucasus Biosphere Reserve, July 15, 1993
(this is not a comprehensive administrative structure. It shows primary divisions of the reserve).
The Caucasus Biosphere Reserve has been caught in a whirlwind of political change and administrative chaos. In the last seven years it has moved through 5 ministries (Evanyenko; Pridnja, pers. comms.). Nature reserves were managed under 26 or more ministries until just recently when there was a concerted effort to unite them (Pridnja; Setrov, pers. comms.).

This reserve exists in three different Russian administrative districts—Krasnodar Krai, Stavropol Krai and Adygeyskaya Autonomous Oblast (see figure 4.2) (Herrmann, 1993; Setrov, pers. comm.). Several of the staff expressed frustration with having the reserve deal with multiple often conflicting jurisdictions (Pridnja; Setrov, pers. comms.). One branch office is located in Maikop, capital of Adygeyskaya A. O. (Pridnja; Setrov; Timokhin, pers. comms.).

The last management plan of the reserve was written in 1982. When asked if it or any other documents helped guide planning, long-term research, development and recreation goals, we were told that it was written by an outside committee and was far too general, and not useful. Pridnja said outright that they do not adhere to it or use it for guidance (Pridnja, pers. comm.).

Although the reserve is a biosphere reserve, there is no cultural program, no sociologist, and little community outreach. No one does or has done sociological research, so attitudes and needs of local populations are not well known. Employees are charged to do "ecological propaganda work" such as give lectures or talks when convenient although few do this (Pridnja; Setrov, pers. comms.). Some outreach is done through museums and is described below.

**Issues and problems at the Biosphere Reserve**

One scientist at the Russian Academy of Science said “The management of the Biosphere Reserve received the right to act illegally” and claimed that when the Biosphere Reserve transgressed there was no enforcement (Lukashina, pers. comm.). This is may be due to the reserve’s historic use as a hunting ground for elites of the Soviet party. A number of dachas have been illegally built inside reserve boundaries, including one for former Soviet Premier Andrei Gromiko (Evanyenko; Pridnja; Shevelev, pers. comms.). During one of our visits to the reserve at Krasnaya Polyana, we stayed in a dacha that was, by Russian standards, quite opulent. The Russian public is not allowed into the reserve, it remains a popular hunting location for "ministers from Moscow" (Pridnja; Setrov, pers. comms.). Now these houses are used as small private...
hotels, but the reserve does not receive any money—it goes into private hands (Evanyenko; Pridnja, pers. comms.).

Other uses of the reserve are limited, although access is still provided to a few. Despite the Soviet Law on the Animal World’s prohibition against hunting and fishing in the reserves, local rules allow the reserve staff to fish and collect plant products and mushrooms in the reserve (Brezhnev, 1980, sect. 3, article 25). The public is not allowed to do this (Evanyenko; Pridnja, pers. comms.).

Actual protection of the reserve is scant. Pridnja and Setrov explained that the reserve is not really protected, the reserve doesn’t have the staff, means or money to protect it. It protects itself by being relatively inaccessible. Pridnja and Setrov were worried about what might happen when people had greater access to the area (Pridnja; Setrov, pers. comms.).

As previously described, the Ministry of Nature and Environment and its zapovedniks had their budgets greatly reduced in 1992-1993. While I was visiting the reserve, no one had been paid for a month and a half, and when people were paid they were given partial salaries. In the past a scientist and a forester would make the same amount. In the Summer of 1993 a forester made about 50,000 rubles a month and a scientist with a PhD made 15,000 rub. Evanyenko, a botanist, collected 6,000 rub. a month which was barely enough for bread and a few other food items. Rangers were receiving between 5,000 and 10,000 rubles a month. At the time, 30,000 rubles was a lower middle-class salary. The scientists were excited to receive a special $5000 grant to continue operating a research station, even though they couldn’t pay people in the offices (Evanyenko; Pridnja, pers. comms.). Economics at the reserve are certainly very difficult right now.

Extractive uses—three kinds of poaching

The most commonly cited problem at the Biosphere Reserve is poaching. All the data we have, however, is anecdotal, since no one has done a thorough investigation of the problem. Nine guard stations are intended to monitor the reserve and stop poaching, but many people we interviewed thought the guard rangers did more harm than good. It is difficult to find good people to work in the cabins because of the isolation and low pay. More often than not they help perpetuate poaching by acting as base camps and making contacts with passing pilots who come to poach (Ananchenko; Kommerchesky; Pridnja; Setrov; Silnov; Solntsev, pers. comms.).
A 1980 newspaper article on poaching in the reserve states, the “sorry situation in the Caucasus Nature Reserve was the subject of many articles by journalists and scientists in 1970-1976” and there was hope that corrective action would be taken. “No real research is being done and widespread poaching” continues (Volkov, 1980). Volkov claimed that almost 8000 ungulates were killed in 1975-1979. Only 40-50 roe deer remained as of the writing.

Since poaching was the first problem cited by every person we talked with at the reserve it is still serious problem over a decade after Volkov’s article. After a number of interviews broaching the subject, we found that poaching appears to come from three sources. First, the reserve has long been a perk destination for ministers from Moscow. Illegally-built dachas are rented out as hotels or are saved for visiting dignitaries to use as hunting camps.

The reserve staff is hoping to add an area outside the reserve for hunting to keep these hunters out of the reserve itself (Pridnja, pers. comm.). Setrov has worked at the reserve twice and has been frustrated both times by the problem. In the past and the present, Ministers and other officials and their friends came to the reserve to hunt illegally. In the past, when such elites have come he has been sent on “business trips” so he won’t speak out (Setrov, pers. comm.). He says the situation might be better now, but the fighting in southern “resort” areas of the former Soviet Union keeps them coming to this “safe haven.” The director, he says, knows of and allows this activity (Setrov, pers. comm.).

This high profile “perk poaching” may not have a severe impact on animal populations (Pridnja, pers. comm.).

The second source appears to be local hunters from rural villages or Sochi who use the area to augment their food supply (Pridnja, pers. comm.). A policy of strict enforcement is on the books but is not truly enforced. Although hunting is considered by many to be economically essential residents of Krasnaya Polyana are squeezed between the park and the reserve and have little land on which they can choose to hunt legally. There appears to have been no serious attempt to define areas in which locals could hunt for food. There has been no attempt to understand why people are poaching or to identify alternatives (e.g., Pridnja says bluntly that the problem is the “psychology of people — They think hunting is not poaching if they do it for their own livelihood.”). Pridnja did observe that poaching is directly connected to economics for most of the local poachers—they need the meat and can’t afford to buy it (Pridnja, pers. comm.).
Third, rangers in the reserve are paid very low salaries. It is commonly acknowledged that the rangers poach and help pilots who fly through the area to poach and bring in poachers. Some scientists at the reserve felt the greatest threat to the area was those who were there to protect it (Ananchenko: Evanyenko: Pridnja: Setrov: Solntsev. pers. comms.). Internationally, corruption is a frequent form of park failure. Tucker notes that in India.

The preoccupation with legal forms and illegal actions bore heaviest on the forest rangers and guards. Of low rank, they had little motivation for controlling forest offenses: they could be tempted to blackmail other peasants with threats of punishment, or could easily be bribed.

(Tucker, 1991, p. 42)

Strict jail terms of four years internment and loss of all possessions exist in Russia, but are often not enforced. Pridnja and Evanyenko claim that when cases are tried they fail because “the judges are all poachers.” Many of the poachers have sophisticated equipment, including helicopters, that the reserve staff can’t match (Evanyenko: Pridnja. pers. comms.).

Sergei Georgievich Shevelev is the chief ranger of the Krasnaya Polyana district. He said he has good connections with the military and receives guns from them. They came to hunt and gave the reserve guns for general services. He also claimed people from the ministries gave guns to the reserve for the unofficial privilege of hunting (Shevelev. pers. comm.). Ironically, those guns, which were received in exchange for the right to poach, are used to try to limit poaching in the reserve by others. It is likely that distrust with the locals is perpetuated since the reserve attempts to stop local poaching but assists perk poaching.

The Ministry has given special protection and rights to the people who work in reserves, including the right to shoot poachers. Setrov is head of this special authority of enforcement but admits he has no political authority: he can still be fired and claims he would be fired. He claims he can speak out even less than in the past (Setrov. pers. comm.). The reserve’s solution of getting around the bribery of the rangers or possible retribution violence against rangers is having outside militia come in (Pridnja. pers. comm.). An additional proposal is to secure an alternative place for hunting closer to Sochi (Pridnja. pers. comm.).

Is poaching affecting the long-term viability of animal populations or creating long-term secondary ecological impacts? Pridnja, who has studied plant-ungulate relationships in the reserve (1991) estimated that 400-500 bears, wild boars and deer are illegally taken each year which is an estimated 3% of the population (Pridnja. pers.
No formal study has been done or is expected to be done, perhaps because it would reveal the problem and those causing it. Trash and cutting of wood by poachers are not considered to be large problems (Pridnja, pers. comm.).

While no public use is supposed to occur in the reserve, there is some use in addition to poaching that does occur. Koval says there are 7000 hectares of land homesteaded or under cultivation (Koval, 1986). Much of this may be around the guard stations. Several hectares in the Biosphere Reserve at Krasnaya Polyana were cultivated for gardens and hay. Setrov says there is still some personal use—timber, poaching, grass cutting—inside the reserve but didn’t specify where or by whom nor what the cumulative impacts were (Setrov, 1978).

A taxi cab driver who enjoys ranging his horses in the high mountains told us he still used the reserve for his riding. In the past, he claimed, it was allowed and free. He said for a while the reserve kept people out and now the policy is that you can buy a 1 month pass for 3000 rubles per person and 500 rubles per livestock or child. No one at the BR told us anything about this, stating explicitly that recreational use had been stopped. Fees are probably being charged to raise money for the reserve or the “fees” are illegal bribes taken by the rangers without the reserve administration’s approval.

Outreach and community involvement

The third objective of biosphere reserves is education.

(Borodin, Krinitsky and Isakov, 1983, p. 67)

Public outreach at the Biosphere Reserve has consisted of the operation of museums and occasional public lectures. Three museums are operated, one at the headquarters in Adler, the southernmost district of Sochi, one at the Xhosta Boxwood grove and another in Maikop. During our visit the museum at the reserve headquarters was open but the Xhosta grove museum had been closed for two and half months due to a lack of funding. Usually it is open the same hours as the grove.

Although the boxwood grove museum was closed, the grove trail was open during our visit. Shumkov, the caretaker, told us that most visitors are school kids and groups from the sanitaria. About 250 people had walked the trails the day we visited which is a relatively high number considering the difficulty of access on a very poor road. In the past, before the collapse of the Union, more people visited the area—tourism was more organized (Shumkov, pers. comm.).

The Adler museum is attractive and displays information well. Generally attendance is much lower than at the Xhosta grove—just a few people a day. That this
public service is not as well known is corroborated by a taxi driver to whom we had to give directions. He had lived in the area for 30 years and had been driving a taxi for 5 years in Adler and had never heard of the museum or reserve headquarters.

**Information base**

In many cases information is not as interesting as much as how it is stored or collected. In the spring of 1993 the Biosphere Reserve was asked by the regional Committee on Protection of Nature to develop three general reports on degradation of flora in the region over the last 100 years: the state of protected areas, and the formation of new protected areas; and physical degradation of resort areas. The methodology was to read reports of the late 19th century and the more recent data of many reports from the last decade and make a comparison. No field work was involved. They found that 100 species of plants are disappearing, 30 species of animals, many of which are in the Red Book and most are endemics. The methodology is notable since it amounted to writing opinions from studies with very different approaches. No new data was taken and there was no evaluation of different previous methodologies.

When we asked for copies of the reports we were told that the only copies had been sent to Krasnodar, none were kept at the reserve, but that if I wanted one I could pick one up during my next visit which was originally planned in October of 1993. Since a typist can be paid a one month salary for the cost of 120 photocopies it is not surprising that the reserve neither has nor uses a photocopier (Pridnja, pers. comm.).

Other information simply wasn’t available. When we asked if scientists had any ecological maps of the reserve and the region we were told that they didn’t and they didn’t know who did (Pridnja; Setrov, pers. comms.). When we asked for a list of the Red Book species we were told that they knew which species were endangered but no one had made a list of them (Pridnja; Setrov, pers. comms.). Since the staff provided a wealth of other materials and cooperated fully with us we do not think they were suppressing information, they simply didn’t have it. Much information is stored in people’s heads and has not been recorded on paper (Pridnja, pers. comm.).

**Beyond and around the boundaries of the Biosphere Reserve**

The regional system of reserves and land use is not well coordinated. There is competition between agencies for lands and often multiple agencies claiming conflicting jurisdiction over lands (Koval; Solntsev, pers. comms.). In 1978 a regional council of reserves was convened, centered in the biosphere reserve. The council lost its influence
in the political changes and now the ministry of nature wants the reserve to re-establish its leadership role (Pridnja; Setrov, pers. comm.).

Pridnja and Setrov at the reserve repeatedly claimed that the park was not doing its job of ecological protection and expressed a desire—and expectation—for the biosphere reserve to take over part of the park’s land and management. A proposed reserve expansion between Mzimta and Sochi Rivers would extend the reserve to the sea, taking over part of Sochi National Natural Park. This expansion has been a frequent proposal since 1927 (Pridnja, pers. comm.).

Zakaznicks, secondary protected areas around the reserve, have hunting and other uses and are managed by the “Department of Hunting.” Illegal poaching and timber cutting are frequent problems in these areas (Pridnja; Setrov; Timokhin, pers. comms.). Some of these hunting reserves are created for only a limited amount of time, such as 5 or 10 years and do not offer serious protection as long-term buffers (Pridnja; Setrov; Timokhin, pers. comms.).

4.3 Sochi National Natural Park

In long-term planning of the system of national parks it is provided that they should first be established where primordial nature with beautiful landscapes has been preserved, close to large cities, in areas with good approach roads.

(Gavva, Krinitsky and Yazan, 1983a, p. 3—emphasis added)

The need for recreation in natural settings spurred creation of the park system. With Sochi’s large resident and tourist population and the scenic Caucasus nearby, the area was a natural location for a national park. In 1983, three forest reserves (leskhoz) were combined into Sochi National Natural Park, a 190,000 hectare park that is the second largest national park in Russia. It is also Russia’s second national park with the first being created in the same year.

The three leskhoz—one in each district of Sochi—were virtually unrestricted, multiple use forests (Kommerchesky, pers. comm.). Management staff didn’t change from the three production forests and the park is still broken down into three management forests, run by the same foresters (Kommerchesky, pers. comm.; Pryde, 1991).

According to the chief ranger, Kommerchesky, the park was not created for recreation (Kommerchesky, pers. comm.) although other sources specifically said it was created for this purpose (“Review of the ecological situation.” 1992; pers. comms. with Koval; Pridnja; Silnov; Solntsev). Kommerchesky claims the real reason the park was created so “industry could keep access to the area” although he also said the park was
created as an important step in stopping excessive timber cutting (Kommerchesky, pers. comm.).

Other reasons cited for the creation of a national park—a "new form of organizing protection of protected territories"—include protection of ecology, education, cultural purposes, and science ("Review of the ecological situation," 1992). Kommerchesky added that the area was unique in the former Soviet Union, and cited a number of special characteristics: high degree of endemism with unique chestnut and beech forests found nowhere except for a small population of beech in the Carpathians; a unique, rich mountain flora: Kolkhida province flora; alpine meadows and glaciers in the upper northwest corner of the park; 100 natural springs; and archaeological sites. The new proposed park directives also mention aesthetic and cultural reasons for the park's creation (Filimonov, pers. comm.).

The municipality of Sochi, with 360,000+ people, is entirely within the national park but is not part of it. The city covers about 50,000 hectares and surrounding agriculture lands compose another 50,000 hectares. All other lands in the districts and Raions around Sochi are state lands and all those not in the Biosphere Reserve or Zakaznik are in Sochi National Natural Park (Kommerchesky, pers. comm.).

People in Sochi National Natural Park were not displaced to create the park, because it was already state land and was highly regulated as an active forest (Kommerchesky, pers. comm.). The park is called a park (IUCN II) but might more accurately be described as a Category V (Protected Landscape) or VIII (Multiple use Management) area with the high degrees of use and on-going resource extraction that is described below.

