A Decade of Conservation by the Critical Ecosystem Partnership Fund 2001–2010

An Independent Evaluation of
CEPF's Global Conservation Impact

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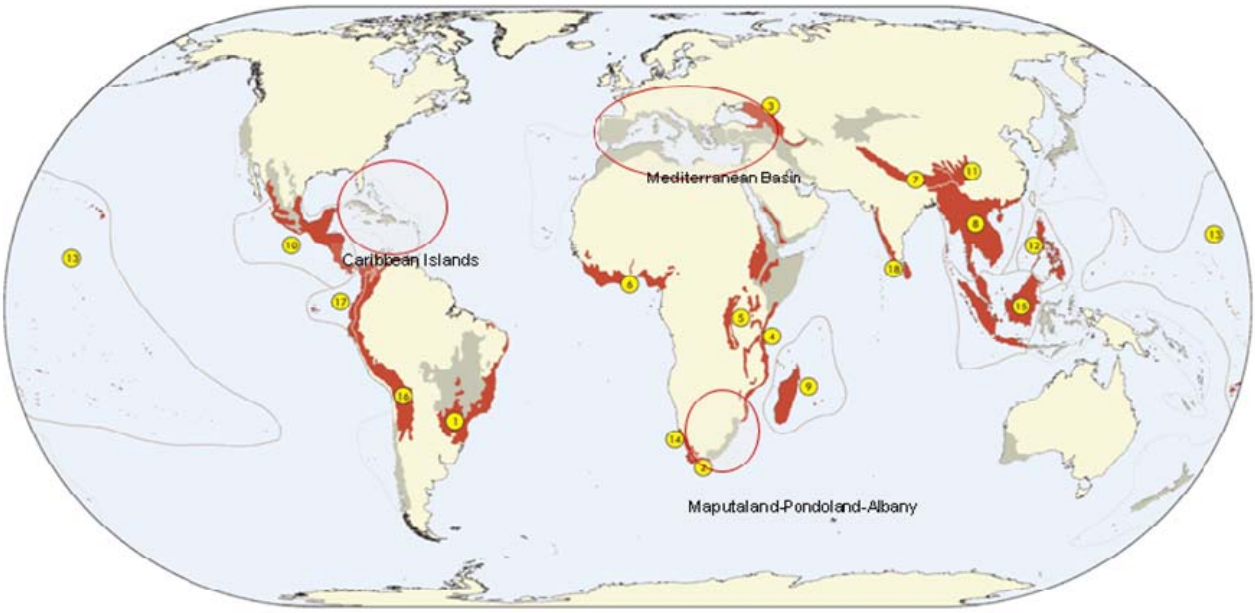

Critical Ecosystem Partnership Fund / Where We Invest

biodiversity hotspot — CEPF investment / other

Earth's biologically richest places, with high numbers of species found nowhere else. Hotspots face extreme threats and have already lost at least 70 percent of their original vegetation.

1. Atlantic Forest
2. Cape Floristic Region
3. Caucasus
4. Coastal Forests of Eastern Africa
5. Eastern Afromontane
6. Guinean Forests of West Africa
7. Himalaya
8. Indo-Burma
9. Madagascar and Indian Ocean Islands
10. Mesoamerica
11. Mountains of Southwest China
12. Philippines
13. Polynesia-Micronesia
14. Succulent Karoo
15. Sundaland
16. Tropical Andes
17. Tumbes-Chocó-Magdalena
18. Western Ghats & Sri Lanka

Executive Summary

The diversity of life on this planet is rapidly being lost as humans increasingly require more land and natural resources. This loss will substantially diminish future options, compromise ecosystem services, and degrade the quality of life for all. Arguably, the loss of the Earth's biodiversity is the single greatest threat to mankind's future on this planet. *The last decade of work by the Critical Ecosystem Partnership Fund (CEPF) represents the most significant response of our species to date to stop the hemorrhaging of our planet's biodiversity.*

Findings

Conserving Globally Significant Biodiversity

CEPF's global program specifically targets significant resources ($116 million in grants awarded) for conservation action towards multiple regions with pronounced concentrations of threatened species (18 regions, 51 countries), many harboring globally significant biodiversity that was largely overlooked in prior global conservation agendas. CEPF's investments reflect a sustained focus on species and their habitats, and the protected areas that are most efficient at conserving the greatest diversity, despite shifting trends in foremost environmental issues.

