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General introduction

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Just over 150 years ago Alfred Russel Wallace began his peregrinations as a naturalist across the vast extent of islands stretching from the Malay Peninsula in the west to New Guinea in the east, a region he labelled the Malay Archipelago.[1] In justifying his delay in publishing *The Malay Archipelago*, he noted that the region's 'social and physical conditions are not liable to rapid change' (Wallace 2000:ix). That characterization could not be less apt for the region's contemporary situation, especially in regard to the condition of the environment whose nineteenth-century richness he so scrupulously documented. Today that natural richness, which we now label biodiversity, is under increasing threat. Most of the area traversed by Wallace is now covered by two hotspots, 'earth's biologically richest and most endangered terrestrial ecoregions' (Mittermeier *et al.* 2004). It is a continuing tribute to Wallace that the border between this region's hotspots, Sundaland in the west and the eponymous Wallacea in the east, remains that remarkable line he delineated as dividing the two great natural regions of the archipelago (Wallace 2000:10–11).[2]

Worldwide, 34 biodiversity hotspots, defined as 'regions that harbour a great diversity of endemic species and, at the same time, have been significantly impacted and altered by human activities', have been identified as areas in critical need of conservation (http://www.biodiversityhotspots.org/xp/Hotspots). But these hotspots also tend to be the locales with high numbers of indigenous peoples whose land and resources have often been the targets of expropriation by their

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governments, previously in the name of 'national development', but increasingly now justified as well by conservation imperatives of national as well as global import.

The establishment and maintenance of protected areas have increasingly been regarded as essential for stemming the habitat loss and preserving the exceptional rates of plant and animal endemism that are criterial to hotspot status. However, such a strategy has not been without controversy. National parks and reserves, otherwise known as 'protected areas', have emerged as a major arena for the contestation of both environmental protection and indigenous/minority rights. Both transnational and local non-government organizations (NGOs) of environmentalist orientation, in concert with state and federal governments in the region, have argued for the establishment and extension of parks and reserves to protect resources in forested areas, wetlands and marine environments. But NGOs more focused upon issues of indigenous rights and agrarian justice have contested such claims, arguing instead for legal reform to allow resumption of control of such areas by local communities in accordance with the 'environmental wisdom' of local customs, as promoted by the global discourse of indigeneity. In more extreme cases, some organizations in the region have called for a moratorium on the establishment of further parks and sometimes the dismantling of already existing parks.

Despite an increasing awareness of the intimate relationships among biodiversity, ecosystem services, rural livelihoods, customary claims and political governance, the full range of relevant personnel dealing with these issues rarely have opportunities to interact. With the aims both of sharpening intellectual debate and attaining practical solutions to the problems of reconciling biodiversity conservation, sustainable development, customary resource use and evolving governance frameworks in the Malay Archipelago, we convened a workshop at the National University of Singapore entitled 'Conservation for/by whom: Social Controversies & Cultural Contestations regarding National Parks and Reserves in the Malay Archipelago' from 16–18 May 2005. At that workshop, conservation biologists, park managers, NGO activists and representatives of indigenous communities, lawyers, policy and management analysts, and anthropologists presented papers encompassing a variety of perspectives upon issues surrounding the establishment and impact of protected areas in this region. Given the range of participants, many lines of divergence emerged. This book has mostly emerged from that workshop, and, like the workshop, it juxtaposes the various views of the authors, drawing out divergences and convergences in perspectives concerning protected areas, and even suggesting some measures needed to surmount these differences. We offer this collection in the hope of clarifying debates concerning protected areas and increasing