Differences between the Park and Biosphere Reserve

Considerably less data exists on Sochi National Natural Park than on the Caucasus Biosphere Reserve. This is partly due to the reserve's age and wealth of scientific research in comparison with the newness of the park.
Table 4.5—Characteristics of Sochi National Natural Park

<table>
<thead>
<tr>
<th>Sochi National Natural Park</th>
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<tbody>
<tr>
<td>Total area 190,200 hectares of lands, not counting the city of Sochi and agricultural lands</td>
</tr>
<tr>
<td>94.1% covered with forest</td>
</tr>
<tr>
<td>deciduous .......................... 182,700 hectares (94.3% of total)</td>
</tr>
<tr>
<td>coniferous .......................... 11,000 hectares (5.7% of total)</td>
</tr>
</tbody>
</table>

**deciduous forest composition**
- beech forests .......................... 79,100 hectares .......................... 40.9%
- oak forests .......................... 47,600 hectares .......................... 24.6%
- chestnut forests .......................... 26,700 hectares .......................... 13.6%
- hornbeam forests .......................... 16,100 hectares .......................... 8.4%
- boxwood forests [endangered] .......................... 2,700 hectares .......................... 1.4%
- black alder .......................... 6,300 hectares .......................... 3.3%
- walnut .......................... 1,300 hectares .......................... < 1%
- ash tree, maple, birch, aspen

**coniferous forests**
- Caucasian fir (dominant) .......................... 10,200 hectares .......................... 93%

(Koval. 1986)

A quick and informal analysis shows that the park and the reserve don’t cover the same habitats. The forest of the Park is 94% deciduous and these forests cover 88% of total land base. The reserve, on the other hand, has only 61% coverage by forest, and 46.1% of that is deciduous. Thus, the deciduous forest in the reserve covers only 28% of the total land base. Much less than the Park’s 94%. The simple explanation is that the park’s lower elevation runs from a low stretch of the Main Caucasus Ridge on to the West of the Biosphere Reserve down to subtropical plant communities along the sea. In an area that climbs from sea level to glaciers at about 3,000 meters, there is a considerable difference in the vegetative community at different elevations. Were it not for the reserve’s small section of land near Xhosta, the endangered boxwood tree would grow only in the territory of the park. Thus the two protected areas cover mostly different habitats. It is very likely that the park has a number of endemic species not found in the Caucasus Biosphere Reserve although this research has not been done.

Local people do appear to use the area with great frequency, although it is uncertain whether many know it is a national park. No signs exist at trailheads or at park boundaries to inform visitors they are in a protected area. On several hikes into the park I saw a number of people picking mushrooms, berries, fruits and herbs. No data was found.
on who collected, what was collected, where it was collected, what the ecological effects were and what seasonal variation was.

Recreation use also appears to be high. One trail to a popular waterfall had numerous groups of fifty or more people. Trails were severely eroded, although work had clearly been done in the past—metal handrails were rusted and dangerously sharp. It is uncertain whether most recreation comes from people living in Sochi, from communities in the river valleys extending into the park, or visitors from outside the area. Little is known about recreational and extractive use on the North side of the park.

Some fuel wood collection and grazing may occur in the Park around some mountain communities in river valleys extending up into the park, although it was mentioned by no one we interviewed. Agricultural use in these areas is almost certainly outside park jurisdiction since Kommerchesky described 50,000 hectares of agricultural land within the bounds of the park borders that were not controlled in any way by the park. These lands are placed in river bottoms with some tea plantations on the nearby hillsides (Kommerchesky, pers. comm.).

One additional area is partially managed by the park. Golovinsky Zakaznik, a 36,000 hectare area, is jointly managed by the park and the Institute for Mountain Forestry and Forest Ecology. The two agencies are fighting over future control of the area. In the Soviet Union, the Park was at the Russian level and the Institute was Soviet, so it was difficult to share resources. With the collapse of the Soviet Union and consolidation under the Russian Federation cooperation is now theoretically possible. In reality a power struggle is preventing cooperation. Kommerchesky says the Institute and its director are preventing joint agreements and claims the director doesn’t want to have his research station taken over by the park (Kommerchesky, pers. comms.)

As is typical of Russian national parks, the rest of Sochi National Natural Park is divided into zones of varying use and protection. The protected core, called the zapovednik regime in allusion to the Ministry of Nature and Environment’s zapovedniks, is closed to use by the public and designated the equivalent of an IUCN Category I sanctuary. The zakaznik regime is the second area and more uses are allowed. The recreational zones, referred to as leskhoz regimes by Kommerchesky are divided into "extensive" and "intensive" use areas (Kommerchesky, pers. comm.).
Zapovednik regime lands are primarily in the high country and include alpine meadows and glaciers (Kommerchesky, pers. comm.). This area includes pristine, almost-wild lands, the “most valuable tree species where biogenetic connections of nature are unchanged by humans.” Other areas include the headwaters of the Matsesta groundwaters (Filimonov, 1993). Matsesta is a very popular hot spring and spa area near Xhosta.

New temporary park directives arrived from the Krasnodar level of the Federal Forestry Service just before our period of research and they provide guidelines for managing the zones. Commercial and recreational activities are prohibited in the zapovednik zone. The purpose of this zone, as stated in the new directives, is to 1) protect natural complexes with all components, 2) study natural processes, and 3) develop scientific basis for nature protection (Filimonov, 1993).

The second zone, zakaznik regime lands, has the most intact and endemic forests (Kommerchesky, pers. comm.). This area includes the flora and fauna in high country, mid-elevational areas and low lands. The new directives state that protection of “natural structures” and landscapes can involve restoration if necessary (Filimonov, 1993). The directives do not specify particular uses allowed or disallowed in this region.

The third classification, recreational or leskhoz regimes, are divided into “intensive” and “extensive” categories (Kommerchesky, pers. comm.). We have interpreted “extensive” to mean “dispersed.” The directives say the extensive zone includes chestnut and other deciduous forests including oak. The intent in this zone is to protect and restore ecosystems and “improve functions of the forest” including water protection (Filimonov, 1993).

Recreational use is allowed on special roads and trails leading to nature monuments, lakes and rivers, and historical or archaeological monuments. The directives state that visits to this zone are free but certain rules must be followed (Filimonov, 1993). These rules, since they apply generally to other zones are described below, along with the park directives.
Figure 4.6  Map of management zones of Sochi National Natural Park

1  Zapovednik Regime
2  Zakaznik Regime
3  Extensive and Intensive Regimes

Figure 4.7 Map of forest zones in Sochi National Natural Park

1. Protection Forests
2. Green Zones
3. Watershed Protection Forests
4. Resort Protection Forests
5. City Forests

The intensive zone is closest to the territory of the city, villages and resort complexes. The purpose of this zone is tourism. The directives state that this zone is "organized according to the principles of forest parks" that have good trail infrastructure. It can have some development such as buildings relating to the purpose of the park (Filimonov, 1993). Management goals are somewhat vague. The directives simply state that visits to this zone will be controlled according to the accepted norms of the use of such recreational territories (Filimonov, 1993). There is no indication that "accepted norms" exist.

The park is additionally divided into forest classes (see figure 4.7). This may be a relict from the time when the park was three leskhoz. The forest classes are described as protection forests, forests of the green zones, watershed protection forests, resort protection forests, and city forests ("Sochi National Natural Park Management Document," 1983).

Pryde observes that classification of Soviet forests in the early 1990's were designated as protected from commercial harvest if they were Group 1 forests for urban greenbelts, resorts, erosion control, or road protection (Pryde, 1991). Sochi would be a high priority for this kind of protection as an urban interface and as a major resort. Pryde names cities that have greenbelts, however, and Sochi was not among them as of 1989 (Pryde, 1991). Similarly, the city directives on the environment recommended creating a greenbelt for the city so one did not effectively exist as of 1989 ("How to Improve," 1989).

**Administrative organization**

When the three leskhoz were combined into the park, the same management was retained. Each of the three leskhoz operated independently and now each district of the park operates independently. While the Sochi branch is officially in charge, Kommerchesky says the other two are run separately by their directors and do not consider themselves accountable to the Sochi staff. Each of the large districts is divided into 5 smaller zones for a total of 15 sub-zones ("Existing Structure," 1993: Kommerchesky, pers. comm.).

Park staff is composed of 125 rangers with enforcement authority, 13 or 14 administrative staff and engineers, 15 wildlife wardens and no researchers (Kommerchesky, pers. comm.). The chart detailing current park structure notes that two people are dedicated to recreation, six to "forest protection and business," 15 are mechanics, 9 are economists and 9 are involved in "timber works." There is not a single
science position, cultural specialist, public relations or outreach coordinator (see figure 4.8) ("Existing Structure." 1993).
Figure 4.8—Existing administrative structure for Sochi National Natureal Park

("Existing Structure," 1993)
In 1993, after ten years of waiting, Sochi National Natural Park received temporary directives from the Krasnodar regional branch of the Federal Forestry Service. Waiting for management plans is apparently not uncommon in less developed countries. Galapagos National Park was created in 1959 and did not receive regulations until 1973 and boundaries until 1979 (Bailey, 1991). The proposed directives would eliminate "commercial activity" in the park within three years (Kommerchesky, pers. comm.). A later investigation of the directives revealed that there was no mention of eliminating logging in three years. Logging was not allowed at any time (Filimonov, 1993).

Management prior to the arrival of the temporary directives was guided by the original document dating from creation of the park ("Sochi National Natural Park Management Document," 1983). At one point I held in hand this single book on the resources in the park that acted as a preliminary management plan. It had graphics hand colored in by pencil. Kommerchesky let me take it on to the street to photograph some of the charts and I could have walked away with it.

Distinct tasks of the park are defined as 1) preservation of nature, historical monuments, and cultural heritage; 2) regulated ecological tourism and recreation in natural settings; 3) scientific methods of nature protection with recreation; 4) restoration; 5) education; 6) forest protection and maintenance; 7) ecological monitoring; 8) development of protected areas in the region; 9) studying and implementing foreign experience in nature protection; 10) development of scientific and cultural network with other protected areas, countries and institutions; 11) enforcing regulations (Filimonov, 1993).

Activities that are prohibited in the park include, 1) any activities that endanger the area; 2) hydrological disruption; 3) prospecting; 4) building of roads, pipelines, electrical lines or communication lines not connected with functions of park; 5) campfires or camping outside certain areas; 6) off-road vehicles; 7) hunting, fishing, berry-gathering, mushroom collecting, medicinal plant gathering without the park permission; 8) timber cutting "of major use" (Filimonov, 1993). Land in the park belongs to the Russian Federation and the directives explicitly prohibit the taking or removal of land and natural resources (Filimonov, 1993).

Acceptable uses include some hunting and fishing in designated areas, or in areas leased as hunting and fishing "farms" to user groups (Filimonov, 1993). Scientific research in the park is to be directed toward "development and implementation of scientific methods of nature protection and biological conservation of biodiversity" (Filimonov, 1993). Research is to be carried out by staff of the scientific department.
Figure 4.9—Proposed administrative structure for Sochi National Natural Park

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research institutions and universities. Specialists from the park can participate in state-wide projects utilizing their ecological expertise for nature protection, restoration, extension of commercial projects, and general development of the region (Filimonov, 1993).

The new directives state that the park will conduct science research, and that this will be done by science staff at the park and a "science council" of park employees. To restate a paragraph from earlier, research is to be carried out by staff of the scientific department which does not exist, research institutions and universities. Specialists from the park who do not exist can participate in state-wide projects utilizing their ecological expertise which does not exist for nature protection, restoration, extension of commercial projects, and general development of the region (Filimonov, 1993). Similarly, the park directives state there will be no "timber cutting of major use," and yet the park staff has nine specialists in timber works and six more in forest protection and business (Filimonov, 1993). Clearly, the park is not administratively structured to carry out its missions of protecting nature and providing for recreation.

It could be argued that the park has not had time to restructure itself to fit the new directives. However, the park has proposed a new structure to carry out the new directives (see figure 4.9) ("Proposed Organizational Structure." 1993: Kommerchesky, pers. comm.). There still is no cultural specialist of any variety, nor is there a science department or even a scientist. A department still exists for timber works and sales, despite the moratorium on timber harvesting. The only major change is that the administrations of the Lazarevski and Adler districts are subsumed by the Sochi administration ("Proposed Organizational Structure." 1993).

**Issues and problems of the park**

Setrov and Pridnja at the Caucasus Biosphere Reserve claim the park is poorly managed, and in the ten years it has existed, "the ecological problems have become worse" (Pridnja; Setrov, pers. comms.). Top staff at the Institute for Mountain Forestry and Forest Ecology agreed (Koval; Silnov; Solntsev, pers. comms.) as did Anachenko of Goskomecologia. He said the park was doing a very poor job and presented us with a report by the Sochi Committee for the Protection of Nature that heavily criticized the park for mismanagement (Ananchenko, pers. comm.; "Review of the ecological situation. 1992—recommendations of this report are provided below). The situation as the park has become so dire, claim some, that it may soon be closed and turned back into an active forest or turned over to new management (Solntsev; Anachenko, pers. comms.).
Kommerchesky thought the park’s biggest problem was not ecological or social, but structural. He blamed the other forest districts and the Krasnodar level of the Federal Forestry Service for causing the park the most problems. He thought the ideal solution would be to have the park report directly to a national level (Kommerchesky, pers. comm.). Difficulty with the regional level in Krasnodar may indeed be part of the problem, as this was corroborated by the Sochi Committee for the Protection of Nature’s report on the park. This document said the park was run by bylaws of national parks from the Krasnodar level, but these guidelines do not conform to the standards necessary for national natural parks — there are too many commercial activities (“Review of the ecological situation,” 1992).

An additional organizational problem described by Kommerchesky was that the leaders of the regional forestry service, which run the park through the “Department of Especially Protected Forest Areas,” like to use the park for their private use, involving illegal hunting, dacha building and other activities. They don’t want the park to reorganize its structure because they’ll lose access to the individuals in positions that allow them to use the area (Kommerchesky; Solntsev, pers. comms.). Existing management, in its unaccountable form, results in “personal domains of management” (Kommerchesky, pers. comm.).

Like many protected areas around the world, Sochi National Natural Park has serious funding problems. In the past it was funded by the central Soviet government. This is no longer true — its current budget is less than the budgets of the three separate leskhoz were before the park was founded. The park has continued logging because it has no funding from the Forestry Service, and because it was instructed to continue logging by that service (Kommerchesky, pers. comm.). Kommerchesky observed that the park can’t stop commercial activity since it is the park’s only income. The park simply wouldn’t be able to operate.

The Park stretches along the coastline and many tourist organizations make money from tours on park land but pay nothing. These organizations take in over $2.5 million each year. Kommerchesky claims that by current law, the park can’t charge for its “services” (Kommerchesky, pers. comm.). The park often raises the issue of charging fees for use, said Kommerchesky, but people say, “why should we pay? What gives the Park the right to charge for nature’s bounty? The Park didn’t create the natural resources. We’ve been using them all along, why should we start paying now?” (Kommerchesky, pers. comm.). The new park directives, however, explicitly state that the park can set its
own prices for products and services (Filimonov, 1993). No distinction was drawn between access and park services.

When it was suggested that parks were sometimes an economic draw in other parts of the world, Kommerchesky was surprised and said that no such idea was being explored at the park. He said the park staff have no idea how to make people pay for the use of the park (Kommerchesky, pers. comm.).

The new directives do provide that all money taken in by the park by publishing, recreation, science research, concessionaires and all other activities, plus money from other state agencies, individuals, national or international organizations may be kept by the park to use as it sees fit. The directives further state that building hotels, camping places, or other objects for tourism can be done with foreign capital or by state agencies (Filimonov, 1993).

One of the major problems cited in the park, as in the reserve, is low salaries (Kommerchesky, pers. comm.). The park directives state that salaries are established by current legislation so changing them at a local level is not possible. The park can pay bonuses, however (Filimonov, 1993).

We asked what hope Kommerchesky saw for the future. He said that the park has good employees who work long hours at low wages because they believe in the idea of a national natural park and nature itself is an inspiration. Lastly, he said tourism may be a help in the future if ways are found to get money from tourist’s visits (Kommerchesky, pers. comm.).

Extractive & other uses—logging & recreation

The case against logging in a national park is strong: The new directives specifically outlaw cutting “of major use,” and any activities which damage the native ecology (Filimonov, 1993). Elsewhere, Fischer comments “Logging is prohibited not only in nature reserves and in forest game reserves but also in protected forests designated in the Soviet Union as Group 1 forests” (Fischer, 1981, p. 516). The 1992 report on the environment by the Sochi Committee for the Protection of Nature states that many of these areas in the park are Group 1 forests (“Review of the ecological situation.” 1992). Additionally, Pryde reports that the North Caucasus are declared a “forest deficit area.” and industrial harvest is only supposed to occur only in forest surplus areas (Pryde, 1991). Despite these facts, there has been a historic trend of timber harvesting in the park and this is being continued into the future. Both the administrative structure and the words of the chief ranger display intent to continue logging.
The park had planned to harvest up to 200,000 cubic meters of wood (92 million board feet) of timber, but staff at the Biosphere Reserve talked the park management out of it (Kommerchesky; Pridnja, pers. comm.). In 1986 the park adopted a ten year plan for cutting with reduced yields. The maximum was to be 34,000 cubic meters (15.7 MMBF) of wood per year. A total of 13,500 cubic meters (6.2 MMBF) would be harvested, another 10,000 cubic meters (4.6 MMBF) of deadfall would be collected, and some cutting would be allowed for special projects (10,000 cubic meters or 4.6 MMBF) (Kommerchesky, pers. comm.). The Sochi Committee for the Protection of Nature’s report on the park states that the park dropped its plan to produce products in 1992 but they still log (“Review of the ecological situation,” 1992).