New protected areas covering an area roughly the size of Cuba can be attributed to the advocacy of CEPF grantees, and other biodiversity habitats nearly the size of Britain have benefited from improved management, including agreements with communities and the private sector to ensure sustainability. The global reach of the program is significant with 5 of the Earth's 8 biogeographic realms represented; 8 of 14 terrestrial biomes; 5 of 12 freshwater biomes; nearly a quarter of the planet's terrestrial ecoregions; and a quarter of the world's freshwater ecoregions. Global-scale conservation priorities are also well-encompassed: 21 of the 34 Hotspots, so far; nearly a quarter of the Global 200 priority ecoregions; a third of the Alliance for Zero Extinction (AZE) priority sites; and 40 percent of the world's Endemic Bird Areas.

From a global perspective, CEPF's biggest impact on ecosystem services has been the genetic, medicinal, food source, bio-control, and other potential opportunities saved through the improved protection of an enormous number of distinct species. The actual habitat area protected is minor in relationship to that required to begin to meaningfully influence global processes like carbon sequestration and climate change, although every bit helps. Locally, however, CEPF projects protect and maintain ecosystem services for a considerable number of people and communities around the world. Livelihoods and economies are improved at many scales within the regions.

Without CEPF's intervention, it is highly unlikely that other conservation programs extant a decade ago could have, or would have, stepped in to jump-start meaningful conservation in many important regions, due to high investment risk and uncertainty. Given how rapidly our planet is changing, many species, populations, habitats, and ecological processes can be lost in ten years. The incremental benefit of CEPF to the Convention on Biological Diversity's (CBD) 2010 goal to achieve a "significant reduction of the current rate of biodiversity loss" has been tremendous for this

contribution alone. An improved outlook for a conservatively extrapolated 55,000 threatened species can be attributed directly to CEPF programs, with many more vulnerable and, as yet, stable species benefitting as well.

Increasing Effectiveness of the Conservation Community

The premise that strengthening civil society's role in conservation is critical for actuating sustainable protection for species and habitats is showing signs of being a sound underlying strategy for CEPF investments. Over 1,500 civil society groups have been supported and are becoming an active constituency for conservation, with an expanding seat at the table in natural resource deliberations and a growing influence on mainstreaming biodiversity within governments and the private sector. The $222 million they have leveraged so far indicates they will have a sustained role and impact. Over the past decade, CEPF has demonstrated that investing in civil society works well for conservation.

Thirteen of 18 CEPF investment regions show improvements using a simple index of conservation community effectiveness. Only 2 of the 16 Hotspots that have not yet had CEPF investments improved significantly over the last decade, although 3 of the 16 of these already had 'highly effective' conservation communities. If these estimations are even close to the real situation, then one can confidently conclude that the application of a CEPF program, or a program modeled on CEPF, does improve the effectiveness of the conservation community, particularly the civil society component, and sometimes markedly.

Achieving the desired zoning and management proposed in conservation strategies, such as CEPF's Ecosystem Profiles, may take a generation. Basic actions like bringing people together to discuss a common conservation vision and establishing opportunities for ongoing dialogue and new partnerships among diverse stakeholders are standard CEPF practices and have helped secure conservation gains (84 conservation forums or alliances were initiated by CEPF). CEPF's flexibility in approach and relationship requirements allows it to tailor regional programs effectively to local conditions and balance grant portfolios among long-term priorities, crises, and innovation. Fifty indigenous groups have been engaged, 22 industries, and hundreds of local communities over the past decade to find the balance between conservation, livelihoods, quality of life, and development. CEPF's model of developing initial participatory conservation strategies for identified hotspots of extinction, providing immediate implementation grants together with consistent organizational guidance and interaction, maintaining a focus on sustainable financing (14 sustainable financing mechanisms were put in place, globally), and encouraging marked innovation and calculated risk-taking in investments has proved to be measurably successful over the past ten years.

