

Tourism Infrastructure Planning in Tusheti National Park of Georgia

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Abstract: This paper provides an example of using biodiversity information for tourism infrastructure and management planning in national parks to avoid conflicts between nature conservation, recreational goals, and other users. Within the area of the proposed Tusheti National Park in Georgia, we used field survey data of seventeen focal species within a GIS analytical environment to assess the consistency of planned management categories zoning and administrative and visitor infrastructure (including tourist trails) with biodiversity conservation requirements. A map, comprised of layers for each focal species, was overlaid onto maps of proposed zoning, infrastructure and tourist trails. Numerous conflicts in planning were detected and recommendations were made to improve zoning and infrastructure planning in the national park, and to minimize negative effects of tourism on biodiversity conservation.

INTRODUCTION

Ecotourism development can have many benefits. It can fund conservation and scientific research, contribute to the protection of the endangered ecosystems and species, benefit rural communities, promote development in poor areas, raise environmental awareness, and satisfy and educate tourists. However, worldwide there are examples of the negative impacts to environment of increased tourism, including ecotourism. These include trail erosion, pollution, wildlife disturbance and population decrease, socio-cultural impacts, etc. (Honey 1999, Knight & Gutzwiller 1995, Fennel 1999, Lindberg & Hawkins 1993, Wright 1996, Barzetti 1993). In light of these negative impacts, it is apparent that the interpretation of “green” travel as a “win-win” situation is not accurate and there is a need for more detailed studies.



Figure 1.: Study area: Tusheti National Park in the north-eastern Georgia

The conflict between conservation and recreational objectives is common in national parks (Wright 1992, 1996, Barzetti 1993, Knight &

Gutzwiller 1995). This research was carried out in the Tusheti National Park in Georgia (Figure 1). It provides information that aims to reduce such conflicts by utilizing biodiversity information in the planning of tourism infrastructure, trails and management zones.

METHODS

In August 2000, a baseline survey of 17 of the most endangered and sensitive focal species (Figure 2) was conducted in Tusheti National Park. Biodiversity data (species and habitats distribution, habitat quality, current livestock size and distribution, etc.) were transferred to topographic maps (1:50 000). These data yielded distribution maps for each species.

Maps of 17 species were used as layers within the Geographic Information System (GIS) environment to produce a biodiversity map for Tusheti (Figure 3). This Biodiversity map was then overlaid onto proposed infrastructure, zoning, and tourist trails maps (Figures 4, 5, and 6). These maps were used to assess the consistency of the proposed activities in the Tusheti National Park with the biodiversity conservation objectives.

RESULTS

Figures 4, 5, and 6 illustrate the results of analyses. Based on these maps several recommendations were made for improvement of infrastructure, the location of tourist trails, and zoning of management categories.

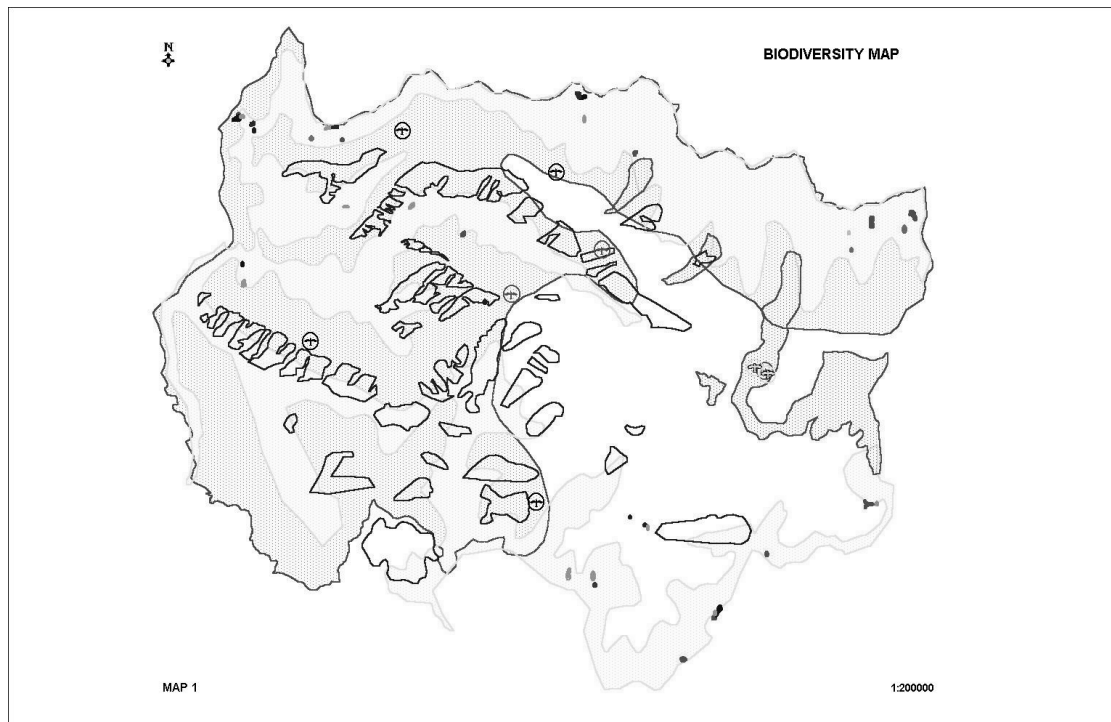


Figure 3.: Biodiversity map of Tusheti National Park produced by overlaying distribution and important areas of 17 focal species.