Pryde’s claim that Soviet forestry has been forest “mining” with cutting and moving on is supported by the park’s activities. The park currently cuts about 34,000 cubic meters (15.7 MMBF) of timber a year using bulldozers. The result is approximately 70% wastage of wood and a severe destruction of soils and other plants (Kommerchesky; Pridnja, pers. comm.). Kommerchesky also said that harvesting of wood in the park includes the taking of boxwood, a rare endemic that is protected by the Russian Red Book (Kommerchesky, pers. comm.). “The idea of sustained yield forest harvest, in which the amount cut corresponds to the annual growth per year, has not yet been practiced in the Soviet Union” (Pryde, 1991, p. 119). Pridnja and Evanyenko agree that logging in the area is extremely destructive (Evanyenko; Pridnja, pers. comm.) and section 1.4 of Goskomecologia’s review of the park recommends prohibiting timber cutting due to the very poor technology used which is causing irreparable damage to the environment (“Review of the ecological situation,” 1992).

There are nine timber mills in the park and Kommerchesky says that three will continue to operate. The mills will have to seek their own timber from other locations for supplies beyond what the park will supply (Kommerchesky, pers. comm.). Where the timber will come from is unclear since Georgia is directly to the south, the Biosphere Reserve is to the East, the Black Sea is to the West and a poor infrastructure of roads runs North.

Kommerchesky said the three mills will be open because the park makes its own furniture to use (Kommerchesky, pers. comm.). It is surprising and rather unlikely that a park with a staff of 125 and virtually no budget needs to keep three mills open to produce

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5One cubic meter of wood corresponds to 461 board feet, so 34,000 cu meters of wood is about 15.7 million board feet.
its own furniture. Pridnja and Evanyenko claim the park cuts timber for its own use and for commercial use (Evanyenko; Pridnja, pers. comms.).

The Sochi Committee for the Protection of Nature say that the park has 726 people working in the park and only a very few do activities related to the goals of the park ("Review of the ecological situation," 1992). It is quite likely that they are timber workers not counted by Kommerchesky.

Interestingly, the park was created primarily for recreation and ecological protection (Filimonov, 1993). Little effort has been dedicated to defining and developing recreation or working with local governments and user groups to foster the activity (Koval; Pridnja; Solntsev, pers. comms.). This is apparently common in Russian national parks. In the past the national parks and some reserves were managed partly for recreation, at least on paper, but not in reality. There was no expenditure, no outreach and a poor infrastructure of transportation for getting people to the areas (Evanyenko; Pridnja, pers. comms.). The park recreation department, Kommerchesky told us, is currently part of the Park but may become independent. The department plans to sell trail books to the public through tourist agencies (Kommerchesky, pers. comm.). No other outreach is planned.

Despite the lack of expertise or work on recreation at the park, a number of people are working on studying and defining recreation and there has been a great deal of interest expressed at the Russian Academy of Science and the Institute for Mountain Forestry and Forest Ecology (Koval; Sergeyev; Silnov; Solntsev, pers. comms.).

**Outreach and community involvement**

Public awareness of the park area is particularly poor. Seven years after Sochi National Natural Park was founded as the second largest and second oldest national park in all of Russia, it remained unmarked on the regional 1990 sportsmen’s map ("Krasnodarsky Krai," 1990). I researched in Sochi for a week before I even learned where the park was. Individuals at the Institute did not mention the park during our initial orientation. Part of this may be due to the newness of the park and its lack of public involvement.

Kommerchesky claims that little outreach is done because Sochi tourist organizations do it and “do it well.” When asked for details he admitted that there is no monitoring of the job being done in public education by the tourist agencies. Further, he said their publications, including descriptions of trails, often fail to mention at all that the trails are in a national park (Kommerchesky, pers. comm.).
Figure 4.10—Recreation corridor map of Sochi National Natural Park

- Tourist walking trails, open year-round
- Seasonal trails
- Seasonal horse trails

"Sochi National Natural Park Management Document," 1983
The park neither receives nor gives assistance or funding for the effort of the tourist organizations and there is no training of the tourist agency staff. Kommerchesky explains that the park has no budget left for such activities (Kommerchesky, pers. comm.). He notes that the park has prepared information for a handout but has no resources to print it, so it is just sitting idle (Kommerchesky, pers. comm.).

Other forms of public outreach include several articles on trails published in the paper each year, television appearances by Kommerchesky or the park director several times a year, and a prospective book on the park being done with the Russian Geographic Society (Kommerchesky, pers. comm.).

The new park directives state that the park will publish booklets, photobooks, trail guides and other reference materials: organize a museum; and host an exposition (Filimonov, 1993). In addition, educational trails will be built and the park will work with high schools to get internees (Filimonov, 1993). None of this is or has been done and Kommerchesky expressed no intent to do it (Kommerchesky, pers. comm.).

Beyond and around the boundaries of the Park

According to the Sochi Committee for the Protection of Nature, when the park was created city growth was not planned or accommodated. All lands not dedicated to the city, villages, agriculture or dachas, were designated as park lands. Since the park directly abuts the city and other developments along its entire length, there have been a number of conflicts with development (“Review,” 1992).

The city of Sochi continues to allocate lands for rural development, such as the building of dachas and gardens, on park lands. Between 1988 and 1992, 2700 hectares from the park were allocated to collective gardens. The land that was taken by the city contained Group I forests which are protected for forests, water, hygienics, and recreation, according to the report. These areas were clearcut often resulting in landslides and severe erosion (“Review,” 1992). In 1992 the Sochi city administration allocated 890 hectares for housing construction—all in Group I forest areas inside the park (“Review,” 1992). All of these allocations are done by raion or city officials without the agreement of nature protection services (“Review, 1992). The report did not specify the park’s official stance on the allocations or its hindrance or assistance to the effort.

Information base and resulting problems

There have been no systematic ecological surveys of the park and only general descriptions of its flora. The new directives state that the park will have a council of
scientists in the park which will do research and conduct ecological education of the staff and other state and public organizations. It is interesting to note that the ideas of science and interpretation are mixed together—no people specialists are recommended (Filimonov, 1993).

Kommerchesky lamented that he had no scientific staff to work on assessing ecological problems and identifying solutions. The report by the Sochi Committee for the Protection of Nature indicates that the problems are greater than a mere lack of knowledge. The report claims that wildlife populations are declining due to Sochi National Natural Park’s practices. It cites the fact they have no specialists to obtain information on wildlife. Despite the arguments and protests of the Sochi Committee for the Protection of Nature, it says, the administration decided to allow regular culling of the wildlife. The report observes that this decision violates current legislation (“Review,” 1992)

Further, while Kommerchesky claims that poaching is “not our problem” the report states the exact opposite (Filimonov, 1993; Kommerchesky, pers. comm.). It observes that wildlife protection in the park is unsatisfactory. After wildlife enforcement authority was given to Sochi National Natural Park, hunters’ clubs “practically stopped any attempts to resist poachers” (“Review,” 1992; Kommerchesky, pers. comm.). In fairness, the system of wildlife protection in the park is new and there is a possibility that the staff of the Sochi Committee for the Protection of Nature is vindictive toward the park since its enforcement authority was partially given to the park (“Review.” 1992; Kommerchesky, pers. comm.).

Table 4.7—Goskomecologia Recommendations to Park and Sochi

<table>
<thead>
<tr>
<th>Recommendations From the Section entitled “Protection of Forests, Lands and wildlife”</th>
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<tr>
<td>Part 1: Recommendations to Sochi National Natural Park</td>
</tr>
<tr>
<td>1.1 Pass directives on the park and make them correspond with the national directives on national parks</td>
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<tr>
<td>1.2 Develop and pass reorganization of park organization</td>
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<tr>
<td>1.3 Study the borders of the park and exclude zones of intensive commercial activities (such as lands advocated for individual construction)</td>
</tr>
</tbody>
</table>
1.4 Prohibit all kinds of timber cutting with the exception of maintenance cutting in very young forests. This recommendation is based on the very poor technology used in cutting that is causing irreparable damage to the environment.

1.5 Change the structure and human resources in the park and to reflect the goals of the park (such as science research).

1.6 Survey wildlife and flora in forest over the territory of the park, paying special attention to Red Book species.

1.7 Protect from poachers by establishing a special law enforcement unit; provide this unit with transportation & arms.

Part 2: Recommendations to Sochi City administration

2.1 Identify park areas allocated for short-term and long-term development in conjunction with the construction industry.

2.2 Appeal to Russian government to withdraw these areas from the “state forest fund.”

2.3 Survey all gardening plots which have not been used for many years, and those areas which people took without permission, and reclaim them according to the law.

2.4 Pass a resolution to prohibit untended grazing and strictly enforce these standards. Identify special areas for allowable tended grazing.

(“Review,” 1992)

4.4 Institute for Mountain Forestry and Forest Ecology and its Zakaznik

The Institute for Mountain Forestry and Forest Ecology was our host institution. Gennady Constantinovich Solntsev is the Director and his chief assistants are Professor and Senior Research Assistant Ivan Pavlovich Koval and Nikolai Alexandrovich Silnov, Deputy Director of Research.

Primarily a forestry research institute, this institution’s central foci are on 1) forestry; 2) recreation, 3) international scientific and technological cooperation, 4) natural resource economic planning, and 4) computer modeling of watersheds and the long-term ecological effects of different methods of forestry (Koval; Silnov, pers. comms.; Solntsev, 1992).

The computer modeling work done by the institute is particularly notable and may be among the most advanced in Russia (Koval; Silnov; Solntsev, pers. comms.). Koval and his staff are developing predictive models for assessing regeneration, watershed release and tree growth in watersheds based on a dozen ecosystem parameters (Koval, pers. comm.). Future computer models will include assessments of “ecological damage.”
It was unclear, however, what characterized ecological damage and how it would be measured in their model. It may have been increase in edge effect, aesthetic loss, loss of habitat, soil degradation, fragmentation of roadless areas, air and water pollution, degradation of water quality, eutrophication, or a number of other factors.

The Institute also partially manages the Golovinsky Zakaznik in conjunction with the National Park. Solntsev told us that the Park manages hunting and other values, while the zakaznik itself belongs to the Institute. The Institute would like to manage the whole zakaznik area and claims that the park is not capable of doing the right kind of management and research (Koval; Silnov; Solntsev. pers. comms.). The park’s perspective has been described earlier.

4.5 Regional and City Committees for the Protection of Nature (“Goskomecologia”)

The Sochi Committee for the Protection of Nature—“Goskomecologia”—is a local branch of a national agency that enforces all environmental laws, including fish and wildlife and various forms of pollution laws. Created four years ago by a decree from Gorbachev, it might be best described as a combination of the enforcement elements of the USEPA and USFWS. The committee has numerous levels—federal, regional (Krasnodar) and local (Sochi)—and works across multiple jurisdictions.

Goskomecologia enforces laws on lands managed by various agencies, including the park and the reserve, but Goskomecologia does not coordinate closely with them (Ananchenko; Kommerchesky; Pridnja; Shevelev. pers. comms.).

The Sochi branch covers all of Sochi and up into the mountains to the Main Caucasus Ridge. The Biosphere Reserve has at least three committees of Goskomecologia with jurisdiction over its territory (Ananchenko, pers. comm.).

Some protected area agency individuals complained that when arrests are made and fines are assessed no money goes to help the affected agency. Hence, there is often little incentive for cooperation between Goskomecologia and the institutions (Kommerchesky; Pridnja; Solntsev. pers. comms.).

In addition to policing the environment, Goskomecologia has been involved in assessing the job of land management institutions and making recommendations for environmental legislation. Any expansion of the reserve system would be coordinated through their regional committee in Krasnodar. Either they would initiate the proposal or give original approval for the expansion (Ananchenko, pers. comm.).
4.6 Russian Academy of Sciences

The Russian Academy of Sciences—Sochi Branch is involved in the Big Sochi region in evaluating the impact of economic development on the environment. The region is relatively small, the research intensely focused. Big Sochi is about 350 square kilometers (35,000 hectares) and includes some forests and alpine meadows. While the academy’s mission is to investigate the ecological impacts of economic development in the coastal waters and in the Sochi surroundings, it has virtually no means to accomplish the research. Some scientists at the Academy called it a joke (L. Ruibak; O. Ruibak. pers. comm.).

Created in 1989 by Gorbachev’s decree, the Sochi branch was founded to carry out two state programs—one to investigate the coastal waters and another intended to study the ecological impact of economic activity.6

In addition to the academy’s work on coastal waters and pollution, one laboratory is doing work on tourism and sociology of the region. This lab, headed by Grigory Grigorievich Sergeyev, is studying recreational values, recreation infrastructure of Russia, and the relationship of ethnicity to tourism. The lab has surveyed and is analyzing data on the organization of tourism for all of Russia and will write recommendations based on the results. Additionally, the lab has completed a survey of local attitudes about nature and ecological problems (described earlier) (Sergeyev, pers. comm.).

4.7 Other organizations in the Sochi area, including NGO’s

The Academy survey of local attitudes about nature and ecological problems asked citizens of the city who they thought could change environmental problems. The most common response was the local government. Very few people expected environmental groups to have an effect (“We’ll save ourselves,” 1992). This is probably due to the fact that there are no real non-governmental environmental groups in the Sochi area.

We also found no evidence of citizen activism of any form. Pryde cites a demonstration protest that took place opposing a nuclear plant in Krasnodar, and another in Tbilisi in Georgia. None were listed closer to Sochi (Pryde, 1991. The closest citizen protest we heard about was a successful grassroots movement in a town 700 kilometers

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northeast of Sochi where people protested the opening of a nuclear facility (Sergeyev, pers. comm.).

The city of Sochi supported an environmental education center for a while but it lost funding and had been relegated to a basement and is run by one volunteer. A few presentations are done for occasional school groups. Several other individuals have founded an international children's academy that has an environmental theme (Maiboroda, pers. comm.).

Several quasi-non-governmental groups do exist in the area. All of them, however, are staffed by people who work at the institutions we worked with, so they are not truly independent of the institutions we met with (Pridnja; Sergeyev; Solntsev, pers. comm.s). Additionally, Solntsev is chair of the City Society for Nature Protection, although he said this society is not very active (Solntsev, pers. comm.). Similarly, Lukashina, from the Academy, is a member of the Peoples Deputy Committee on Ecology, Central District of Sochi. The committee "deals" with citizen complaints on the state of the environment but has no legal authority (Lukashina, pers. comm.).
5.0 Interpretation & Evaluation: why things are broken and what is needed

Institutions charged with protecting the complex of protected areas around Sochi are largely unsuccessful in their efforts. This section examines the causes of these institutional failings and evaluates what is missing. It is argued that these areas are paper parks due to certain cultural characteristics of the former Communist socio-political system, a history of top-down management techniques, and a lack of funding.

5.1 Cultural critique

In the face of the tremendous change in the former Soviet Union there is great uncertainty about the present and the future. Oleg Ruibak says “no one is thinking for the future, for long-term ecological and economic stability. Little money and no priority is given to ecological problems” (Ruibak, pers. comm.). This must be kept in mind with any critique of the system of nature protection. It would be an easy mistake to blame today’s crises on problems that are temporal in nature. Current material conditions could be confused as cultural and or institutional traits.

Aside from the temporal nature of some economic and socio-political crises, there are some broad cultural factors that must be considered. Many symptoms of problems expressed in the protected area institutions are rooted at a deeper level in Russian culture. To consider the problem of the protected areas in isolate is to address symptom and not causes.

A central theme that affects the conservation of the protected areas is a deep-seeded utilitarian ethic (Pryde, 1991; Setro, 1978; Zlotin, et al., 1981). Kommerchesky explained that after 70 years of utilitarian approach to nature, change to conservation and other uses is slow (Kommerchesky, pers. comm.). Similarly, a Yugoslavian researcher noted how difficult it can be for people from a socialist state to adopt an aesthetic appreciation of nature after many decades of utilitarian education (Movcan, 1984). While describing a process of identifying new nature reserves, several of the leading scholars on Soviet wildlands wrote that several areas should be identified. “However, only one of them should be selected for reservation and its area must be strictly limited as unwarranted withdrawal of land from economic use is certainly wasteful” (Gavva and Yazan, 1983b, p. 73). When the Institute wrote a series of recommendations for the complex of natural areas it included a table of harvest cycles for zapovedniks—the one
land designation not intended to have extractive human uses ("Recommendations on the

This utilitarian attitude finds its roots in recent history and perhaps earlier. The
Communist Party of the Soviet Union (CPSU) stated "Communism elevates man to a
tremendous level of supremacy over nature and makes possible a greater and fuller use of
its inherent forces" (cited in Gerasimov, Armand and Yefron, 1971). Soviet conservation
textbooks stated that air and water resources were "inexhaustible" and that there could be
no unwise use of natural resources under socialism (Pryde, 1991).

Similarly, environmental problems are commonly considered material or physical
and not social. Many decision makers and scientists see only technical problems with
technical solutions. Koval said his goal was not to change people's understandings and
attitudes or even to listen to their needs, but to get solutions in engineers' hands (Koval,
pers. comm.).