Recommendations

Enhancing Impact

Conservation impacts will be more solidly secured if the investment configuration for each Hotspot is expanded from 8 to 10 years with budgets in the range of $10 to $20 million USD. A quarter of the funding should be set aside until the last 3 years to support highly effective initiatives and emergent priorities or to respond to significant crises, effectively building in a

'consolidation' mechanism. Existing consolidation phases should go forward, but with an emphasis on supporting activities of local NGOs rather than Regional Implementation Teams (RITs) and non-site-based international NGOs. CEPF regions that have not experienced this level or duration of attention should be revisited to approach this investment configuration.

RITs play a critical role in delivering CEPF's conservation gains and they should be maintained; however, their operating budgets should be reduced after an initial two years and their role shifting towards supporting local groups in implementing projects and in helping to develop sustainable funding mechanisms. Wherever possible, local organizations should be sought to function as RITs to increase regional capacity and reduce cost.

CEPF should develop a 'vision' for the structure, capacity, and effectiveness of a Hotspot's conservation community, particularly the civil society component. This critical tool will guide grant-making and disengagement strategies at many levels.

The Future for CEPF

After a decade of building and learning, CEPF stands alone as the most important tool we have for reducing the loss of biodiversity at significant scales around the world. Protecting species and their habitats remains a complex and challenging task that will require the full attention of the program into the future. It is critical that CEPF vigilantly retain its niche and strategic focus on reducing biodiversity loss and not become distracted by other priorities.

Despite the considerable challenges, conservation will be best served if CEPF applies its conservation model to as many Hotspots as possible over the next decade. CEPF's process and catalytic support has the potential to dramatically shift conservation momentum even with modest investment. The wealth of new, threatened biodiversity receiving conservation attention with the addition of any new Hotspot into the portfolio strongly supports CEPF's global mission. The entire region for those Hotspots where CEPF targeted only a particular sub-region should be revisited, as well.

CEPF should consider expanding its conservation model and program to non-Hotspot ecoregions. There are few conservation tools like it and there is a lot of threatened biodiversity around the world. The kinds of conservation activities promoted by CEPF will be effective in all regions and building upon an existing program is much more cost-effective than assembling a new one. CEPF has also demonstrated the great benefits of donor coordination and a strong and effective consortium already exists. High priority regions for attention include threatened biomes such as tropical dry forests and temperate grassland, rapidly changing Sahelian ecoregions, and freshwater ecosystems.

For the scale of its investments, CEPF has made a profound contribution to global conservation owing to its biodiversity focus and willingness to invest in areas of risk and uncertainty, tailoring its investment profiles to each unique scenario, and its commitment to the lengthy and challenging work of building conservation awareness and constituencies. Given the magnitude and urgency of the biodiversity crisis, expanding and strengthening CEPF makes good sense for the interests of our own and fellow species.

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CEPF 10-Year Evaluation of Global Impact

The Critical Ecosystem Partnership Fund unites six global leaders who are committed to enabling nongovernmental and private sector organizations to help protect vital ecosystems. Conservation International (CI), the Global Environment Facility, and the World Bank launched the Critical Ecosystem Partnership Fund (CEPF) in 2000 as an urgently needed new approach to enable nongovernmental organizations (NGOs), community groups, and other sectors of civil society to participate in conserving the hotspots. The program's unique focus on hotspots and civil society attracted the John D. and Catherine T. MacArthur Foundation as a partner in 2001 and the Government of Japan in 2002. L'Agence Française de Développement, the French Development Agency (AFD), also joined the partnership in 2007. The hotspots approach to the conservation of ecosystems is a highly targeted strategy for tackling the challenge of biodiversity loss at the global level. As many hotspots cross national borders, the approach transcends political boundaries and fosters coordination and joint efforts across large landscapes for the benefit of the global environment.

The year 2010 will mark the 10-year anniversary of the Critical Ecosystem Partnership Fund (CEPF). Launched in August 2000, CEPF has become a global program enabling more than 1,500 nongovernmental and private sector organizations to help protect vital ecosystems. Designated as the International Year for Biological Diversity, 2010 also marks the target for the Parties to the Convention on Biological Diversity (CBD) to achieve a "significant reduction of the current rate of biodiversity loss." This target was subsequently endorsed by the World Summit on Sustainable Development and the U.N. General Assembly and was incorporated as a new target under the Millennium Development Goals. The tenth CBD meeting will be hosted by the government of Japan, a CEPF partner, in October of this milestone year.