Figure 4.: Planned infrastructure and biodiversity in Tusheti National Park. The arrows show potential conflict areas.

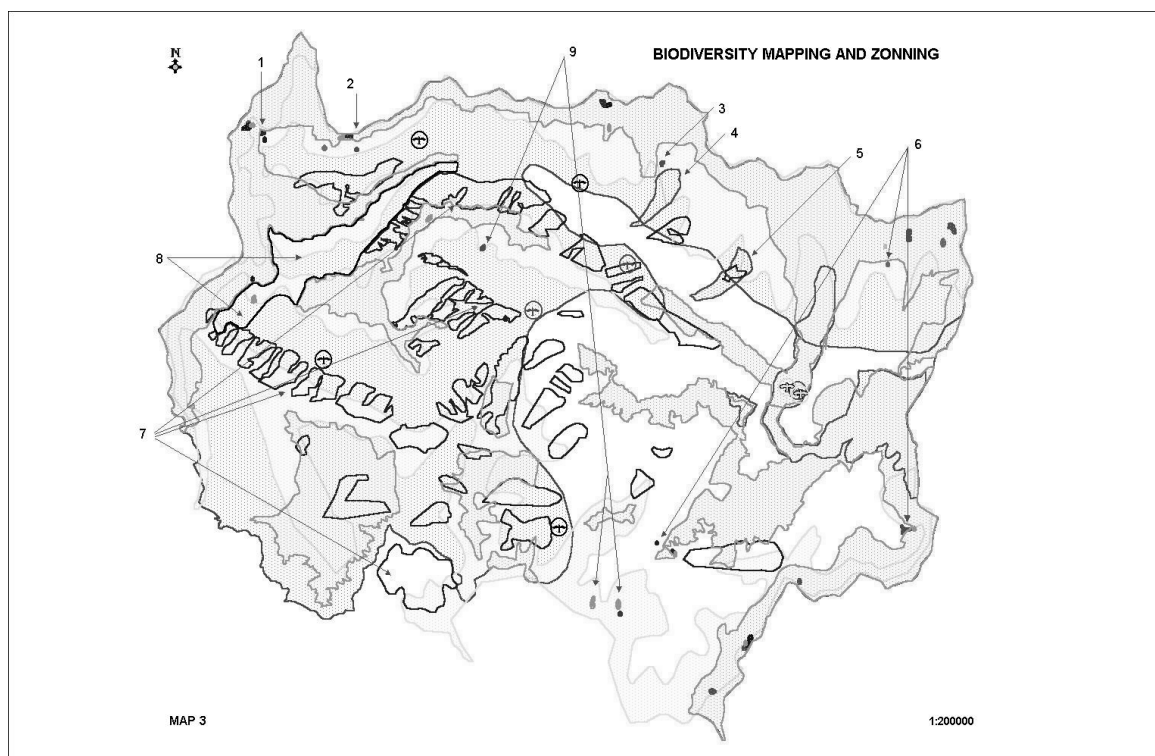


Figure 5.: Planned management categories zoning and biodiversity in Tusheti National Park. The arrows indicate areas recommended for upgrading to strict protection.