Other traits that seriously affect Russian conservation include the accuracy of
information that characterized the Soviet state. When Russia released a comprehensive
report stating the horrific nature of its environment, President Yeltsin claimed it was the
first truthful government assessment in 70 years ("Russia's health, 1992). In a similar
fashion, it has been said that Russian law has obfuscated true intent or paid lip service to
its subjects. The Soviet Union had among the strongest water and air quality laws in the
world but they were never designed to be enforced (Newton, 1993). Parker observes
"...two features of a state based on law did not exist in Russia before the [Bolshevik]
revolution and were not created after it: that the law is uniform and internally consistent"
(Parker, 1992, p. 4; Ioffe cited in Weikhardt, 1986) and Huskey support this, saying that
the legal system was used to keep power over people, that it was built on contradictions

A case in point in Sochi is the protection of endangered species. The fundamental
1980 wildlife law protected Red Book species but did not require it or outline out how to
do it: "Actions that may lead to the death of rare and endangered species of animals,
decreases in their numbers, or the disruption of their habitats is not permitted" (Pryde,
1987, p. 37). Thus, managers can often avoid having to take action to protect ecological
resources.

This cleavage between the words in the law and realistic results is summed up by
Setrov who said "Great legislation—but total corruption and failure to enforce" (Setrov,
pers. comm.). Anachenko, of Sochi Committee for the Protection of Nature, laughed..
when we asked about a law and said it was “All on paper, not in reality” (Ananchenko pers. comm.). This was a common theme with the people we interviewed.

Science also plays a different role in Russia than it does in the West. A 1989 public opinion poll ranked the Academy of Sciences as more harmful than the KGB, the Communist Party, and the Supreme Soviet (Sagdeev, 1993). Soviet science began to change after Lenin as a utilitarian movement swept through Russia and preserving nature became an inconvenience (Weiner, 1988). This is reflected in the two “extinction spasms” of the nature reserve system (Pryde, 1991).

Soviet scientists were required to incorporate Marxist and Leninist theory into their works. A science book published in 1978, for example, contains a chapter on “Basic Trends of Harmonic Development with Respect to the Ideas of Karl Marx” (Mescheryakov, 1978). Those who refused were sometimes shot (Bater, 1989; Kohl, 1993; Pridnja, pers. comm.). This resulted in the “transformation of scientists into technological serfs” (Feshbach and Friendly, 1991, p. 31).

Even “formal” information is often untrustworthy because it may be based on inaccurate or untested data (“Russian National Report,” 1992; “Soviet Lie,” 1993). Volkov reported that “The Caucasus Nature Reserve’s managers tend to feed inflated data and manipulated facts to higher-level agencies. They exaggerate the work they have done and greatly understate figures on losses of fauna” (Volkov, 1980).

While the Biosphere Reserve has a science staff and has been conducting some ecological research, the park has not. Despite its directives requiring it to have a science department and science council (Filimonov, 1993) the park has no science component and has planned no science component. The lack of science at the park can be interpreted several ways. First, the park administration may be uninterested in the biotic, ecosystemic, wildlife, recreational and aesthetic values of the park. Perhaps the current park staff perpetuated the system of forestry and lack of science because they were trained as foresters and felt they knew how to manage the land. Pridnja and Evanyenko explained that most reserves and parks are managed by foresters and not by recreation or conservation specialists (Evanyenko: Pridnja, pers. comms.).

Second, the power struggle between the park & Institute for control of Golovinsky Zakaznik may be a strategy of the park to convince authorities higher up that since the park has no science resources at all and it would be useful and convenient to have the park absorb the research institute.

Third, there may be a lack of incentives to implement any kind of change. With regulations and laws loosely enforced and a lack of accountability to the public and the
city it affects, the park staff might simply have said, "why bother why change?" Since the park could protect its own administrative structure this way, this is a likely factor.

Fourth, the park may have intended to change the structure and management, but simply lacked the resources to do so. Where would it find the money to convert the administration? As Kommerchesky said, without logging, the park simply couldn't afford to operate (Kommerchesky, pers. comm.).

5.2 Will people want the complex of protected areas to remain protected?

The unique biological traits, including high endemism and relict species, provide good reason for this area to be protected. Further, with a high urban population and water quality problems, it can be argued that the city would benefit by elimination of logging in the park area. With Sochi's base of tourism, the economy of the area could benefit from moderate development of the park for recreation.

The next question of course, is what kind of protection should there be. Currently the park is operated as an IUCN Category V or VIII area. In contrast, national parks in the Baikal area are proposed to be managed as IUCN Category II areas (Davis, 1993). Under the Russian system a national park is intended for both recreation and conservation. Such a recreational outlet would be useful to Sochi's economy and is useful as a buffer for the IUCN Category I sanctuary of the Biosphere Reserve. Sochi National Natural Park can best serve the biotic community and the Sochi populations by being an IUCN Category II park. Indeed, this is what directives describe (Filimonov 1993).

An important question to ask is whether a freely-choosing population would want to have the protected areas. Since the system has been imposed upon local populations, can planners be sure that an empowered populace would choose to keep the complex and work to protect its values? After all, if the park, for example, was actually created to serve as a vacation spot for elites instead of to serve scientific purposes and provide recreational opportunities, perhaps many local people would not want them.

Two pieces of evidence indicate that many people may in fact support protection in the areas. First, the city council noted that poor environmental quality is dangerous to the well-being of the resort ( "How to Improve," 1989). It is instructive that the city is willing to find funding mechanisms to pay for resources and that it considers values such as endangered species — and not just human health and aesthetics — worthy of protection ("How to Improve," 1989).

Second, the poll on the environment conducted by the academy found that over 64% of the people found the environment in their districts unsatisfactory or critical.
Environmental health affecting people was not the only concern; however. More than a third of the respondents said that flora and soils were the most critically threatened ("We'll save ourselves," 1992).

Additional evidence comes from the Biosphere Reserve which reports that 250 or more people visit the Xhosta boxwood grove every day in summer. To get there people have to walk several kilometers up a collapsing road (Shumkov, pers. comm.). The number of Russians who get out into the park on weekends for recreation or for gathering of local products indicates that fairly stable ecosystems are valued as a means of production and for recreation.

Unfortunately, recreational activities and preferences are not well known or studied in Russia. Shchitova conducted a study of the preferences of weekend-recreational users in four cities of the Northern Caucasus. The greatest majority of use comes within 24 km of the city. Some residents were willing to travel up to 100 km each way per weekend to return to native villages (Shchitova, 1981).

Other points raised in Russian literature often emphasize centralized planning of recreation and the distribution of recreation resources, but none clearly define how people recreate or hope to recreate in protected natural areas (Bestuzhev-Lada, 1992; Strelkova, 1992). Strelkova does state that human resources are generally inadequate to design and plan recreation (Strelkova, 1992).

In general, a broad definition of "recreation" makes these studies and articles difficult to apply. Recreation includes anything when one leaves home on a weekend for purposes other than work. Gardening, social visits, mushroom picking, and hiking are all recreation and are not clearly separated in the literature.

5.3 Top-down management and organization of institutions

Griffin writes that "Top-down" refers to that process of planning development and of projects in which the main inputs come from professionals and bureaucrats, often expatriate and nearly always city-dwellers" (Griffin, 1990, p. 109). This style of management, which has imposed itself on people in the surrounding areas and has not addressed their needs or collected information on their uses or preferences, is a common theme in protected area management around the world (Griffin, 1990; Hough, 1988; Sharma, 1991; West and Brechin, 1991). It is common in such cases, for protected areas to be paper parks which do not accomplish the goals for which the protected area was reserved (McNeely, 1989b; McNeely and Miller, 1983; Whelan, 1988).

This brand of imposition of outside authority is typified by a statement from a leader of a region further East in the Caucasus in 1979: "Of course it is not easy to tear
people away from their native villages. But it is the only way of improving the life of
people in areas without a future and to resolve the socio-economic decisions taken by the
party” (Radvaryi, 1987, p. 227). That people are to be moved without their consultation
is the epitome of top-down management. Another example from the Khostovsky Nature
Preserve further East in the Caucasus is telling. Unbeknownst to the public, the area had
a reservoir illegally proposed for the middle of it and the public was carefully kept from
knowing until it was being developed (Eablungyan, 1986). Again, top-down management
imposes decisions on people who are affected but uninvolved in the decision process.

This pattern repeats itself in the greater Sochi area. Sochi National Natural
Park and the Caucasus Biosphere Reserve have virtually no outreach and no inclusion of local
interests in management decisions. Additionally, reserve managers have made only faint
attempts to understand local people and their use patterns, effects and perceptions. First,
they did not express an interest in working more closely with local populations. Second,
the organizational structures of the institutions are designed to impose and sustain
authority, not respond to the public. As described in the previous section, the Reserve
has its only outreach through three museums, has no public relations officer or any
sociologist on staff (Pridnja, pers. comm.). The Park also lacks a social component with
the exception of several people working on recreation (“Existing Structure,” 1993;
“Proposed Organizational Structure,” 1993: Kommerchesky, pers. comm.)

The lack of cultural and ecological information in these institutions is a strong
indicator that the protected areas have neither the information nor the mechanisms
necessary for sound management. Where the international conservation community has
endorsed a Janus-faced approach to conservation, with one eye to social considerations
and development and the other toward ecological preservation. Russia’s model has been
characterized by a tunnel vision of imposed authority. Where accountability to local
communities is suggested by the international conservation community, imposition is
practiced by the Russian government and its institutions. Where education, development
and access to resources is recommended, uni-directional propaganda is delivered (Koval,
Pridnja; Solntsev, pers. comm.).

Imposed authority creates a simpler system than allowing a participatory public
since a manager is only accountable upward toward central planning, and is not
accountable to the lower down land users. As Pridnja and Setrov observe, there is
institutional acceptance of the idea of imposing authority. It is easy, convenient. It is
more difficult to involve the public (Pridnja; Setrov, pers. comm.). Koval explained that
conservation under the old system was really much easier. The government could simply say "stay out, this area is protected" (Koval, pers. comm.).

When Pridnja of the Biosphere Reserve diagrammed for us the political circles affecting the reserve the missing social component was the people affected by management of the reserve (see figure 5.2). With the problems of poaching that the reserve claims to have, and with Pridnja's observation that the worst poaching came from locals, it is surprising that local people with varying interests are not part of the picture. Reserve politics are seen as a struggle between science and ministers.

Figure 5.1—Pridnja's concept of politics at the Biosphere Reserve

The institutional composition in the Sochi area is instructive. Only the Russian Academy of Sciences possesses any kind of social component and it is not in any way connected with the complex of natural areas (Kommerchesky: Koval; Pridnja; L. Ruibak; O. Ruibak; Sergeyev, pers. comm.).

What outreach is done by the protected area institutions, is described as propaganda—education and lecture attempts that often have not been requested, are sometimes censored, and are not encouraged to be interactive or engaging (Koval; Pridnja; Pridnja; Setrov; Solntsev, pers. comm.). Maiboroda observes that in Russian there is no separate word for advocacy and propaganda.

Perhaps due to the top-down method of creating and managing Russian protected areas, public awareness of the areas and their values is often quite low. Since the Russian society has been relatively closed to a free flow of information and participation there is a consistent lack of clear communication about protected area values. Land management agencies have never had to deal with an organized public, be responsive to its concerns.
or communicate regularly to it. The survey conducted by the Academy is interesting
because it does not talk about the complex of protected natural areas. This may be
because so little is known by the public about the park jurisdiction and people have little
access to the area (L. Ruibak, O. Ruibak pers. comm.).

An examination of the park directives demonstrates that it is incapable of
fulfilling its mission. First, the current institution cannot do what it must: there are no
scientists and no science department. Second, the park is not allowed to cut timber but it
does. Third, the park should engage in ecological education but it has no staff to do it
and has not proposed any staff to do it ("Existing Structure," 1993; "Proposed
Organizational Structure," 1993; Filimonov, 1993). The park organizational structure
reveals that it is run like a timber business unaccountable to the local public it affects.
While it is intended for recreation, the park has no outreach personnel and no science
department. This, as well, is a manifestation of a top-down relic structure of Soviet
times—the institution was created from above and was accountable only upward toward
the Krasnodar level and the Moscow levels.

This top-down orientation contributes to the park staff’s operational isolation
from the community. Moderate use in the margins of the park for local harvesting of
berries, mushrooms, herbs and other forest products goes on and is considered illegal by
the park. While the park does have the authority to give out permits for gathering, no one
mentioned that this is done. Since there are no signs at park borders and trailheads there
are no common means of letting people know the boundaries and regulations of the park.
The park has not made an attempt to work with locals to identify areas that might be
important gathering grounds—separate from tourist destinations.

The park is also hampered by its connection to parent organizations. With no
park agency, the park is run by the Federal Forestry Service, which has always had a
mandate to cut timber. With the history of utilitarianism in Russia, those trained in
extractive industries may not value lands which aren’t put to extractive use. The
Institute’s report on “valuable natural complexes” that recommends harvest cycles in
sanctuary category reserves is a prime example ("Recommendations," 1991). According
to Kommerchesky, this organizational link to the forestry service has been maintained to
sustain private access by forestry officials into the area (Kommerchesky, pers. comm.).
In a system without a free media, little accountability to publics and economic
disincentives to do quality work, the people with power in the forestry service took
advantage of their positions to gain privileges not available to other people. The current
park organization divided into three units and tied to the forestry service in Krasnodar
sustains exclusive access for forestry people from Krasnodar. These organizational problems are rooted in personal and institutional attempts of the Soviet government and individuals holding power in it—and now in the Russian government—to maintain or enhance existing power structures and minimize empowerment of people living in the periphery of the protected areas. It is quite likely that the park has been kept from developing any social component because that would interfere with these private domains of management.

The Caucasus Biosphere Reserve, like the park, exhibits a Soviet-era top-down approach to managing protected areas. Its origins as a zapovednik—forbidden area—demonstrates that it was not designed for assessment of social needs and perceptions.

The biggest problem people at the reserve cite is poaching. As a world-class reserve area and favored destination for Moscow elites for hunting, the Biosphere Reserve might have the problem of attracting its worst problems from afar. Pridnja, however, claimed that rural local people are the worst poachers. This is an important observation because it means that the reputation of the reserve is not what is drawing the majority of the poachers.

That the reserve staff want to stop poaching, even while the reserve allows hunting by elites from Moscow, demonstrates that the reserve has returned to its historic roots as a private hunting ground for elites. A further irony is added in the Soviet context in that those who have had power have tried to retain that power and their privileges rather than work to return to its historic roots as a private hunting ground for elites. As Baklanov demonstrates in his article on poaching in the Soviet Union, the emphasis is “stop the opportunity” rather than “find the alternative.”

Poaching is further a sign of the reserve’s lack of social connection. Like the park, it is accountable upward and not downward to the users it affects. There has been no attempt to understand the causes of local poaching or to develop alternatives despite the fact that these problems are common in Russian reserves. Enforcement is considered to be the answer to the problems. As Baklanov demonstrates in his article on poaching in the Soviet Union, the emphasis is “stop the opportunity” rather than “find the alternative.”

If, as Pridnja says, rural local people are having the greatest effect then it is with them that a cultural assessment of needs and perceptions and a system of buffers and education are the most important. Krasnaya Polyana is a case in point. The town is sandwiched between a national park and a biosphere reserve, so there...
is little opportunity to hunt other than in a protected area. Sharma (1990, 1991) would encourage the Biosphere Reserve to either secure access to hunting in areas outside the reserve, or encourage the local farm production of inexpensive meat.

A failure to attempt to understand uses, needs and desires of various local populations, to communicate effectively with these people and empower them in participating in park management is all rooted in the biosphere reserve’s failure to have any kind of cultural program; while the reserve has the largest scientific research staff in all of Russia, there is not one cultural specialist nor any mechanism to bridge the gap with local populations and get them involved. This is in sharp contrast to the UNESCO’s Man and the Biosphere Program which says:

Each biosphere reserve consists of one or more core areas containing genetic materials in representative ecosystems that themselves need to be preserved. The core area (or areas) is surrounded by a delineated buffer-zone in which only activities compatible with the protection of the core area (or areas) may take place. These [activities] include, in particular, research into the structure and functioning of involved ecosystems under various management practices, as well as pertinent education and training or recreation and other uses carried out in accordance with management requirements and regulations. The buffer zone is normally itself surrounded by a transition area where active participation of local people is sought, thus testing the economic and social applicability of the results achieved.

(Michel Batisse cited in Polunin, 1988—emphasis added)

The lack of such a social dimension to the reserve’s management is likely perpetuating patterns of distrust with rural locals. First, the reserve is managed partially as an exclusive hunting ground for elites. Second, only employees of the reserve are allowed to collect mushrooms and berries, and to fish for trout. (Evanyenko, Prinjha, pers. comm.). Sharma’s model encourages the park and reserve to take a more pro-active approach to both working with local communities to define uses and needs, and also to creatively seek alternatives outside the boundaries of the protected areas when uses have cumulative impacts (Sharma, 1991).