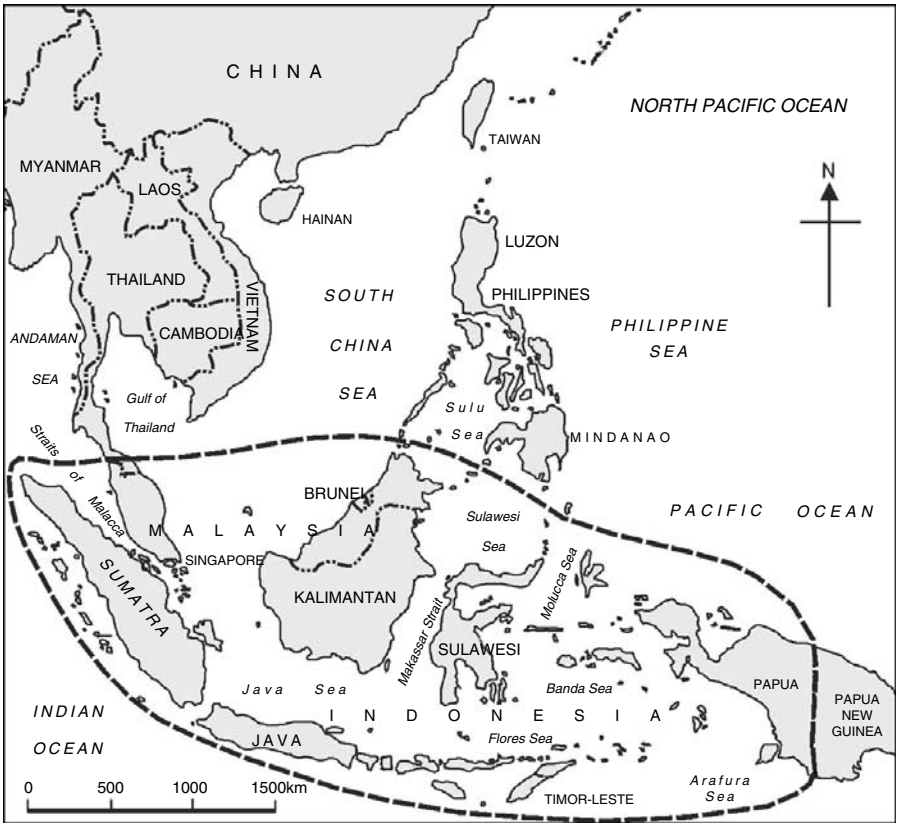

Figure 1.1. Map showing Southeast Asia and the Malay Archipelago (enclosed in a dashed line, as covered in the book) comprising the countries of Brunei Darussalam, Indonesia, Malaysia, the Philippines, Timor Leste and Singapore.

awareness of the underlying presuppositions and practical implications of the positions taken in these debates by conservation practitioners and planners, local community members, NGO activists and government administrators, as well as the range of academics from various disciplines who have focused upon problems of protected areas in their research. Although the issues involved are of global relevance, we feel that our focus upon the Malay Archipelago (Fig. 1.1), following in the footsteps of Wallace, allows a sharpened concentration and comparability among the case studies presented that will render the conflicting interests involved with greater intellectual coherence and facilitate envisioning appropriate resolutions with greater practical relevance to the region.

Protected areas of one sort or another remain the only hope for the imperilled biotas of the mega-biodiverse region of the Malay Archipelago, although optimum parameters of institutionalization, including appropriate legal

frameworks, in order to balance biodiversity protection with the claims of surrounding communities for sustainable livelihoods and agrarian justice, remain contested. Indeed, they provide the terms of debate for our book. The effectiveness and sustainability of protected areas will require not only effective measures of ecological protection, but also consideration of the subsistence needs and economic aspirations of the local peoples settled in and around such areas, as well as respect for their community resource rights and attention to formulating legal frameworks that can facilitate this balancing act.

In order to treat these issues with some measure of comprehensiveness, our book is situated at the interface of numerous disciplines, including conservation biology, legal studies, anthropology and political ecology. Although many of the papers are themselves multidisciplinary and encompass disparate views on protected areas – the most critical arena of tropical conservation – we have divided the book into three major parts that reflect dominant foci, though not exclusive orientations, in the papers included within each. Admittedly, due to the interdisciplinary nature of the book, the boundaries of sections are not always clear-cut, and there are some overlaps.

Part I (Conservation needs and priorities) foregrounds the biological aspects of biodiversity conservation in the region by exploring such questions as why the Malay Archipelago is a critical region for the preservation of tropical biodiversity. Why are protected areas crucial for the native biotas of the region? Through the use of case studies, examples are provided of how protected areas can be allocated, justified and better managed.

Part II (Conservation with and against people(s)) highlights the sociocultural dimensions of the establishment and impact of protected areas, especially such issues as the sustainability of livelihoods among members of local communities in and around national parks and other reserves. It explores alternative paradigms of environmental knowledge and institutional arrangements, including local notions of customary environmental management. Have indigenous ideas and local social institutions been sufficient to protect environments in the past? How can they be adapted and perhaps even accommodated to the scientific paradigm in order to confront the challenges of greater market demands for forest and marine products threatening environmental protection in the present and future? How have these new demands combined with changing legal frameworks, especially those establishing decentralization, to exercise an impact upon local communities' practices in regard to the environment? What misunderstandings and conflicts have arisen between proponents of differing paradigms of conservation, especially since the introduction of national parks and other reserves? Perhaps most importantly, what kinds of collaboration among local communities, local NGO activists, global conservation actors and

governments are needed to balance conservation in protected areas with sustainability of local livelihoods and vibrancy of local identities?

