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Residents' resource uses and nature conservation in Band-e-Amir National Park, Afghanistan

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ABSTRACT

In 2009 the scenic Band-e-Amir Lakes and surrounding landscapes (2800–3800 m elevation) were declared Afghanistan's first national park (BANP) with the hope that the lakes will eventually attract tourists at levels as before the war period (1979–2001). The area is rich in plant species, and was formerly populated by ibex and urial. Today fauna is impoverished and vegetation (mostly mountain steppe) is degraded due to intensive livestock grazing, dryland agriculture, and shrub collection. BANP was created in collaboration with local residents (~800 families), and longer-term plans are to upgrade biological qualities of landscapes whilst improving residents' livelihoods. To provide baselines for adequate management plans, a survey of 116 households was conducted in 15 villages. Most families were subsistent agro-pastoralists. Population growth was ~2.2% annually. Estimates of mostly free-ranging livestock populations were ~19,900 sheep and goats, ~2500 cattle, and ~2100 donkeys and horses. Grazing impacts were evident, especially near villages. Families collected ~3.1 t of shrubs and ~0.4 t of cattle dung annually as biofuel. Estimates indicated that ≥0.7% of BANP area was cleared of shrubs annually. Dryland agriculture covered ~3.4% area. Other resource uses (collection of reed, medicinal plants, hunting, fishing) were assessed. Further research is needed on spatial patterns of resource exploitation and vegetation ecology. Promotion of alternative energy sources could alleviate pressures on shrub resources. Steep lands should be better protected (possibly fenced) from livestock

Abbreviations: *Abi*, irrigated crop land (mostly on alluvial plains); BANP, Band-e-Amir National Park; BAPAC, Band-e-Amir Protected Area Committee; *lalmi*, rain-fed crop land (in steppe areas); WCS, Wildlife Conservation Society

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and human impacts. Environmental workshops with residents and integration of locals in research projects could enhance management effectiveness and acceptance of park rules.

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1. Introduction

The Band-e-Amir Lakes are situated at an elevation of ~2900 m above sea level in the Hazarajat in Central Afghanistan. Their crystal-blue waters embedded in a rugged rocky mountain landscape provide for stunning sights, instilling tranquility and mystery. The lakes have been a source of legends and inspiration for local Hazara people (Bourrouilh-Le Jan et al., 2007). During the 1950s to 1970s, scores of travelers from around the world were attracted to this place (Omran and Leeming, 2005). Today few international travelers venture there, but the destination is popular again among many Afghans seeking respite from their daily work life.

Since the 1960s, proposals for conservation of the area were made, but plans have remained on hold due to political events and the ensuing wars (1979–2001). Finally in 2009, the lakes and surrounding high plateaus were declared as Afghanistan's first national park (BAPAC, 2011; Fig. 1). Originally, 'national parks' have been created to preserve wildlife and natural landscapes for posterity and as symbols of national pride and recreational enjoyment (Lockwood et al., 2006). In this spirit, Band-e-Amir National Park (BANP) may serve several functions, locally, regionally, and nationally. It may represent an icon of Afghanistan's natural landscapes which could attract domestic and international visitors again, thus contributing to national identification, peace and stability. In addition, revenues from visitors can be used for improved park management, conservation of representative fauna and flora, and – in a medium to longer term – the diversification and improvement of residents' livelihoods (Smallwood et al., 2011).

Already before the war, the vegetation around Band-e-Amir was degraded and the fauna was impoverished (Dieterle, 1973; Shank and Larsson, 1977). During the times of conflict, environmental degradation in many regions of Afghanistan was further aggravated through unchecked exploitation of natural resources, i.e. vegetation destruction through wood cutting, fires, and overgrazing, and excessive hunting of wildlife (UNEP, 2003; Formoli, 1995; Saba, 2001; Shank, 2006; Kanderian et al., 2011). If the new park can be adequately managed in the future, the ecosystems may partly recover and populations of large game could once again find suitable habitats and refuges in the area (BAPAC, 2011; Bedunah et al., 2010; WCS, 2011). Optimally, scientific research, which started in the area before the war, will be continued and the park may acquire demonstration functions for nature conservation and best-practice sustainable resource management. However, currently the park's management is at its beginning and conservation plans are still preliminary and in need of better baseline data.

Within BANP, ~800 families (~5000 people) live in 16 villages (MAIL, 2008; Fig. 1). The residents are mostly subsistence agro-pastoralists. The limited fertile alluvial areas at the valley bottoms have been intensively cultivated for generations on a hitherto fairly sustainable level. In contrast, the higher plateaus, which were traditionally used as rangelands and as a source for wild products, have been exposed to increasing pressures. Major impacts on the environment currently include (1) intensive livestock grazing, (2) collection of plant resources (for fuelwood, animal feed, and medicines), (3) expansion of rain-fed field cultivations in drylands (called *lalmi*), and (4) wildlife hunting (Bedunah et al., 2010).

Band-e-Amir is a landscape which over thousands of years has been inhabited and influenced by humans. The central objective of BANP is therefore not the setting-aside of a 'pristine nature', but the endowment of environmental stewardship, i.e. the establishment of a use regime which is sustainable and fulfils key requirements for nature conservation. Such regimes are practiced in many national parks in the United Kingdom which are in effect 'protected landscapes' (IUCN Protected area category V) that allow for controlled agricultural activities and limited development (Lockwood et al., 2006;

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