During the Fifteenth Meeting of the Donor Council held in September 2009, the Council asked that an evaluation of CEPF be undertaken as a tool to demonstrate the program's impact, particularly as part of planning for the tenth anniversary. The Donor Council requested a rapid, streamlined evaluation by the partnership. The evaluation has been undertaken as a global review to identify the program's impact since its first year of grant-making in 2001. The emphasis is on the program as a whole, rather than on the effectiveness of individual field programs or components. The review includes analysis and reporting of specific examples and case studies from regional portfolios to demonstrate impact.

A wide range of CEPF Ecosystem Profiles, region assessments and final reports, program evaluations and other relevant documents were consulted for this evaluation. CEPF staff provided information and insightful discussions. Conservation specialists and practitioners experienced with global conservation programs and familiar with CEPF and its impacts and challenges were interviewed. Visits to the Succulent Karoo and Southern Mesoamerica regions offered perspectives from the field.

Chapter 1
Conserving Globally Significant Biodiversity

CEPF Strategic Framework Component 1:
Strengthening protection and management of globally significant biodiversity

Paying Attention to the Important Places

The single most significant contribution of CEPF has been to provide much needed conservation attention to many of the highest priority biodiversity regions around the world that, for one reason or another, had not received adequate attention from national governments nor galvanized the sustained interest of the international conservation community. Such regions were heading down a path of dramatic loss, despite the presence of a few, under-resourced, but committed, conservationists and reserve staff and some modest foreign investments. Unfortunately, without charismatic pandas or tigers, many important ecoregions struggle for adequate conservation action. And few places around the world, even those with long-standing conservation investment, have benefited from modern recipes for conservation success—science-based plans championed through broad consensus; participation and empowerment of diverse stakeholders; and carefully targeted, catalytic, and sustained actions.

The Succulent Karoo illustrates this well—a xeric landscape seemingly devoid of charismatic wildlife, yet supporting some of the world's most extraordinary assemblages of plants, largely cryptic and non-descript, but occurring in concentrations resembling a terrestrial coral reef and capable of blazing floral displays. A handful of national parks did not capture the rich complexity of the region's flora, and most of the ecoregion was becoming a landscape of loss through chronic degradation. CEPF investments transformed conservation awareness and action within this 'orphan' hotspot of globally outstanding biodiversity through comprehensive and participatory conservation planning, mainstreaming efforts, and coordinated on-the-ground activities. Other neglected regions, including the Guinean forests of West Africa with their unique mammal faunas, the species-packed mountains of southwest China, the ancient biota of the Western Ghats, and the extinction hotspot of Polynesia and Micronesia, shared similar trajectories due to various combinations of civil strife, societal constraints, uncoordinated actions, and limited resources. In such areas, CEPF has been transformational in terms of the direction and momentum of conservation, building solid foundations for growth and action, although the positive impacts of CEPF in any given region are consistently much smaller than the total conservation problem, highlighting its catalytic role and the need for sustained support.

Without CEPF's intervention, it is highly unlikely that other conservation programs extant a decade ago could have, or would have, stepped in to begin meaningful conservation in these largely neglected regions, many with high investment risk and uncertainty. Given how rapidly our planet is changing, many species, populations, habitats, and ecological processes can be lost

in ten years. Thus, the incremental benefit of CEPF to the Convention on Biological Diversity's (CBD) 2010 goal to achieve a "significant reduction of the current rate of biodiversity loss" has been tremendous for this contribution alone (see Box 1 for estimations of the total number of species positively impacted). While the degree of 'significant reduction' is inherently difficult to measure (Appendix 1 conservatively extrapolates 55,000 threatened species directly benefitting from CEPF projects), the advanced state of habitat degradation in these hyper-endemic regions presaged an escalating number of species reaching thresholds of endangerment and extinction, so the time was right for intervention.