Part III (Legal and governance frameworks for conservation) focuses upon governance issues and analyses the laws, policies and institutions set up by governments for protected area management. It explores such problems as the failure of laws (and lawyers) to relate to the biological, sociocultural and political tensions inherent in protected area management. Underlying these concerns is the practical problem of how different government levels (federal/central, state/provincial and village/local) may actually be working at cross-purposes in law-making and policy-setting, rather than in a coordinated and coherent fashion. In particular, the political challenges of federalization in Malaysia and the more recent regional autonomy movement in Indonesia are assessed in relation to their impact on protected areas and local communities.

Despite the regional focus of our book, the issues discussed transcend geographic boundaries. We envisage our book as providing not only a forum for analysis of the various perspectives relevant to these problems, but also providing a basis for further dialogue among interested parties and the establishment of guidelines for at least mitigating, if not resolving, human and biodiversity conservation conflicts across most of the tropics.

End notes

1. Wallace had originally intended to travel to the Philippines as well, and he includes it in his map of the Malay Archipelago, but financial and temporal constraints prevented him from fulfilling this part of his plan. Although we would also have liked to include the Philippines within the scope of our volume, constraints on funding participants to the workshop on which this volume was based precluded this inclusion (Fig. 1.1). So, following Wallace, we have had to restrict our consideration to the current longstanding countries – Malaysia, Singapore, Brunei Darussalam, and Indonesia – that extend across the region, which he actually traversed. We regret as well the exclusion of Timor Leste, but as a new country it has only begun to consider the institutionalization of protected areas that we canvass in this volume.
2. The Philippines constitutes another hotspot on its own.

References

Mittermeier, R.A., Gil, P.R., Hoffmann, M. *et al*. (2004). *Hotspots Revisited*. Mexico City, Mexico: CEMEX.

Wallace, A.R. (2000). *The Malay Archipelago*. 10th edn (reprint). Singapore: Periplus.

Part I CONSERVATION NEEDS AND PRIORITIES

2

Introduction to Part I

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Although 12% of the planet's surface is protected, the global protected area network fails to encompass about a quarter of threatened vertebrate species that are in dire need of protection (Rodrigues *et al.* 2004). This result suggests that there may be a need to designate more protected areas, especially in the tropics where two-thirds of global biodiversity resides. Protected areas (reserves or national and regional parks) may be the only hope for retaining a reasonable proportion of residual tropical biodiversity (Bruner *et al.* 2001). However, major ongoing land conversion in the tropics will exert a massive negative impact on its biodiversity by the year 2100 (Sala *et al.* 2000). This anthropogenic land conversion is not limited to areas under no legal protection, as shown by DeFries *et al.* (2005). Using satellite imagery, they determined the habitat loss between the early 1980s and 2001 in 198 protected areas across the tropics that are critical for biodiversity (due to large size, a high level of protection and the presence of intact forests within the administrative boundary). Forest loss within and outside 'buffer' areas (the surrounding 50 km) was determined. Of the protected areas surveyed, 25% lost forests within their administrative boundaries, with 70% of them losing forests even in buffer areas. Buffer areas are critical as they dampen the negative effect of invasive species, fire and hunting in the protected areas. The loss of forest cover was most severe in South and Southeast Asia, with on average 4% and 6% loss of forest cover in and outside of the protected areas, respectively (DeFries *et al.* 2005). In this region, the canopy cover declined more rapidly in

