

Eurasia – a biodiversity coldspot?

In recent years conservation planners have developed the concept of biodiversity 'hotspots' (areas of high species diversity or endemism) and this has been adopted as a tool by a number of conservation organizations to help focus their conservation work. Hotspot analysis has been used to define the 25 areas of highest biodiversity based on criteria that include number of endemic species of flowering plants, percentage of the characteristic vegetation type remaining and its level of protection, and vertebrate species richness and endemism (Myers *et al.*, 2000). Unsurprisingly, the majority of these hotspots lie in tropical forests and tropical island regions.

A recent critique (Kareiva & Marvier, 2003) of this approach argued that the consequences of a focus on hotspots may be well preserved tropical forest systems, with their inherently higher species richness and endemism, but potentially a loss of simpler systems such as temperate grasslands and wetlands. These areas of high ecological value, which support simpler, less diverse and less specifically adapted systems, have been appropriately named 'coldspots'. This critique struck a chord with me – particularly as for the last 6 years much of my work has focused on the temperate and subtropical systems of Eurasia. Over this time I have come to feel that the region is in many ways 'left out in the cold' by conservation approaches that prioritize hotspots, with temperate systems being considered the poor relation of the more vivid and glamorous tropics.

It's not that Eurasia isn't important biologically, but only a few of its systems score highly in terms of species richness or endemism. One of these is the Mediterranean basin, a global hotspot in its own right, having the third greatest number of endemic plants amongst the global hotspots (Myers *et al.*, 2000). Within this the significance of the Balkans as a region of high endemism is now being recognized. According to recent assessments the former Yugoslav Republic of Macedonia is one of the highest species rich areas in Europe (MoEPP, 2004). Similarly, the location and complex topography of the Caucasus mountains has produced high species richness and endemism, and Biodiversity Strategies and Action Plans for this region have highlighted the area's biological value whilst also underlining the efforts that will be required to protect them given the region's history of conflict. Elsewhere in the region the limited access to the volumes

of biological research collected during the Soviet era prohibits full assessments of species diversity and endemism.

However, much of the intrinsic biodiversity value of Eurasia is not found in the areas of highest species richness or endemism. In fact, being a temperate zone the systems are generally simpler, with lower primary production supporting fewer trophic layers, and it is generally only the mountain systems and freshwater lakes of the region that have facilitated species isolation, and thus the evolution of endemics. The biodiversity values in Eurasia are associated with the scale and diversity of its ecosystems, wilderness areas and unique habitat types. Think of the great tundras of North and Eastern Russia, or the semi-deserts of Central Asia, both of which are now recognized as being among the world's wilderness areas, although neither are considered high-biodiversity priority areas because of their relatively lower levels of plant endemism (Conservation International, 2003).

The forests of the Carpathians and of the northern taiga zone, the deserts of the Middle East, and the open grasslands, particularly the shrinking natural steppes, all represent uniquely Eurasian habitats, with their own species associations and cultural values. In addition, conservation priorities are apparent at a fine scale, for example the pockets of endemism associated with the various Central Asian mountain chains, and the genetic value of the fruit and nut forests of southern Kyrgyzstan. Furthermore, habitats such as the Croatian karstic grasslands and Romanian mountain meadows contain relatively high levels of species richness and endemism – but only when compared to surrounding grassland systems.

This highlights the need to compare like with like in conservation planning, rather than trying to assess priorities where all else is seemingly swamped by the species richness of tropical forest systems. Such an approach is clearly outlined in representational methods, such as the use of Ecoregions, which identify at a global level the most important representatives of different key habitat types. Such an approach complements a focus on hotspots of endemism and species richness, and may be more likely to achieve a globally representative array of ecosystems. There is no one-size-fits-all approach to conservation planning; there is a need for complementary approaches and for pragmatism to identify and address the gaps left by large-scale planning approaches.

Central to many of the gaps in global conservation planning is the issue of scale. When conservation prioritization is conducted at a global scale with a relatively wide filter, how do we ensure that smaller patches of equivalent value are also conserved? It is down to national governments and NGOs to recognize their own high priority areas within planning tools such as national

Biodiversity Strategies and Action Plans. Such areas may be smaller in scale, but have real biodiversity value, both in terms of scientific assessments and cultural values, and such sites may be important to local communities in terms of mobilizing support and engagement for conservation. The challenge is to harness mechanisms to support the protection of these national priorities, and to justify their importance, despite the frequent lack of recognition of such local hotspots within large-scale global assessments. However, it is clear that however good our assessments of conservation value, they do not necessarily explain how to achieve effective conservation (Ginsberg, 1999). The greatest challenge we have is not just what to save, but how to implement sustainable conservation solutions.

At an operational level, the immediate conservation priorities within Eurasia require reactive and pragmatic approaches, complementary to any wider planning vision. For example, the degradation of the steppes is becoming recognized as a neglected issue. Steppes once covered a continuous belt from Romania to China but now much of this is fragmented, and some specific steppe assemblages are close to extinction. Much of the western expanse of steppe has been cultivated (e.g. in Moldova and Ukraine), whilst vast areas of steppe in Russia and Kazakhstan have been degraded as a result of the cotton industry, and the legacies of this in terms of desertification, pollution and salination. Coupled to this is the ongoing decline in ungulate populations in many parts of Central Asia. Goitred gazelles *Gazella subgutturosa* and kulan *Equus hemionus* are both declining, and the saiga antelope *Saiga tatarica* (see also pages 250–251) is still slipping towards extinction – all driven by increased hunting in a situation of economic crisis and reduced capacity for enforcement of wildlife protection. In addition the protected areas of the former Soviet Union are threatened by insufficient funding and changing socioeconomic contexts (see also pages 352–353).

Even in Europe the situation is not straightforward. The Iberian lynx *Lynx pardinus* is considered to be the most threatened cat species globally, with less than 150 individuals remaining, and to date no effective captive breeding programme in place, despite renewed efforts by the Spanish authorities. Other changes are on the horizon as the biodiversity values of the EU are enhanced by accession of biodiversity-rich Eastern states. With an increase in the land area of the EU by 25%, the recent

accession of 10 states brings a host of 'new' European species, including a range of rare and endemic plants and butterflies, new habitats and even a seventh biogeographical region (Anon., 2004). However, it is not clear what will happen to the traditional and more biodiversity-friendly agricultural systems of Poland and its neighbours now they are subject to the economic pressures and opportunities of EU membership. In the pre-accession states similar questions exist – for example, how will the forests of Romania, with their associated populations of large carnivores, be protected in a situation of land restitution and changing forestry management practice? Last month the EU member governments reaffirmed their commitment to halt biodiversity loss within the EU by 2010. An admirable aspiration – but how can this be achieved?

All these issues exist within Eurasia – and pose as much of a challenge for conservationists as do the threats to tropical systems. If we continue to take temperate biodiversity for granted, and focus on the species rich countries, is there a danger that Eurasia could actually become depauperate in terms of its forests and grasslands systems – and a biodiversity coldspot in reality?

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Note from the Editor

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