What is needed to correct these deficiencies of top-down management? First, the agencies have to stop focusing on sending out information and refocus on collecting information. The world conservation strategy suggests three responses to the lack of security that most protected areas experience—better planning and allocation of land and water uses; complementary rural development; and equitable distribution of costs and benefits (Allen, 1985). None of this is possible, of course, without better information
about the area, particularly the park and communities surrounding the complex of protected areas.

Collecting scientific and cultural information is critical if the park is to make any sound management decisions. The case of the crayfish is a prime example. Maliboroda and I observed and even ate crayfish that were sold in the markets. She believed that they were collected in the park, along muddy banks of rivers. Crayfish that are sold in the markets are in small quantities and are sold, like much of the produce and many of the other goods, by individuals who grow or collect the items and sell them full time or on weekends. The small volume of crayfish made us believe that it was a supplemental income activity. Crayfish were probably gathered on weekends or during spare hours.

Without knowing where the crayfish are gathered, and in what quantities, the park cannot make decisions regarding allowing or restricting use. The crayfish harvest, for example, might be relatively benign, scattered in various river bottoms and less than 1% of the crayfish might be taken. On the other hand, perhaps the collectors, by stirring up the mud in side channels are disturbing critical spawning grounds for a species of anadromous fish. Another problem would be if the collectors are over-harvesting the crayfish and they are in danger of dropping beneath a critical population level. In this case perhaps commercial use should be completely prohibited and perhaps even personal use.

Similarly, if there are particular locations that are popular for collecting, these should be identified and considered when discussing recreational corridors and use buffers. In Malawi, a social assessment was done to identify preferred uses and this information was used to accommodate local use patterns ( Mkanda and Muthali, 1994). Sharma indicates that such information is critical for allowing sustainable uses or determining acceptable alternatives outside park boundaries (Sharma, 1990: 1991).

The missing pieces that are needed in the complex of protected natural areas are cultural assessment and ecological assessment.

Cultural use assessment

It is difficult to make recommendations for kinds and uses of local gathering and collecting in Sochi National Natural Park since so little is known about current uses and carrying capacities. For example, are the crayfish a virtually untapped commercial resource, or has their population already markedly declined? The crayfish may be a food item critical to many local people or they may be relatively unimportant. Stopping such activity may have serious social effects. Additional information needs to be collected on patterns of use and collection before decisions can be made affecting such use.
Rose and Haerpfer caution that such information can be difficult to gather in authoritarian systems. Public opinion in democratic societies is what gets expressed in public, while in authoritarian systems, the dialog tends to reflect the state's interests. Real feelings of the public—public opinion—are unstated (Rose and Haerpfer, 1994). The “question is not whether we should study public opinion, but how?” (Rose and Haerpfer, 1994, p. 3).

One good data collection model is that of rapid, low-cost surveys, which Kumar says are not just for rural areas (Kumar, 1987). Kumar’s experience reveals that very formal surveys can take six to nine months or more and be rather expensive. The author questions whether this detail of information is needed for most management decisions (Kumar, 1987). In the case of the complex of protected natural areas near Sochi “rapid” is important since the forests in the park are disappearing, the park is considering new directives, and virtually anything can change at any time; “low cost” is critical since no financial resources currently exist to get information.

The complex of areas is affected or potentially affected by an urban population, remote rural populations beyond Sochi’s economic influence, and communities that extend from Sochi up into the park area along river valleys. Decisions that affect park management and by association affect these communities require additional information about these areas.

Kumar identifies five types of rapid, low-cost methods of assessment: key informant interviews, focus group interviews, community interviews, direct observation, and informal surveys (Kumar, 1987). The first stage of research in Sochi already identified salient issues with key informant interview. The best option for this project, due to the diffuse nature of the Sochi population and the difficulty in identifying representative user groups would be informal surveys with a structured questionnaire. This provides quantifiable data that can be used to make decisions.

These kinds of surveys have been successfully used in Malaysia and Malawi (Jacobson, 1991; Croft, 1991). In the case of Croft’s study in Malawi, a number of details gained through the survey indicated that certain uses were not as heavy as expected, more extreme than anticipated, or were located in different areas than predicted.

Hough observes that social impact assessment should not be a single event. It should embody ongoing monitoring and feedback. Follow up survey questions can be used to determine if the park is doing what it said it was. This can also help identify...
unexpected secondary effects of an action and also can be used to build a sense of mutual trust (Hough, 1991; West and Brechin, 1991).

Sharma suggests that buffers used for local gathering and use may be determined by studying use patterns and the distances that people are willing to go to acquire resources. Such a study would be useful for determining allocation of park lands for local gathering purposes, ecological conservation, and recreation (Sharma, 1990).

Information in the Sochi area needs to be collected from several different populations: first, local people in the urban area and urban interface who use the peripheries of the park for gathering purposes; second, rural local residents in communities up river valleys; third, people the North side of the complex away from Sochi and the Black Sea.

**Ecological assessment**

Another key element of biodiversity studies at all levels will be microgeobiography, the mapping of the structure of the ecosystem in sufficiently fine detail to estimate the populations of individual species and the conditions under which they grow and reproduce.

(Diamond, 1984; Noss, 1994; Wilson, 1992).

Diamond, Wilson and Noss all indicate that careful assessments of species presence, richness, habitat needs and associations of all species (not just keystone or game species), representation of all ecosystem types and minimum viable sizes, and tolerance for homeostatic change over time are needed to make determinations about the size and use of reserves (Diamond, 1984; Noss, 1994; Wilson, 1992).

Garratt adds that planning for protected areas requires detailed information on physical factors such as flora and fauna distribution and types, migrations, significance of habitat types; geology and soils; hydrology; and scenic quality (Garratt, 1984). Soule argues that any reserve must undergo a thorough analysis to define its size and ecological needs (Soule and Simberloff, 1986). To determine the minimal size of a reserve, he recommends identifying target and keystone species; determining the minimum population needed to guarantee high probability of survival for long time; using known densities to estimate the area needed (Soule and Simberloff, 1986).

No social management decision should be made without this information. If for example, a decision was made to create a buffer for small-scale usufruct extractive use in an area that had a number of sensitive species, extirpation might the likely result. With the biotic richness of the park and the lack of knowledge about this area, it is clear that no management decisions should be made without further ecological assessments.
5.4 Funding

A dearth of funding, while common in protected areas around the world (McNeely, 1989a; Whelan, 1988), is largely a symptom of the top-down management style that characterizes these Russian institutions. Since funding always came from above in a centrally-planned economy, the institutions made little attempt to be downwardly accountable. While long term stability of parks in developing countries is assisted when benefits flow to surrounding communities (McNeely, 1989a; Sharma, 1990; Simmons and Kreuter, 1989) the Park and Reserve, with a ready supply of centralized funding had little reason to pursue funding incentives at a local level. The lack of such incentives pursuing funding options at the local level also prevented the formation of useful linkages between institutions and the city. The city economy is based on tourism and the park was created for recreation, but without being accountable to the local level, the park had little reason to work closely with the city; there was no direct benefit. When the park lost funding it continued what it knew best—logging—instead of working with the city of Sochi, one of Russia’s largest tourist destinations, to develop economic alternatives to logging in the national park and enhance tourism.

The park’s links to the forestry service are deeply rooted. Since the park was created from three active forests with retention of all forestry staff there has been an ingrained concept of logging (Kommerchesky; Pridnja, pers. comms.). When the park supposedly decided to stop cutting timber and manage for the ecological and recreational values for which it was created it could not due to a lack of funding from its parent agency, the Forest Service (“Review of the ecological situation,” 1992: Kommerchesky, pers. comm.). Kommerchesky said that getting funding from tourism could be the solution if the park could figure out how to do it. He indicated that few creative ideas had been generated to tap this source of money (Kommerchesky, pers. comm.).

Historically, the reserve was also well funded. The financial crisis is largely a result of the current socio-political changes (Pridnja; Setrov, pers. comms.). Presently, the reserve lacks funding for salaries adequate to pay rangers salaries which would discourage poaching. Goskomecologia partially enforces poaching laws as an outside entity, but none of the money collected from fines goes to the reserve and so there is no financial incentive for park staff and rangers to enforce or cooperate with the Goskomecologia (Kommerchesky; Pridnja, pers. comms.). Funding and staff training are severe problems in protected areas around the world, and as McNeely notes, “The ultimate objective is to promote the establishment and recognition of protected-area
management as a professional career of vital relevance to society” (McNeely and Miller, 1983, p. 17).

While the reserve is operated as a sanctuary and therefore is not available for tourism, it is part of the complex of protected natural areas and does have the greatest ecological expertise in the region. Like the park, it has suffered from a lack of local connection by being centrally funded and accountable. As part of the complex of protected areas, and as the source of ecological expertise, the reserve can play a central role in defining and utilizing incentives at the local level.

Stabilized funding would allow the park to end logging, increase recreational opportunities and protect the ecosystems it manages. With the current economic crisis of Russia, central funding is unlikely for the park and biosphere reserve. McNeely recommends pursuing free market alternatives to secure funding (McNeely, 1989a; McNeely, 1990).

Cultivating the economic links between the city and the park to the benefit of both is an ideal starting point. The city government should be attracted to watershed protection of fisheries (important for the salmon), control of flood risk, decreased sedimentation, and higher water quality (Aylward and Barbier, 1992). The city has already stated that environmental quality is critical to the viability of the resort area (“How to Improve,” 1989).

Similarly, as McNeely suggests, the park has discussed direct fees for entrance or use of natural resources (Kommerchesky, pers. comm.; McNeely, 1989a). Kommerchesky claims that the plan was unsuccessful because with the history of socialist land in the former Soviet Union, citizens find it strange to consider paying for access to nature. Fees on unguided access are likely to meet much resistance (Kommerchesky, pers. comm.).

Selling licenses to commercial operators is another option. The new park directives state that the park can set its own fees for such activities (Filimonov, 1993). A third option is that of foreign assistance. As long as the economy is of a different scale than the rest of the world, direct assistance might be gained from international environmental organizations (McNeely, 1989a).

The most implementable option, however, would be one that could also ensure a long-term economic yield from a healthy, intact park. The solution may well be tourism. This is the reason the park was created and the city of Sochi is already tourism-dependent. There are concerns with tourism that need to be addressed.
Some conservationists get very uncomfortable when the discussion shifts to economic incentives for conservation and the idea of local people profiting from certain resources—usually wildlife or key flora—since there exists a very real danger that management will begin to favor select species, or certain robust members of the species. For example, might some predators be disfavored to give a herd less competition so hunting can escalate? Would one species of deer be de-emphasized in favor of a larger, more popular ungulate?

Management for select species, or simply too-high tourism densities can have severe impacts. While Atmosoedarjo says, without providing evidence, that a park with a half million visitors had “no serious threat to the forest” (Atmosoedarjo, et al., 1984, p. 241) it is more common that disruption of ecological schemes results. There are ecological and aesthetic carrying capacities—disruption of mating habits is one problem, too many tourists for a wild experience is another, litter accumulation is a third (Whelan, 1991). Social carrying capacity of recreation can quickly be exceeded when tourism is intensive (Whelan, 1991).

Early measures such as thorough ecological assessments and careful planning for locating impacts can help avoid these problems and there is no reason that a careful planning process cannot happen in the Sochi area if ecotourism in the park is to be cultivated.


One of the most egregious shortcomings of most ecotourism projects is that the local people are not given any role in the planning process or implementation and are forced of lands that were traditionally theirs to use. Not surprisingly, they become resentful of the “rich tourists” who supplant them, but more important, economic needs make it difficult for them not to overexploit the resources of the protected area.

(Whelan, 1991, p. 9)

It is unlikely that an area with an existing tourism infrastructure and protected areas will suffer this problem since no displacement will occur. If an area already is tourism dependent, this may not be a problem. Further considerations that can minimize such impacts are considered in the next section.

Distributive justice is a more likely problem resulting from ecotourism in these circumstances. Uneven distribution of wealth may force a number of people to exploit protected area resources in lieu of economic purchasing power (Whelan, 1991; Woo, 1991a; Woo, 1991b; Bailey, 1991; Brechin, et al., 1991). While 50% of tourist...
expenditures usually stay in the country, a much lower percentage stays in the local community or goes to the protected area for its maintenance (Whelan, 1991).

Woo recommends a number of solutions to the common problems of ecotourism. Tourism should 1) value the character of important natural and cultural landscapes rather than cater to business and the urban visitor; 2) benefit both conservation and recreation, the two main purposes of a national park; 3) involve locals rather than just considering them; 4) be scaled to reflect the community; 5) distribute revenues to the local communities as broadly as possible; 6) make a public relationship between tourism, the park protection, recreation, and the local community (Woo, 1991b).

If tourism can yield financial benefits to communities and protected areas it can be an excellent way of halting destructive logging of endangered species in Sochi National Natural Park. Amos Ben, a tour operator in Costa Rica said, “Nobody is going to cut down a rain-forest—which is a helluva lot of work—if they can make more money by not cutting it down” (Whelan, 1988, p. 182).

5.5 Critiquing institutional change—the fulcrum and the lever

All of the changes described above also require institutional changes. Administrative structures must change to fit new missions and new departments must be created where none were before. What will cause this process to occur?

The institutions that oversee management of protected natural areas near Sochi are not doing their jobs and due to their internal organization and connections with parent agencies are unable to do their jobs of effective nature conservation. Oleg and Lena Ruibak, Solntsev, Pridnja, Setrov, Trunyev all laughed when their peer institutions were mentioned (Ananchenko, Pridnja, L. Ruibak, O. Ruibak, Setrov, Solntsev, pers. comms.). There is little respect in the community among the institutions because few of them perceive the others as doing good work. A natural question is whether change can come from within the institutions themselves, or whether the impetus must come from outside. Phrased a different way, how is one to be sure if an ineffective institution is "replaced" that it is going to be replaced by an effective institution?

Pridnja, who had just returned from a visit to Hubbard Brook Experimental Forest noted that in the U.S. Forest Service managers could define projects and not only talk about them but get them done. He commented that the reserve’s organizational structure, ineffective management, and lack of reliable data and workers combine to make it impossible to carry out projects effectively (Pridnja, pers. comm.). Since the government has had a monopoly on almost everything, competition and the benefits of it have not

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existed: there has been little challenge, little impetus to do a better job since there are few higher standards (L. Ruibak; O. Ruibak, pers. comms.).

Misztal claims that change in the former Soviet Union and Eastern Europe requires a revision of old theories of large-scale institutional change (Misztal, 1993, p. 451). There are several approaches to effecting systemic change in Russia. The first method is to change rules, particularly laws. Rules often aren’t particularly effective in Russia since there is a long history of legislation without intent to enforce. The second method is to change institutions. Redesign of these structures to more effectively carry out rules could be more effective—particularly in the long run. One of the problems with any plan affecting governmental change is the inability to simply create change. Authorization must be given from above, often from the national legislative level.

Non-governmental organizations (NGO) have proven effective elsewhere in creating positive change in nature conservation (Bunting, Sherpa and Wright, 1991; Durbin, 1992; McNeely, 1989a). As Bunting says, “Unencumbered by large bureaucracies, private institutions have the advantage of being able to innovate with new approaches for management and local participation” (Bunting, Sherpa and Wright, 1991, p. 164).

A NGO in the Sochi area could play a positive role not by traditional methods of purchasing land or acquiring easements but by collecting information, advocating reform and linking stakeholders. Since the Sochi public is still largely disempowered and removed from access to information and decisions, a NGO could facilitate that process. Additionally a NGO can be crucial in acting as a full-time watchdog on the process of reform.

A NGO is similar to a lever, however, and unless it has a fulcrum to pry against, it will be ineffective. Unless effective institutions are in place, the non-governmental organizations will have nothing to lever against. Institutions are levers, ecological problems the object, and NGO’s and an informed public the movers of the lever.

A combination of institutional change and active NGO’s to define and push the agencies and increase the public’s awareness and involvement will be an important component of reform in the complex of protected natural areas near Sochi. These ideas represent radical change from Communist days. Central planning and unrestricted control over the state may give way to local interests and control, local development plans, citizen participation and a diverse, cultivated media.
5.6 Degrees of local control

Given my time again, I would make many significant changes | in the forest project. In particular, I would introduce at the earliest stages of the project a continuing consultant in 'rural sociology' to address the topic of people's participation. (Griffin, 1990, p. 154)

Discussions of empowerment and local involvement range from co-management in which a land agency is partly run by and empowered group of representative locals, to advisory councils which lack authority but are able to make recommendations to institutions on issues that affect the people they represent. Hough points out, there are many different concepts of what participation means (Hough, 1991; 1988).

West and Brechin observe that degrees of participation may be affected by socio-political histories: "...we should keep in mind that while public participation may be relatively easy to implement in democratic societies, it may be more threatening to administrative bureaucracies in more authoritarian developing societies" (West and Brechin, 1991, p. 233). Due to the history of non-participation in Russia it is also quite likely that people would be cynical about participating in a co-management or advisory capacity. Political theorist Collins Ross puts it this way, "How can an apolitical people be organically politicized in such a way that they recognize their institutions as legitimate and their state as an expression of themselves?" (Ross, 1993).