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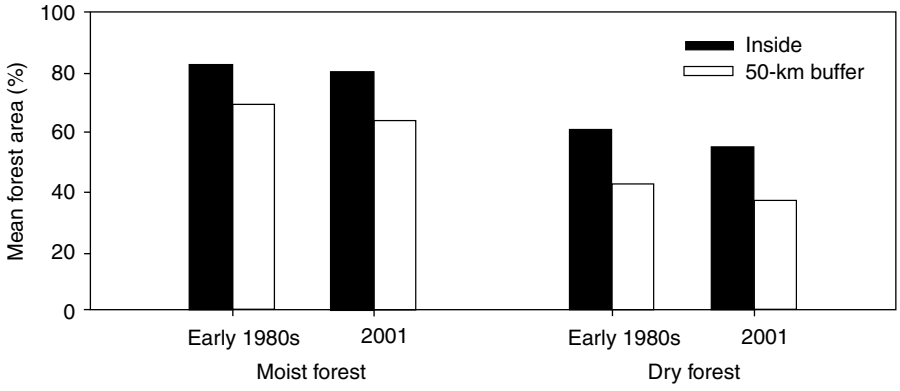
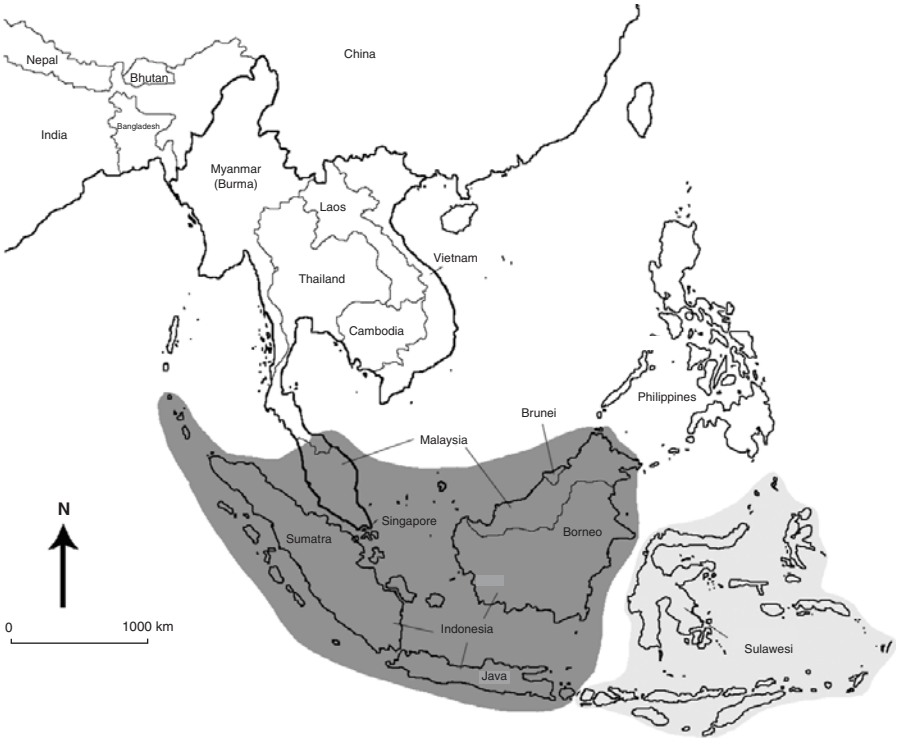


Figure 2.1. Loss of forest cover between the early 1980s and 2001 within and outside of protected areas of South and Southeast Asia. Data from DeFries *et al.* (2005).

and around protected areas containing dry forests than those areas with moist forests (Fig. 2.1).

As mentioned, we define the Malay Archipelago to be including the countries of Brunei, Indonesia, Malaysia and Singapore. These countries harbour the biodiversity hotspots of Wallacea (eastern Indonesia) and Sundaland (western Indonesia, Malaysia extending into southern Thailand, Singapore and Brunei) – containing a high number of endemic species of various taxonomic groups (Fig. 2.2). Worldwide, 34 biodiversity hotspots covering 16% of the planet's surface have been recognized as areas in critical need of conservation (http://www.biodiversityhotspots.org/xp/Hotspots). These biodiversity hotspots are defined as the regions that harbour a high diversity of endemic species and, at the same time, have been significantly impacted and altered by human activities (Myers *et al.* 2000). Large areas should be preserved in these areas to offer protection to the plethora of endemic species (Rodrigues & Gaston 2001). Overall, 20% of the forested land is protected in the Malay Archipelago (Table 2.1). This exceeds the global average of 12% but countries such as Malaysia are below this average. The further worry is that less than 0.05% of the marine area is protected regionally or in individual countries (Table 2.1). Clearly, more marine protected areas are needed in this region.