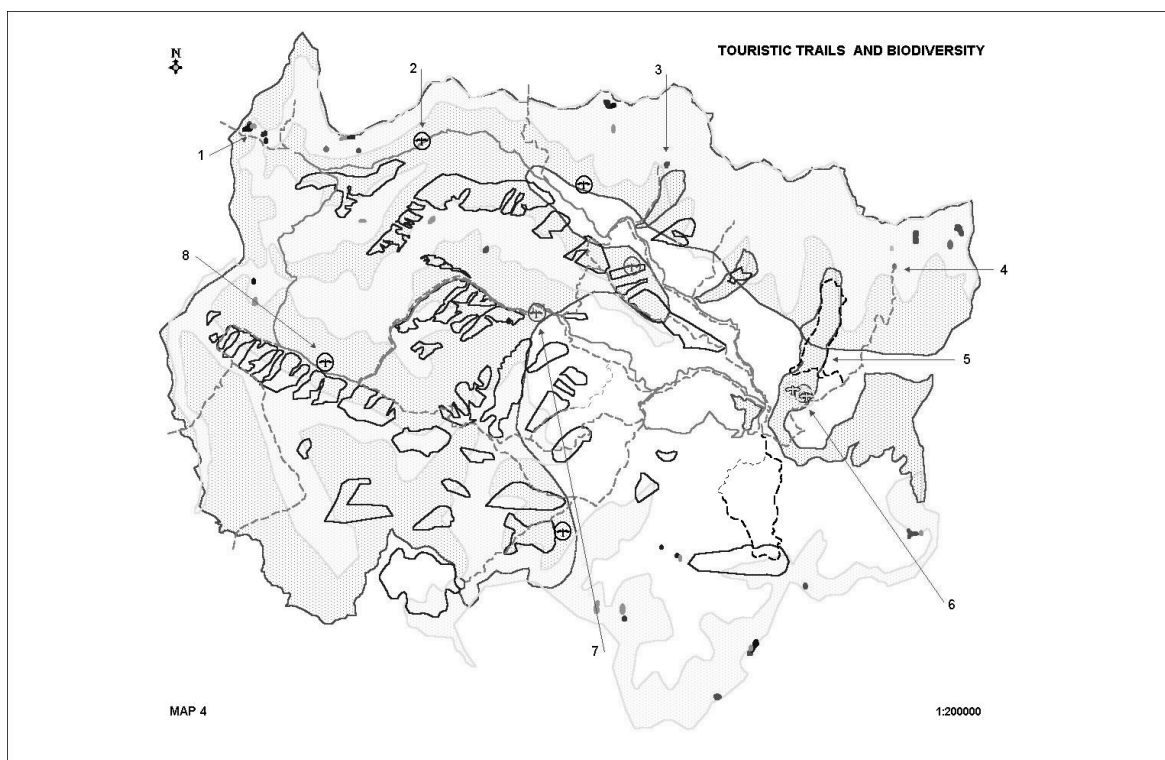


Figure 6.: Tourist trails and biodiversity in Tusheti National Park. The arrows show areas where trails pass through important and sensitive biodiversity sites.

ANIMALS	
Common name	Scientific name
Caucasian Snow Cock	<i>Tetraogallus caucasicus</i>
Caucasian Black Grouse	<i>Tetrao mlokosiewiczi</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Griffon Vulture	<i>Gyps fulvus</i>
Bearded Vulture	<i>Gypaetus barbatus</i>
Bezoar Goat	<i>Capra aegargus</i>
Eastern Caucasian Tur	<i>Capra cylindricornis</i>
PLANTS	
Species	Family
<i>Pseudovesicaria digitata</i> C.A.Mey	BRASICACEAE
<i>Trignocaryum involutratum</i> Stev.	BORAGINACEAE
<i>Rseudopetckea (Hoeck) Lincz.</i>	VALERIANACEAE
<i>Symphyoloma graveolens</i> C.A.Mey	APIACEAE
<i>Vavilovia Formosa (Stev.) Fed</i>	FABACEAE
<i>Saxifraga ruprechtiana Manden.</i>	SAXIFRAGACEAE
<i>Delphinium caucasicum</i> C.A.Mey.	HELLEBORACEAE
<i>Ranunculus tebulossicus Prima</i>	RANUNCULACEAE
<i>Erysimum subnivale Prima</i>	BRASSICACEAE
<i>Silene humilis C.A.Mey</i>	CARIOPHILACEAE

Figure 2.: Animal and plant species used in the analyses

Infrastructure (Figure 4)

Infrastructure elements (visitor center and administration, visitor and rangers shelters, information center, stable, campsite, sight-seeing platform) should be located as close to settled areas as possible in order to reduce disturbance of the natural ecosystems, and to make it easier to involve the local public in the functioning of the planned national park. In two locations infrastructure elements are next to areas that contain rare, endemic plant species. These elements should be moved or access to the plants must be blocked (e.g. warning signs, fences, etc.). Some infrastructure elements are located inside the narrow range of endangered Bezoar Goat (*Capra aegargus*) and should be moved. Infrastructure elements should not be built close to a Golden Eagle (*Aquila chrysaetos*) nesting site.

Zoning (Figure 5)

Existing strict protection zones do not encompass areas of rare endemic plant species, lands that are critically important to Bezoar Goat (*Capra aegargus*), important breeding areas for Eastern Caucasian Tur (*Capra cylindricornis*), and Rhododendron cover that creates a unique habitat important to many species, including Caucasian Black grouse (*Tetrao mlokosiewiczi*). Our analyses recommend these zones to be enlarged to encompass these areas. In certain areas the connections among fragmented important sites should be ensured.

Tourist Trails (Figure 6)

In several cases planned tourist trails pass through important and sensitive biodiversity sites (rare endemic plant communities, nesting sites of globally endangered bird species, etc). Recommendations vary in each instance, but include the rerouting or shortening of trails, restrictions on the amount of time visitors can linger in an area, and the erection of warning signs.

CONCLUSIONS

Several potential conflicts between conservation and recreational objectives were discovered by connecting biodiversity information to the National Park planning process within a GIS. It is evident, that applying such an approach to protected areas planning process can significantly reduce negative effects of ecotourism development.

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