Sharma presents another alternative which is a careful, responsive and abiding attention to needs of locals, with holistic management beyond park boundaries and attempts to find real solutions to real problems without reducing the effectiveness of the park to protect nature (Sharma, 1990). Sharma emphasizes responsiveness on the part of the protected area management rather than accommodation (Sharma, 1990; 1991)

The following section will outline a strategy for creating a funding mechanism for the complex of protected areas while reducing the top-down management style and encouraging the creation of alternative uses beyond park borders.
6.0 Recommendation—taming the tempest with tourism and a tax

The top-down management and lack of funding that characterize protected areas near Sochi require that the protected areas secure financial resources and identify and accommodate some sustainable local uses if the institutions are to be successful in conserving the resources of the region. A possible solution is a funding strategy that brings the different institutions into a working process by defining incentives for the city to help the park, the park to work with and accommodate the city, and the biosphere reserve to work more closely with the park on assessing ecological information.

As Sharma (1990; 1991) suggests, going beyond park boundaries to apply creative solutions that result in reduced park resource impact may be the best approach for this region. With the established structure of Sochi's tourism base, an ecotourism-development and taxation plan may be a good way of providing funding, forming links with the different stakeholders, and eliminating ecologically-damaging activities in the park.

Since the existing institutions perpetuate the top-down management style of the Soviet era and with it a failure to incorporate local concerns and interests, this also provides an opportunity to integrate local concerns and interests for the first time.

6.1 Ecotourism and a bed tax

Sochi's tourist economy presents a tremendous untapped economic resource to the complex of protected natural areas in the Sochi area. Kommerchesky indicated that tourism might be a solution to end destructive logging in Sochi National Natural Park if a method could be found to collect money from visitors (Kommerchesky, pers. comm.). If tourists "extract" appreciation of environmental quality from the Sochi area, they should bear the marginal burden of paying for that extraction (McNeely, 1989a). With this in mind, Sochi could impose a "quality of environment" tax on the use of facilities in the municipality which would be spent maintaining the quality of the environment in the complex of protected natural areas. Such a tax spent on developing tourism opportunities and eliminating environmentally damaging activities would create an environment that would likely attract more people over time and entrench a sustainable livelihood.

Although the park is intended to be operated primarily for tourism, little has been done to facilitate tourist access and opportunities. During Soviet times, many tourists would cross the border into Georgia for access into the developed mountain areas there.
around Lake Ritsa (Pachulia, 1985). The area is a tourist-oriented zapovednik and some proposed that it be made a park for recreation (Pryde, 1991). Now that the republics are separate, there may be an increased tourist demand on Sochi from inside Russia even as the international tourism market is expanding (“Opening the secrets,” 1993). Sochi National Natural Park offers an ideal place for the tourists to reach the upper Caucasus from the resort of Sochi. Because the park was created for recreation tourism would be a good replacement for logging as a source of funding.

Since the city of Sochi already has a substantial tourist economy to tap into, this can be a good way of linking interests among stakeholders and proving an enduring source of funding for the complex of protected natural areas in this “unrivaled spot” in the Soviet subtropics (Pachulia, 1985, p. 64). The city, as a resort, has acknowledged the importance of environmental quality and aesthetics to its economic health (“How to Improve,” 1989). Currently its tourism economy is tied directly to the beaches (Pachulia, 1985). Tourism could be diversified by enhancing opportunities for visitors to get into the mountains.

The typical criticisms of ecotourism may not be a problem in the Sochi area as they have been elsewhere. Protected areas have already been established and the Sochi economy is already heavily dependent upon tourism. While the infrastructure of tourism is in place, the economic benefits are not being tapped, and the management that is being done in the park is degrading the values that would bolster tourism.

A bed tax has already been proposed as a partial means of funding conservation in the Baikal area (Davis, 1993). The new park directives for Sochi National Natural Park demonstrate this is feasible in this area as well. The new directives state that financing may come from the park’s own sources and all moneys taken in by the park may be kept by the park to use as it sees fit (Filimonov, 1993, sections IV and VIII). Furthermore, development relating to park activities such as developing camping places and trails can be done with any money the park acquires or can be done under the auspices of another institution with the park’s permission (Filimonov, 1993, sect VIII).

The State of Montana has a bed tax that charges 4% of the base price for hotel stays in the state. While 75% of the yearly take of about $8 million dollars goes to advertising, a sizable portion of the money remains for other purposes such as research (N. Menning, pers. comm.).

1Tourism to Sochi from other former Soviet republics may decline in the near term due to economic difficulties.
The following calculations for Sochi are made using the most conservative figures possible. This is not a thorough economic analysis; it is merely a demonstration of feasibility:

§ Table 6.1 — Rough calculations for a bed tax

- In the summer of 1993, $1 equaled approximately 1100 rubles.
- Sochi receives 2 to 4 million visitors a year (Maiboroda, pers. comm.; Pachulia, 1985). Assume a low of 1 million.
- The average stay can be estimated to be 5 to 7 nights for each person (Davis, 1993). Assume a low stay of only 5 nights in a hotel.
- The hotel bed rate in summer of 1993 was a minimum of 3750 rubles per night (in one of the cheapest hotels, where I stayed) and at least as high as 8800 rubles (Solntsev, pers. comm.). Assume a low of 3750 rubles.
- Assume a low tax of only 1/2 of 1% tax placed only on hotel rooms (instead of a higher tax like Montana's 4% (N. Menning, pers. comm.)).
- The park employees 125 people (Kommerchesky, pers. comm.)
- The director of the park made $41 dollars a month and his chief assistant made approximately $36 a month. The average worker in the park made about $7 (Kommerchesky, pers. comm.).
- Assume an average salary of one third the chief's salary, about $14 a month, for a total salary budget of $21,000 per year.
- Assume total budget is three times the salary budget —$63,000

Using these figures, Sochi has 5 million visitor nights at a minimum of 3750 rubles per visitor night — 18,750,000,000 rubles at 1993 summer rates. Apply a 1/2 of 1% tax and the yield is 93,750,000 in 1993 rubles — over $85,000. The State of Montana's bed tax for recreation and tourism has a 3% administrative cost (N. Menning, pers. comm.) but we should assume that with a less efficient bureaucracy, the revenue would decrease 20% for administrative collection and processing. The remaining total is still $68,000.

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2 Based on a flat $240 fee for 30 nights stay
3 One important factor to keep in mind is that of the Sochi mafia. They do siphon off part of the local economy (Ruibak, 1993; Rubak, 1993b; Seward, 1994)
With an annual estimated park budget of $63,000 dollars, the park and city still have $5,000 surplus. If average estimated figures are used and a 1% tax is assumed the total raised will be even higher—$491,000 dollars. This far exceeds the estimated park budget and provides funding for additional programs such as interagency coordination, information management and development of infrastructure.

This conservative tax could be expanded to a tax on luxury food items, more expensive hotels, recreational equipment, recreation and spa facilities, and tours within the resort area. Additional savings would accrue to the city from increased water quality with decreased sedimentation and lower processing costs.

One advantage of using an in-system tax is that as inflation rises or falls in Russia, the value of funding generated by internal taxes won’t vary compared to the value of international assistance, which might devalue strongly as the ruble climbs.

Generating revenue with a creative new system raises a few important questions. How will the tax be implemented in the Sochi area and how will it be administered in a way that avoids problems of corruption and uneven distribution of resources? As suggested in a critique of institutional change in the evaluation section, a non-governmental agency may be best suited to monitoring this process and helping answer these questions. A discussion of these issues and questions follows.

6.2 Ecos, the Environmental Center of Sochi, a mechanism of implementation

...the right to a healthy environment is one of the basic human rights.
However, we should also ensure the right of the individual and groups of people to participate in drafting ecological policies.

(Gorbachev, 1990, p. 41)

Creation of an environmental center was only tangential to the work I began in the Summer of 1993. During the initial research my primary goal was to address the viability of the complex of protected natural areas. At the same time Maiboroda was investigating the idea of founding an environmental center that would serve the needs of the people and other biota of the Northern Caucasus and Black Sea. During our investigations, it quickly became apparent that existing institutions in the area had little experience with outreach. They were accountable to higher agencies and governments but did not facilitate citizen access to information or decision making. An environmental center appealed to us to act as an advocacy organization outside the institutions. Such a non-governmental institution

Based on 2 million visitors at 6 nights each, an average hotel room cost of 4500 rubles
could press for change: facilitate cooperation among institutions on plans such as the one recommended in this section; and eventually educate school groups, tourists and other interested parties on ecological processes and values in the Northern Caucasus and Black Sea region. Currently, there are no formally-recognized non-governmental organizations in the Sochi area working on the environment, and to the best of our knowledge, the center would be the first of its kind in the greater Sochi area.

The international conservation community offers successful accounts of non-governmental organizations (NGOs) positively affecting land management (Bunting, Sherpa and Wright, 1991; Durbin, 1992). Hough comments that during a situation of conflict with a protected area authority, it may be essential that the mediating party is not associated with the protected area (Hough, 1991). With the history of top-down authority, this may be particularly true in Russia. Leaders of “Project Twinkling Star,” a watershed-wide program for interactive water quality improvement, assessment and education, note that they are entering a new realm in Russian culture: “a model system of resource management based on citizen participation, the free flow of information, and modern technology” (Niebaber, et al., 1992).

Legal aids also exist to facilitate the public process. Russia has a number of laws which assist non-governmental organizations in their efforts to deal with the environment. The Law on the Animal World states all public organizations are given the right to “assist” in the process of identifying and protecting species (Brezhnev, 1980, sect. 1, article 9). In February 1991, Yeltsin signed a new Russian environmental law empowering local officials or individuals to sue an offending enterprise and demand its immediate closure (Newton, 1993). This law “On the Protection of the Environment” obliges all state agencies to assist independent environmental groups (Wallace, 1993, article 91). In addition, the park directives state that it should cooperate with public groups.

Institutional support for this environmental center already exists. Ecos, the Environmental Center of Sochi, was established late in the summer of 1991 with the support of the Caucasus Biosphere Reserve, Sochi International Children’s Academy, Institute for Research in Mountain Forestry and Forest Ecology and the Russian Academy of Sciences—Sochi Branch (see appendix 9.2). Upon hearing of long-term plans to open an environmental center in the region, the director of the Biosphere Reserve offered us the use of a three-story building near at the boxwood grove (Timokhin, pers. comm.). The Institute and Academy also offered space to the center (Solntsev; Trunyev, pers. comms.).
Ecos enters a social and political arena fraught with social chaos, economic and infrastructure decline and political uncertainty. Its role can be to facilitate discussion, begin activating and educating the public, create dialogues on important environmental issues and push for immediate solutions to pressing problems. With its international connections and prospective funding from international grant-giving foundations the center will be able to operate more securely than is typical in Russia. Further, by searching for long-term solutions to long-term problems, the center can be effective in addressing issues that institutional and local interests might avoid.

Planning in the Sochi area will have to be done as an interactive process. Hatley and Thompson recommend a “tinkering” approach rather than a formal proposal. A rigorous plan, they argue, requires nearly complete knowledge about the culture and biology of an area (Hatley and Thompson, 1985). At this time no one has more than very partial knowledge about the social interests and ecology of the Sochi area.

Planning has been recognized as a linkage between knowledge and organized actions (Emphandhu, 1992). Caldecott says that in designing protected area projects to reduce conflict an organizer of the effort must 1) identify interest groups, 2) provide economic incentive structures that target every group, 3) convince donors and governments that conservation is necessary, not a luxury, 4) package the project well enough to attract other donors and government agencies (Caldecott, 1992). This paper is the start of that process.

Identification of stakeholders is the first key. Who are the stakeholders who will be involved, what will they be involved with and how many participation groups will there be? The most clearly definable stakeholders are the institutions themselves which have agency missions—the Park, the Biosphere Reserve, the Zakaznik and the city of Sochi. The number of groups is a key issue because the complex of protected natural areas is so large and the communities on opposite sides—tourism-based Sochi and small rural villages in the north—likely have different values. Some representatives from each of these areas should be involved in a planning process. Also, representatives of resource user groups must be involved as must people representing ecological concerns. These stakeholders should be identified and contacted for participation in the near future.

Defining local user groups will be challenging since use is so informal. To the best of our knowledge there are no gathering clubs. It is also uncertain whether people frequent a number of locations for their gathering or whether they gather in one particular area the majority of the time. Determining who to select from among a vast number of uncoordinated users is difficult (Krumpe and McCoy, 1992). In the case of Sochi with
diffuse, hard-to-identify and organize interests, defining groups and selecting representatives is difficult. Emphandhu notes that for the process to work, representatives must have the right to make decisions for their constituencies (Emphandhu, 1992).

Local advisory councils with representatives from the city, park, reserve and a few citizens may be the best solution for the areas that will be used as buffers (see discussion of buffers below). This arrangement is similar to the proposal at Baikal where the Baikal commission has people on guidance committees from a variety of government levels from the federal level down (Davis, 1993). In Sochi, Ecos can put a heavier emphasis on local and city participation. As in Baikal, plans would have to be approved by Goskomecologia.

While appealing from a social perspective, co-management appears to be difficult to implement and sustain. This may be particularly true in a former authoritarian culture with a diffuse and apolitical populace. Perhaps, as well, this very democratic idea of local participation simply isn't tenable. We have yet to see an excellent case study of the long-term ecological and social effects of co-management. Griffin notes that local co-management councils in Nepalese forests would require 30,000 sophisticated committees throughout the country (Griffin, 1990).

Emphandhu (1992) suggests that the process of goal setting, information gathering and decision making can best be done by a process coordinator (Emphandhu, 1992). He outlines the following process that this coordinator oversees:

![Conflict management and planning process](adapted from figure 2.4 in Emphandhu, 1992)

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Ecos will be an ideal coordinator of this process since it can coordinate resources, will be unhindered by bureaucratic constraints and will have long-term planning in mind. The first step in this process will be for Ecos to define the stakeholders, attain their agreement to be involved in the process and coordinate communications.

Such processes with third-party coordinators such as the center should not be seen as a panacea, however. Griffin notes that such processes are most successful when they cover a small geographic scale (Griffin, 1990). Glick corroborates, citing the difficulty of a regional plan since the different agencies have different concepts of what protection would take (Glick, 1991). Garratt cautions that the benefits of conservation planning will not be realized unless the effort involves integrated planning across boundaries (Garratt, 1984).

Brechin, et al, refer to Susskind and Ozawa when they comment that conflict management can be exceptionally difficult with limited human resources and complex environmental issues that stretch over long time periods and involve many subtle factors.

Environmental disputes are characterized by substantial complexity, often heavy reliance on technical data and analysis, diffuse and unrepresentable interests (such as interests of future generations), and substantial “externalities.” Power relationships among interested parties may vary considerably, especially in terms of access to resources of information, ability to manipulate the media and public opinion, and availability of resources to garner support.

(Brechin, et al., 1991)

Brechin, et al. note that this often requires the people with power to take the first steps in working toward consensus agreements (Brechin, et al., 1991). Under any definition of participation, getting community involvement may be difficult in a place like Sochi where the population is large and urban, and widespread cultural and economic change preoccupy most people. Thus, it will be imperative that Ecos secure the willing participation of the institutions if other groups and individuals are to believe in the process and be involved.

Numerous researchers have cited the need for empowerment in protected area designation and management (Davis, 1993; Durbin, 1992; East, 1991; Garratt, 1984; Griffin, 1990; Hough, 1988; McNeely and Miller, 1984; Sharma, 1991; West and Brechin, 1991). As Hough (1988) points out, there are many different concepts of what “participation” means.

Using any definition of participation, it is likely that implementing management programs that attempt to empower locals in the Sochi area will meet resistance from both sides. First, institution managers may resist involving locals since they are traditionally
top-down and have been unaccountable to local publics. Scientists and managers have indicated that there is institutional acceptance of the idea of imposing authority—it’s more challenging to involve the public (Koval: Pridnjaja: L. Ruibak: O. Ruibak: Setrov: pers. comms.).

Second, local people may not trust governmental institutions or the process since such commissions and similar forms of “involvement” have had little real power in the past. They have largely been a mouth of the communist party (Rose and Haerpfer. 1994: pers. comms with Maiboroda: L. Ruibak: O. Ruibak). Getting the two sides to come together on such a project as co-management of lands seems unlikely. This is one reason Ecos can be effective as an independent third party. Sentiments of distrust have not been fostered toward the center, and in fact, our research in 1993 showed that our western connections actually open up many people’s interest and attitudes.

An additional difficulty is the possibility that the Park and Biosphere Reserve could agree to such a citizen-based commission and then ignore it when it comes to actual management (Emphandhu. 1992). West and Brechin comment that advisory panels are often nothing more than a government institution nodding at the public and letting it blow off steam, and then moving on with the institution’s own management (West and Brechin, 1991). Ecos must be a careful and attentive watchdog on the process.