Further, it is not known if existing reserves receive adequate protection against activities such as illegal logging and poaching. Some so-called 'protected' forests in the Malay Archipelago have become isolated, degraded and/or deforested (Whitten *et al.* 2001; Curran *et al.* 2004). Protected lowland forests of the mega-biodiverse region of Kalimantan have declined by 56% (>29 000 km^2) between 1985 and 2001, due primarily to intensive logging (Curran *et al.* 2004). This forest decline is not restricted to the parks but has also occurred within



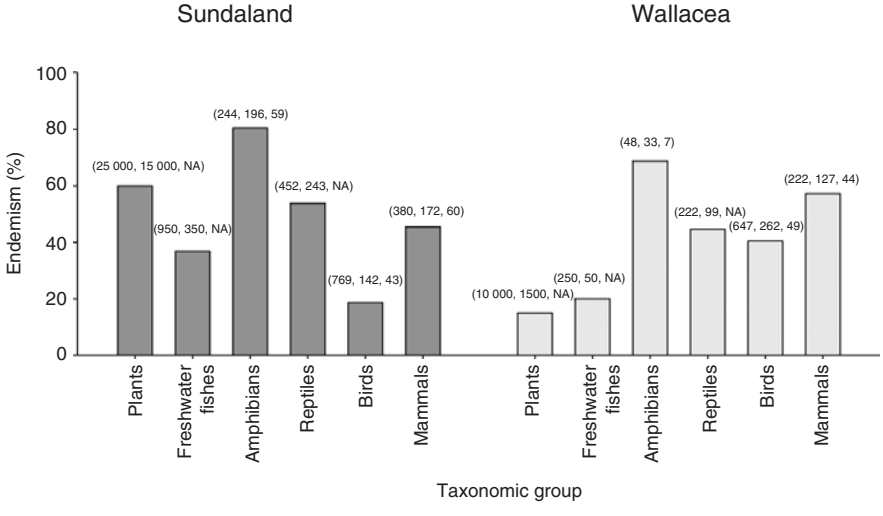


Figure 2.2. Percentage endemism in the Malay Archipelago. Numbers in parentheses represent total number of known species, number of endemic species and number of endemic threatened species (Conservation International 2005; http://www.conservation.org). 'NA' indicates data unavailable.

Table 2.1 *Terrestrial and Marine Protected Areas in the Malay Archipelago. Original Forest Areas are based on Billington* et al. *(1996). Current Forest Areas are based on Iremonger* et al. *(1997) and exclude disturbed natural forests and exotic plantations. Protected Forest Areas are based on World Conservation Monitoring Centre (WCMC) (2004). Territorial Sea Data are based on World Resource Institute (2005; WRI; http://www.wri.org). Marine Protected Areas are based on WCMC (2004)*

Country	Current Forest Area (000 ha) (% of Original Forest Area)	Protected Forest Area (000 ha) (% of Current Forest Area)	Territorial Marine Area (000 ha)	Marine Protected Area (000 ha) (% of Territorial Marine Area)
Malaysia	13 452 (41.1)	1528 (10.8)	15 236 700	501.2 (0.003)
Singapore	0.2 (0.3)	0.2 (100.0)	74 400	0.1 (0.0001)
Indonesia	91 134 (50.3)	19 318 (21.2)	320 569 500	13 007.1 (0.004)
Brunei	267 (50.7)	99 (29.9)	315 700	3.8 (0.001)
Total	104 853 (48.9)	20 945 (20.0)	336 196 300	13 512.2 (0.004)

the buffer areas – 70% of the forest cover was lost within a 10 km^2 buffer area surrounding the Gunung Palung National Park. As regenerating forest shows some potential for biotic recovery in certain areas, buffers, in addition to benefits mentioned above, could serve as excellent reservoirs to extend park boundaries.

Other studies illustrate similar problems faced by protected areas throughout the Malay Archipelago. Many protected areas in this region suffer from three main threats: illegal logging, encroachment by shifting cultivators and fires (http://www.fao.org). In Pulau Kaget Nature Reserve (Indonesia), excessive infringement by expanding farms has resulted in the loss of habitat for the threatened proboscis monkey (*Nasalis larvatus*). Translocation of these monkeys resulted in their demise from this reserve, and did not help them establish new populations elsewhere because it was ill-planned (to unprotected forests) and poorly executed (13 monkeys died during capture) (Meijaard & Nijman 2000).

O'Brien and Kinnaird (1996) surveyed selected bird and mammal species in Tangkoko-DuaSudara Nature Reserve (Sulawesi) in 1993/94, 15 years after this site was surveyed by MacKinnon and MacKinnon (1981). Tangkoko is isolated and by 1993/94 had lost almost half of its forest (O'Brien & Kinnaird 1986). Except the Sulawesi pig (*Sus celebensis*), all surveyed mammals declined in populations in this reserve in a short span of 15 years (Fig. 2.3). One mammal species, Javan rusa (*Cervus timorensis*) seemed to have been extirpated. Two of the bird species, maleo (*Macrocephalon maleo*) and red junglefowl (*Gallus gallus*) also