The question that remains is what exactly would be the role of local user and economic groups? What authority would they have? Balancing votes from economic and user groups with biological concerns such as those from the biosphere reserve and environmental interests such as those of Ecos. Who would have final authority? A related question is, would the centralized government yield some control to local interests? Since local interests might well fund the park, it can be argued that they should have a vote. These questions will have to be answered through participation of the various stakeholders since they themselves must create and agree to the rules.

The clear benefit of such a process rather than simply forcing an agenda, is the creation of linkages between stakeholders. McNeely emphasizes that a conservation strategy is a process, not just a document. The bonds formed in that process last far longer when it is done well to include major stakeholders and include their various issues and concerns (McNeely, 1990). Similarly, Emphandhu states that participation gives a sense of shared ownership in a process and its outcome, and warns that excluded parties, if genuine stakeholders, might prevent an agreement from being successful by arguing they were not involved (Emphandhu, 1992). Amirkhanov, director of the academy, and Timokhin, director of the Biosphere Reserve, were enthused about engaging cooperation...
with the center since it would help form links with peer institutions (Amirkhanov: Timokhin, pers. comms.).

Currently, government agencies are more accountable vertically toward Moscow than horizontally to "peer" organizations and agencies and citizens in the Sochi area. The process outlined will help create some of those local links that foster partnership and common work on common goals. This is a particularly ripe time to effect change in the park because it is just now getting its operating guidelines and the preliminary version would tighten park management (Filimonov, 1993).

In addition, the complex of protected natural areas works well as an integrated unit. Polunin observes that a biosphere reserve must have buffers and cultural programs (Polunin, 1988). The Caucasus Biosphere Reserve does not. The park can act effectively as a large buffer for much of the reserve, thereby fulfilling part of the reserve’s international mission (Gavva, Krinitsky and Yazan, 1983a). In exchange, the reserve can lend ecological expertise to the park.

This marriage works well in the Russian system as well. National parks are for people and conservation. Reserves are for science and conservation. One is strictly not for people, the other is distinctly for people. The park can help the reserve with cultural expertise when it develops it and the reserve can assist the park in its on-going ecological studies.

6.3 Gathering additional information

While preliminary recommendations may be suggested, much additional information will need to be gathered in this process to make sound decisions. Ecological information will take considerable effort and expertise to acquire. Wilson (1992) touts the Rapid Assessment Program created by Conservation International, which quickly investigates poorly known ecosystemic hot spots. This, of course would require additional funding which Ecos should seek at both a local and international level.

Ecological expertise exists in the Sochi area and is strongest at the Biosphere Reserve. The reserve has the largest research staff in Russia and has experience dealing with bordering agencies and even has a senior scientist who has written an article in favor of consolidating and systematizing management of the reserves throughout the Caucasus (Pridnja, 1981). Until the park develops its own scientific staff, individuals at the reserve could perform initial surveys and assessments of the park's land. If part of a fund from the bed tax were to go to the reserve, there would be incentive for this participation. In addition, the reserve has already expressed interest in taking over part of the park.
(Pridnja: Setrov, pers. comms.). It is likely that the staff has a strong personal interest in the biology of the area and would look at the exercise as an interesting opportunity.

An example of such cooperation comes from Galapagos National Park which is managed as an IUCN Category II area. Like Sochi, this area has a strong tourism industry and active scientific establishment each with large stakes in the area (Bailey, 1991, p. 188). The Darwin Station, a scientific outpost not officially affiliated with Galapagos National Park, operates much as the Caucasus Biosphere Reserve ecological staff could in relation to Sochi National Natural Park:

The Darwin Station has been asked to help delineate reserves, to identify species with special conservation needs, and to recommend means of control or extermination of exotic feral species that endanger local ecosystems and endemic species. Darwin Station scientists were actively involved in demarcation of park boundaries and the establishment of the Park Service’s regulatory system. (Bailey, 1991, p. 189)

While the Biosphere Reserve can offer its ecological expertise, there is little experience in the region with social issues relating to natural resources. Informal surveys are the most appropriate method of data collection for this effort since initial scoping and definition of issues has been done. These should follow a few more key informant interviews which would be useful as learn more about outlying communities and to identify local areas of high gathering and recreational use (Kumar, 1987).

People could be surveyed directly on beaches since the majority of people who visit the area come for the Black Sea beaches (Pachulia, 1985). These people should be asked if

- they know about the park
- whether they are interested in the natural areas
- whether they plan to spend any time in the park
- or would like to spend time in the park if they had better access
- what kind of activities they would like to do there

In addition, visitors should be asked about their length of stay, expected expenditures and general profile questions such as age, family size, occupation, ethnicity, location of domicile, and salary.

The Sochi population can be surveyed in two ways. The first would be to randomly sample the population by calling phone numbers randomly selected from the
phone book. This is the method used by the academy for its poll (Sergeyev, pers. comm.). The survey that is conducted over the phone can also be conducted at popular recreation and gathering sites in the park and trailheads (Jacobson, 1991). Questions that should be asked include:

- whether they know about the park and what they think of it
- whether they are interested in the natural areas
- how much time they spend in the park
- or would like to spend time in the park if they had better access
- what kind of activities they do and would like to do there
- what products they gather from the park and where and when they gather and in what volumes
- whether they have regular collection spots or whether their use patterns vary
- whether use is personal or commercial, and if both, if commercial gathering is supplemental income or primary
- whether they recreate (hike, camp) and gather as combined or separate activities

As Mkanda and Muthali suggest, they also should be asked about age, family size, occupation, ethnicity, location of home, land holdings, salaries (Mkanda and Muthali, 1994, p. 31). It would be instructive to learn where people get their information on the park from—park staff, neighbors, civic leaders, or family (Mkanda and Muthali, 1994).

Rural communities could be asked the same questions. Additionally the survey should inquire about their feelings toward the Sochi area and ecotourism use there. It might be good to go door to door with such populations to establish a connection (Jacobson, 1991).

Locals in both rural communities and Sochi might have interesting answers to questions about whether they have or are interested in a job related to tourism in the protected natural areas. Also, what do they think of increased recreational use to these areas?

Some information may be borrowed from studies done on tourism to the resort performed by the Academy. Sergeyev, the sociologist at the Russian Academy of Science, is conducting a new survey which broadly surveys visitors to the area ("Problemi Odiha," 1992). This study asks how people recreate during vacation time.
Possible answers include hiking and camping and taking nature or forest walks in the mountains. The survey also asks what goods and services would be associated with the visitor’s recreation and collects information on profile such as gender and education (“Problemi Odiha,” 1992). Results are expected sometime in the next year and will be published in the journal *Sociology* (Sergeyev, pers. comm.).

Initial social surveys can be coordinated between Fcos and Sergeyev. Ideally, monitoring, communication, response and outreach would all be on-going activities with each of the protected area institutions dedicating staff to dealing with such issues.

In the short term, Fcos should secure a commitment from the park and reserve to dedicate one or more of their staff to dealing with the issues raised in this proposal on at least a half-time basis. Information collected in the social survey might be used to encourage the reserve to seriously consider real buffers.

**Information access and management**

...if ecology is ultimately a matter of demography, then demography eventually must turn into natural history, with parameters expressed as a function of particular time and place. The equations of demography are specified by context.

(Wilson, 1992, p. 220, emphasis added)

...effective environmental planning requires adequate information and means of structuring and using this information in ways that can be understood by all interested parties.

(Garratt, 1984, p. 65)

Maintaining usable, reliable and accessible information will be a key element of an on-going planning process. The city of Sochi, in its 1989 directives, said that a database of ecological information is critical to the city (“How to Improve,” 1989). Ideally, spatial results of social use surveys and ecological assessments should be combined as layers in a Geographical Information System (GIS) for spatial analysis. The Institute, with its expertise in computer graphics and predictive forest modeling could coordinate this effort in conjunction with Fcos (Koval, pers. comm.). Such a system is particularly important for ecological assessment since, as Wilson notes, the size, use and condition of the complex of protected natural areas in the Sochi area will frame the survival of the endemic species present (Wilson, 1992).

Fcos could collect additional spatially distributed information from the City, Academy and Biosphere Reserve for this information center. Requests for GIS hardware and software should be part of grants Fcos writes.
6.4 Zonation and additional developments

Zoning sections of protected areas is a way of concentrating certain kinds of impacts while avoiding or dispersing others. Modifying the park’s zonation system could be useful for this ecotourism taxation and development plan. Since this park, like Sharma’s Royal Chitwan National Park in Nepal, is the sole source of many resources for local people, addressing a variety of different uses is critical. The complex of protected areas near Sochi is bounded by the Georgian border, the Biosphere Reserve and the Main Caucasus Ridge, the Black Sea and only a narrow corridor which extends to the northwest. Most citizens do not have access to this outlet. Thus, much use may continue to occur in the park in areas directly adjacent to Sochi. Advocates of the “bottom up” model of park conservation might seek to accommodate local uses by a creation of a number of use zones. Sharma criticizes this saying that it is often a short-term solution to a long-term problem since it doesn’t address cumulative impacts of a growing population and increased resource demands (Sharma, 1991). Sharma advocates sustaining some uses that are non-damaging and seeking creative alternatives outside park boundaries for those that are not.

The park’s current zonation scheme is determined more by accessibility than by ecological characteristics and uses (Kommerchesky, pers. comm.). Low areas, for example, are almost all in the recreational zones (“Sochi National Natural Park,” 1983). Some of these should be protected in more restrictive zones to protect representative species, while some country higher up might be opened up to give recreationists a chance to get into the high country.

Woo raises the point that locating intensive use zones, which could be used for gathering purposes, near villages may cause problems with visitation that alter local communities’ use patterns (Woo, 1991a). In Lake Malawi National Park, the tourists and their recreational zones have been placed away from local villages to reduce potential conflict and degradation of local cultures (Croft, 1991). What needs to be resolved by the social assessment survey is whether Russians, particularly those from Sochi, are interested in recreating separately from their gathering or if they want to do the two together. Likely, visitors to the area would desire recreation, while locals would combine activities. If that is the case, they can be separated, but some consideration to improving recreational opportunities in the gathering and local use areas would have to be considered.
Gathering and local use

The Baikal plan and IUCN recommend that hunting and fishing and other extractive uses not be allowed in parks although some sustainable uses are allowed (Davis, 1993). Currently such uses either are allowed or exist in the complex of protected natural areas, particularly in the park. While additional information needs to be collected on the extensiveness of the gathering, rural communities dependence on collection and the ecological impacts this causes, it seems unlikely that expanding or developing commercial markets for products from the protected natural areas is necessary.5

An alternative to simply declaring certain areas as gathering locations is to identify gathering populations and restrict use to those populations. The park already is allowed the require permits for gathering activities (Filimonov, 1993). These could be used to create a series of local zones away from recreational corridors and sensitive ecological locations that allow distinct populations to engage in personal gathering. Management of these areas could include local users on management advisory boards. This is another case in which much more information needs to be collected and various interests need to be involved in a discussion in order to determine allowable uses and locations.

In any consideration of extractive use, with the area’s remarkable endemism and high tourist potential, it may be best if collection locations are kept small and personal and large commercial extractive product markets are not developed.

Recreation

The city and commercial tourism zones could be administered separately from the gathering buffers. For recreational zones, a single, separate commission could prepare management recommendations for these recreational corridors which would be integrated into a master plan for the park.

A major mountain recreation corridor with good access—leaving the vast majority of the park in wilderness condition—could greatly diversify the Sochi economy and would virtually ensure a long-term link between the city and the park. The only road that approaches the alpine country goes to Krasnaya Polyana, and access to the Caucasus Biosphere Reserve there is restricted.

5Kutay comments that commercial and subsistence use are often hard to distinguish when forest goods are used in a system of barter. To what degree bartering is used in more remote areas of the complex is unknown (Kutay, 1984, cited in West and Brechin, 1991).
Related park developments

Many questions remain to be worked out in the proposed process. Some of these include: What development would be wrought with the taxes? What kind of facilities would be created? Where would they be located?

An inter-institutional planning commission, headed by Ecos, would be able to interactively plan tourist developments and would seek answers to these questions with the benefit of local experience and expertise. This kind of decision-making body requires good inventories of access points for recreation, local forest product gathering locations and key ecological resources such as fragile soils, fragile plant communities, rare species habitat.

Related park developments under a bed-tax and ecotourism development package could involve additional development of infrastructure, such as enhancing public transportation to popular recreation corridors and developing educational walkways.

A question will always remain about the justice of distribution of wealth coming from a tourism program (Whelan, 1991; West & Brechin, 1991). With Sochi's tourism already quite developed and centered on Black Sea beaches, it seems unlikely that negative effects will flow from this plan. This plan should protect some interests of the rural people by protecting their gathering interests by minimizing the park's destructive logging and related habitat disturbance. If the park agrees to concession local tour operators and companies, this plan should be a net economic and resource benefit. Much more information on the people, their livelihoods and dependencies on land resources need to be studied to determine possible effects.

One option is for the park and the city to jointly charge for permits for commercial tour operators. Since local involvement will be a key issue, the park can direct tourism and the way it affects locals by limiting who receives commercial permits. At Galapagos National Park, dealing with a few large concessionaires—tour boat operators—makes the job of the park officials easier: there are a minimal number of agreements to administer. Dealing with scores of small informal tour operators and requiring guides for each of them is considered a hassle (Bailey, 1991). In the case of Sochi this problem of scale could be avoided by having a clearing house of certified local operators. The park could prevent exploitation by outside tour companies by requiring that they take a certified local park guide.

Additional park funding and control over uses can come from developing user facilities. While charging fees for access has been difficult for the park (Kommerchesky,
pers. comm.), the park can set its own fees for services it could develop picnic areas and campgrounds that offer good service for the fees (Filimonov, 1993).

The park and other institutions have done little or no research on the effects of tourism on the ecology of the park area. Since there has been little comprehensive ecological inventory of the park it would be difficult to assess how tourism would affect alpine meadows and rare boxwood groves. Glick reports that in 1978 the American Congress required the National Park Service to determine a visitor carrying capacity for each unit of the park system (Glick, 1991). This would be an important measure if increased tourism to the park was a result of such a plan.

6.5 Additional sources of funding and recommendations

Ecos is actively writing grants for several projects and hopes to coordinate with the Institute to get a GIS for the region. Another source is suggested by Allen, who points to the World Heritage Fund as a source of money for conservation and development (Allen, 1985). Bunting and McNeely suggest trust funds that could be administered by a non-governmental agency such as Ecos, for management programs (Bunting, Sherpa and Wright, 1991; McNeely, 1989a). Such a Northern Caucasus and Black Sea Environment Fund, to be administered by Ecos, could seek grants from within Russia and internationally.

Serious long-term consideration should be given to the idea of creating an international peace park in conjunction with the Lake Ritsa area in Georgia (Hamilton, 1993). This kind of campaign would nest well with international grant-seeking for a Northern Caucasus and Black Sea Environment Fund. Another consideration is world heritage status. The area is ecologically world-class and such a designation would be a good draw to the Sochi area. Hamilton comments that the former USSR is notably under-represented in world heritage sites (Hamilton, 1993).

The era of top-down management that has damaged both the natural world and the human populations on it must end. A new accountability to local values, biodiversity imperative, and conservation as a social science are imperative:

Ecologization of politics requires acknowledgment of the priority of universal human-values and making ecology a part of education and instruction from an early age, molding a new, contemporary attitude toward nature and, at the same time, returning to man a sense of being a part of nature. No moral improvement of society is possible without that. (Gorbachev, 1990, p. 38)
7.0 Conclusion

A broad pattern of ecological and management problems and absence of critical data necessary to make social use and ecological decisions suggest that "protected" natural areas in the Sochi area of the Krasnodar region in Russia are paper parks. The areas are not meeting their own management objectives, and at the same time, a host of useful inter-institutional relationships and economic resources are untapped. Both the problems plaguing the complex of protected areas—a lack of funding and the failure of the institutions to address local needs, uses and perceptions—are rooted in a history of top-down management which has characterized protected area management around the world.

Modern conservation is Janus-faced with one gaze on the biological imperative and the other turned toward human society and development. Some would argue that they, in fact, are one set of eyes looking at merged issues (West and Brechin, 1991). Sharma suggests a new model of protected area conservation that emphasizes biological conservation while recognizing that growing populations and changing resource demands can be best accommodated by working creatively with communities to define alternatives outside of park borders. With the high urban population of Sochi, the dearth of alternative resources, the rapid development and internationalization of the Sochi economy, such a model may be the best for meeting the needs of the people and other biota of the greater Sochi area (Sharma, 1990:1991).

Bidol asserts that outside researchers can be insensitive, arrogant and locked into pre-determined notions of what should be done in an area (Bidol and Crowfoot, 1991). I hope that I have successfully avoided this trap through this work which has attempted to seriously address the local situation and work within that context to find workable solutions. The issue of process and ends is aptly useful here. By recommending a process that advocates involvement by a number of stakeholders there is no way to guarantee a particular outcome such as conservation of wild lands and biodiversity. With respect for local participants all I can hope to do is suggest initial conditions that may lead toward beneficial conservation and development.

This process will involve implementing an environmental quality tax on tourist facilities while fostering links between Sochi National Natural Park, the city of Sochi, rural communities, the Caucasus Biosphere Reserve, the Russian Academy of Sciences, the Institute for Mountain Forestry and Forest Ecology and Goskomecologia. The result of such an effort of taxation of the margin of ecotourism may be greater stability in both
ecological integrity and local economics. This also could help create a network for planning and development to address the way tourism will affect both Sochi and the complex of protected natural areas. While ecotourism promoters are warned, “tourism can be most damaging to local people when it is used as a panacea for their problems” (Brechin, et al., 1991, p. 22) it is one incentive and in the right circumstances should be viable.

Sharma suggests a proactive and creative outreach beyond protected area boundaries to communities surrounding park areas in a search for alternatives that can benefit the people and the protected areas. A comparison with related problems in other countries suggests that tapping ecotourism by placing a bed-tax on extensive tourism to the City of Sochi: working with the municipality to make the park an economic asset to the city: reorganizing the institutional structures to identify and enhance local-use buffer zones partially managed by local interest; and joining forces with the Biosphere Reserve to exchange biological and cultural expertise, could serve to reduce extractive logging and habitat destruction while empowering locals to become involved in the decision making processes affecting area use and by sustaining some use patterns.

The chaotic environment which obfuscates identification of process, stakeholders and issues, also offers an opportunity to get involved early and make a difference. Since the likelihood of successful institutional change is questionable, an opportunity exists to coordinate this process with a non-governmental organization (NGO) that sits outside the government bureaucracies. Such a NGO might independently earn the trust of locals and forge bonds with protected area administrations, city economic interests, and local users. It can direct a cultural use assessment to gauge local needs and uses and to identify local use zones. Ecos can coordinate with the Institute for Research in Mountain Forestry and Forest Ecology to develop and maintain a system to spatially analyze the area’s biological and cultural resources. By establishing Ecos and giving it the function of creatively fostering a real world funding mechanism and linking interests in the area, we have set in place the mechanism to help protect some of the wild Caucasus and the flora and fauna there while supporting local communities and economies. Ecos adds the long-term vision to the process that Sharma says is often missing in the recent “bottom up” movement (Sharma 1991).

Ideally an environmental services tax would be even larger than 1/2 of 1% — such as Montana’s 4% tax — and would extend toward interagency coordination. Sochi’s stunning Dendrari Park — one of Russia’s richest and most diverse botanical gardens —
coastal parks, beaches, water quality and environmental health. A well developed and managed system could enhance the quality of life in Sochi dramatically.

Can the integrated model of a bed-tax and ecotourism development be utilized in other areas of Russia? It is far too early to tell since the recommendations made here have not yet been tested. Most locations in Russia do not have the economic pool of several million visitors, however, as do Sochi National Natural Park and the Caucasus Biosphere Reserve. Most areas in Russia, particularly in the East, lack the same kind of population pressures that confront Sochi. What may be of greatest interest in the most situations is the attempt to meet local needs while proactively searching for long-term solutions that benefit protected area values and local communities (Sharma, 1991). The formation of enduring connections and working relationships between local stakeholders involved in the process is also a characteristic that should be considered for other locations in Russia considering adopting or improving conservation and development.

7.1 Systemic changes at national and lower levels

Any parks created under the current system will, by default, be operated with the same lack of funding, lack of outreach and pathology of top-down management that is unaccountable to local constituencies and in many cases is also unaccountable to the goals for which the area was established. It is critical that the system make it possible for existing protected areas to become effective. Similarly, if non-governmental organizations are to be effective they need effective governmental structures to deal with, to apply laws, manage lands that they affect, and maintain access to information and decisions. Emphasis should be placed on adding a social element of outreach, assessment, and community involvement.

Nationwide, Russia needs enabling legislation—something proposed by the interests working on the Baikal watershed project—to create individual agencies and clear authority and funding for national parks, nature reserves, zakazniks, endangered species and wild protected rivers (Davis, 1993). Danilina told us that rumors of the organic legislation have been started by the Ministry of Nature because the Ministry of Nature is desperate for them to become true (Danilina, pers. comm.).

Systematic mapping of ecological regions, intact areas and impacted areas must be generated and made available to local agencies to use in land planning. The Ukraine, for example, has developed a Green Book, a counterpoint to its own Red Book, that identifies important and overlapping habitats and identifies them as chief targets of
conservation (Trunyev, pers. comm.). Such an effort could be the start of a region-wide long-term effort such as the Northern Rockies Ecosystem Protection Act (1994).

7.2 Expansion

Both the national parks and zapovedniks systems are slated to triple in size over the next few years. Care should be taken to avoid promulgating paper parks in this region and throughout Russia during this expansion.

One of the key issues for the Ecos will be the creation of new reserves in Krasnodar Krai. The Caucasus National Biosphere Reserve has suggested that two new reserves be created to get representative samples of the two other ecological provinces in Krasnodar Krai. The condition of those lands is not known, however, and it is likely that in the years since they were removed from the reserve system for agricultural purposes, they have lost their ecological integrity (Pridnja; Setrov, pers. comm.). Additional information must be gathered.

7.3 In conclusion—a celebration of life on Earth...into the future!

People living in the Great Smokies, Grand Canyon, and Yellowstone areas all resisted the imposition of national parks. Some decades later, the dissent has fallen aside and these areas are considered to be national and international treasures. If no one had possessed the courage to act for the good of the many for the greatest time there would never have been the preservation of these aesthetic, geologic and biotic treasures. Sometimes higher values of biodiversity and national interests are more important than short-term local interests. Those early leaders who set these areas aside had vision.

The current trend in the United States is toward erasing boundaries and looking at system-wide ecosystem health in ecosystem management and planning for maintenance of integrity, and measuring any possible effect of proposed commodity use to see if it would be deleterious to the system (“The Northern Rockies,” 1994; Foreman, 1993; Noss, 1994). We seem to finally be recognizing that there are interests beyond our own. That large-level, long-time processes need to be paid attention to and that ecosystem integrity is at the heart of it. This concept is not being adequately addressed in the recent “bottom up” movement expressed in international conservation and development effort toward local control and the local commodity production that results.

It is very likely that landscape-ecology-level, multiple-jurisdiction approaches to land management will spread around the globe as they are found to be economically...
practical and ecologically critical. In the meantime, while we continue to consider the
management of small areas in relative isolation, a model of park conservation such as is
suggested by Sharma (1990; 1991) provides the best bridge to the future. Sharma
suggests moving beyond the insular approach of parks to one that focuses on long-term
viability of protected areas in the face of rapid growth and development with escalating
resource pressures. His emphasis on maintaining viable ecological processes while
replacing ecologically-damaging uses will keep the largest fragments of land the most
intact. When larger scale decisions are made in the future we will be thankful that such
opportunities and intact systems were retained.

On a personal level, this work has embodied a personal struggle between deeply
held and defended ecocentric beliefs and an attempt to make conservation workable in a
corner of the world that contains human communities as well as natural systems. Since
management is ultimately of people and by people, conservation is more a social issue
than a biological issue. This personal struggle to marry the two is mirrored by a similar
struggle in the international conservation community. The uneasy marriage has taken
place, but everyone awaits the offspring. We have not yet proven that we can be good
and responsible denizens of large and complex ecosystems. But we must and will try.

Ultimately, we need to advance on two fronts—one, identifying sustainable
economic uses and defining incentives that help us retain biodiversity and habitat; and
two, slowly changing the way we relate to the systems of which we are part while
changing ourselves, in the words of Aldo Leopold, “from conqueror of the land-
community to plain member and citizen of it” (Leopold, 1987, p. 204). When these
interests are merged the greatest benefit will result. This paper has tried to steer a course
that to the greatest extent satisfies both the local interests and needs from this area in
Russia and the quiet needs of the critters and plants whose habitat has shrunk and whose
endemic populations have dwindled. Here’s to the future!
8.0 Glossary

Adler............................................ The South-eastern most district of Sochi, abutting the Georgian border. Headquarters of the Caucasus Biosphere Reserve.

Autonomous Oblast................. A state-like subarea of the Russian Federation. Same level as an Oblast. Krai, or Autonomous Republic

Autonomous Republic............ A state-like subarea of the Russian Federation. Same level as an Oblast. Autonomous Oblast, or Krai

Goskomecologiya...................... State Committee for the Protection of Nature. This agency has numerous levels including the greater Sochi area (Big Sochi), Krasnodar Krai and Russian Federation.

IUCN........................................ Acronym for International Union for the Conservation of Nature which is now called the World Conservation Union.

Kolkhida..................................... Ecological province on the southern macroslope of the Main Caucasus Ridge.

Krasnaya Polyana................... Largest mountain town in the region. Name means “red fields” in Russian. Was founded 2000 years ago by Romans. Farming, grazing, rural citizenry. Some tourism, including a ski area. Difficult access via poor road

Krai............................................. A state-like subarea of the Russian Federation. Same level as an Oblast. Autonomous Oblast, or Autonomous Republic

Kuban..................................... Ecological province on the northern macroslope of the Main Caucasus Ridge.

Leskhoz..................................... National Forest-type unit

Oblast..................................... A state-like subarea of the Russian Federation. Same level as an Krai. Autonomous Oblast, or Autonomous Republic

Raion....................................... A county-like division of a Krai. Oblast, Autonomous Oblast or Autonomous Republic

Red Book................................... The Russian list of threatened and endangered species of plants and animals

Sochi........................................... City of 360,000+ people on the shore of the Black Sea. Runs about 80 Kilometers up the coast from the Georgian border nearly to Tuapse. It is composed of Adler, Xhosta, Sochi Center, Lazarevski
Srednezemnomor .................... Ecological province on the Eastern side of the complex of protected natural areas

Stakeholder ....................... Any party that has a stake in the outcome of an activity or will be affected by planning or management of a process or entity

Xhosta .................................. District of Sochi which has the Caucasus Biosphere Reserve boxwood grove

Zakaznik ............................... A semi-protected area that is often temporally protected and can have damaged landscapes

Zapovednik .......................... The more protective of areas in Russia. Operated as IUCN Category I sanctuary.
9.0 Appendices

9.1 Suggestions for further research by Ecos, the Environmental Center of Sochi

- No region-wide ecological mapping and assessment of land conditions has been attempted. Ecos should write grants and coordinate with the Institute for Mountain Forestry and Forest Ecology to do this.

- Administer the SIA survey described in the recommendation section. Ecos can take the lead on this in conjunction with the Russian Academy of Science — Sochi Branch.

- Studies should be conducted of people who are visiting the area to find out what their interest is in getting into the mountains and what kind of activities they would like to see there.

- Pursue international development/NGO funds to develop a regional program to address not just the protected land areas, but stretches up the coast and coastal waters as well. Ecos can coordinate this with the Center for Citizen Initiatives (CCI).

- Determine precisely where logging is occurring and how extensive it is; how is the area coming back? Mapping out historic patterns of impact and recommending restoration should be a major goal of Ecos. What is the history of logging? How extensive has it been? Is there a matrix of old roads? Were these areas converted into Dacha areas?

- Collect economic and demographic data from relevant agencies including the city and Russian Academy of Sciences. Analyze spatially to support bed tax and determine likely locations for recreational and use buffers.

- Oleg Ruihak, an oceanographer in the Laboratory of Ecological-Economic Analysis and Modeling, said the Russian Academy of Science — Sochi Branch has quite a bit of information and Ecos is welcome to use it. The Academy has 100 years of climate, hydrology, pollution data, etc.

- Determine who is working on salmon studies and identify salient issues, blockages to spawning and impacts on the Black Sea.

Additional contacts for Ecos:

- Russian Geographic Society — this society is suggesting that the Biosphere Reserve take over part of Sochi National Natural Park.

- Fisheries institute in Sochi — may be doing research on viability of salmon runs from the Black Sea into the Caucasus.

- Bureau of Ecological Agriculture in Sochi, which is addressing the problems of chemical inputs and working on solutions.

127
- The Biodiversity Conservation Center collects, analyzes, and disseminates ecological and socio-economic information necessary to guide conservation activities; develops legislative conservation agreements, collects information concerning the illegal trade of Russian wildlife, provides governmental and local grassroots organizations with legal assistance in the field of national and international levels; coordinates fundraising, project development, and data collection on existing conservation groups throughout the FSU. It also provides information on fundraising sources, proposal-writing techniques, and joint project opportunities for Russian groups. (Escalona, 1993, p. 24)
9.2 Letters of support for Ecos

(originally designated the Black Sea and Northern Caucasus Environmental Center)

July 26, 1993

A letter of support from the Caucasus State Biosphere Reserve for the International Environmental Center of the Black Sea and Caucasus.

This summer we have become acquainted with the founders of the International Environmental Center in Sochi, Russia. Due to the high endemism in the Northern Caucasus and the range of environmental problems in the Caucasus and Black Sea, the creation of this advocacy and education center is vital to increase public awareness and understanding and to affect decision makers for a more ecologically sound future. For these reasons, the Biosphere Reserve supports the establishment and cultivation of this center.

The Biosphere Reserve staff manages the reserve and engages in a number of ecological research projects which are not limited to the reserve area itself. The Biosphere Reserve is a state organization with the primary role of protection of the reserve and research. A museum is operated, and each of the employees is charged with distributing information about the Reserve. This, however, is the extent of the outreach performed by the Reserve. Other ecological institutes in the area are also governmental organizations doing research in officially-funded programs and do not engage in many outreach activities.

The role filled by the Environmental Center is timely and appropriate since it is a non-governmental organization that can engage in education and advocacy. By providing education and championing environmental issues as an independent, non-profit organization the International Environmental Center in Sochi will help to make ecological information available to the public. The Center can also be effective by influencing local leaders.

The Biosphere Reserve will assist the Environmental Center by providing access and interpretation of ecological data and by helping prepare information on ecological problems and processes for public use. In addition, the Biosphere Reserve may have a facility in which the Center could be located.

Mikhail Pridnja
Head of Laboratory of Mountain Ecosystems Protection
Caucasus Biosphere Reserve
A letter of support from the Research Institute of Mountain Forestry and Forest Ecology in Sochi for the International Environmental Center of the Black Sea and Caucasus.

The arrival of the International Environmental Center in Sochi, Russia, is very timely and vital for promoting issues and environmental education in the Caucasus and Black Sea region. Therefore, the Institute endorses the establishment and supports further activities of this center.

The Institute does research in a number of areas including the development of scientific methods of efficient use of forest ecosystems and tourist regions, national parks and other recreational territories on the basis of ecological-economical analyses and multiple use principles. Additional efforts involve international scientific cooperation in silviculture. The Institute is administered by the Federal Forestry Service but has substantial connections with agencies and research organizations in the local region.

The Institute is a state organization with the primary role of research. Other ecological institutes in the area are also governmental organizations. They do research within the framework of programs designed by the state and do not engage in many outreach activities. The role of the environmental center, then, is crucial since it is a non-governmental organization that can engage in outreach—education and advocacy—and make a more abiding connection with the public. By actively undertaking education and promoting environmental issues as an independent, non-profit organization the International Environmental Center in Sochi will help to make ecological information available to the public. It will also use that information to influence legislators, industrial leaders, local leaders and other decision makers.

The Institute will assist the Environmental Center by providing access and interpretation of ecological data and by helping prepare information on ecological problems and processes for public use. In addition, the Institute has offered the use of an office for running the center.

The Institute wishes to help the Environmental Center begin a successful operation toward a more ecological sound future.

Gennady Solntsev,
Director
Institute for Research in Mountain Forestry and Forest Ecology
A letter of support from the Russian Academy of Sciences Research Center in Sochi for the International Environmental Center of the Black Sea and Caucasus.

The Research Center agrees to endorse the establishment and support further activities of the International Environmental Center of the Black Sea and Caucasus in Sochi, Russia. Such a center has an important role to play in promoting issues and environmental education in the Caucasus and Black Sea region.

The network of support the Environmental Center has already built with leading local ecological institutions demonstrates the timeliness and necessity of its work.

The Research Center's activities are underwritten by two state programs: the first planned to help protect coasts by crafting and recommending management laws, and the second designed to study the impact of economic development on the environment. The Research Center's range covers the Big Sochi region. Big Sochi is about 350 square kilometers and includes the city, seacoast, forests and alpine meadows.

The Research Center recognizes that its primary role is that of research and that it and other ecological institutes in the area do not engage in outreach activities—education and advocacy. By actively undertaking ecological education and promoting environmental issues as a non-governmental, non-profit organization the International Environmental Center in Sochi will bridge the gap between ongoing scientific research and the public that needs to know more about ecology and ecological problems.

The Research Center will assist the Environmental Center by providing access and interpretation of ecological data and by helping prepare information on ecological problems and processes for public use.

In sum, the Research Center believes the work of the Environmental Center is critical, timely, and unique, and wishes to help the Environmental Center begin a successful operation.

Marat Masutovich Amirkhanov  
Director  
Russian Academy of Sciences—Sochi Branch
10.0 bibliography

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