Knersvlakte succulent of the Succulent Karoo Photo: E Cloete

The Extinction Crisis

Species are critical units of biodiversity—ecosystem productivity, resiliency, and processes are all dependent upon the diversity of the species present. All the plants and animals that make up Earth's biodiversity have a role and contribute to essentials like food, medicine, oxygen, pure water, crop pollination, carbon storage, and soil fertilization. Mankind needs them all, in large numbers, and, quite literally, cannot afford to lose them. Economies are utterly dependent on

species diversity. To lose even a single species represents a loss of millions of years of selection and adaptation, and the potential of any given species providing an inestimable benefit to human society through its genetic diversity, proteins, structural and ecological adaptations, and ecological role.

Current statistics of species loss are grim. The recent update of the IUCN Red List of Threatened Species (Vie *et al.* 2009) has 47,663 species being assessed against the IUCN Red List of Threatened Species Criteria and of these, 875 species are Extinct or Extinct the Wild and this figure rises to 1,159 if the 290 Critically Endangered species tagged as Possibly Extinct are included (Table 1). A minimum of 17,286 species are threatened with extinction, overall. Given that only 2.7 percent of the 1.9+ million described species have been analyzed and that most of the species believed to be going extinct are poorly known invertebrates, this number is a gross underestimate. Indeed, if initial data on the degree of local endemism in rainforest canopy invertebrates is verified (that is, very high rates of species turnover over 25 km), then estimates of over 80 to 100 species a day going extinct globally from habitat loss are not unrealistic given present rates of deforestation of lowland tropical forests (Tangley 1997, Erwin 1994, but see Novotny & Weiblen 2005).

The deterioration of species towards greater endangerment and extinction is accelerating around the world as habitat loss and fragmentation begin to exceed thresholds of species viability in different regions and the demand for wild species continues to rise dramatically. Vie *et al.'s* (2009) analysis of the Red List data revealed that one third of amphibians, more than one in eight birds, and nearly a quarter of mammals are threatened with extinction. For some plant groups, such as conifers and cycads, the situation is even more serious, with 28 percent and 52 percent threatened, respectively. All species groups assessed to date are deteriorating in status. Many more species are slipping towards extinction than are improving in status as a result of successful conservation action. For all these groups, habitat destruction, through agriculture, logging and development, are the main threats, although primary threats to species and taxa varies considerably within CEPF regions. For example, a combined effect of hunting and habitat loss is presently decimating much of the terrestrial vertebrate wildlife in the Indo-Burma region and invasive species are a major contributor to native species declines in the Polynesia/Micronesia region.

Has the global CEPF program contributed significantly to slowing extinction rates? This was the original *raison d'etre* for conservation action in the Hotspots. CEPF reports 1,620 threatened species were targeted by projects over the last decade (Table 2). Unfortunately, gathering definitive evidence that conservation interventions are 'saving' a species is notoriously difficult, particularly after only 3 to 5 years of a typical project window, or even 10 years after program initiation. While removing rats from an island can have dramatic and clearly measurable results, most species populations respond rather slowly to interventions and assessments are complicated by the influence of multiple factors on trajectories and the lack of appropriately designed tests. Confidently measuring the reduction of biodiversity loss that can be directly attributed to CEPF actions is challenging given that biodiversity loss in control Hotspots (that is, Hotspots that have not yet benefited from CEPF programs) has not been tracked, nor has it been monitored in non-target species/habitats within active investment regions. In general, CEPF regional programs,

like most ecoregion- or global-scale conservation programs, are generally lacking in the tools needed to rigorously evaluate conservation interventions (Ferraro & Pattanayak 2006) both within (analyses of the efficacy of interventions in protecting KBAs are underway by CEPF teams) and among Hotspots, specifically:

- A consideration of ecological and socioeconomic factors that co-vary with different interventions.
- Guess-estimations of the direction of potential bias in interpreting intervention effectiveness.
- Constructions of simple control groups (those that do not receive the intervention).
- Collecting data on outcomes and key inputs before and after interventions.

Without these analytical tools in place at the outset of program implementation, it is difficult to accurately measure the counterfactual question of "how much would have been lost had CEPF not intervened?" The logical frameworks developed for the global program and for each regional program are designed to track progress towards outcomes, but assessing attribution of progress to specific interventions requires carefully considered tests initiated at the outset of a program.

At a bare minimum, only one species specifically targeted by CEPF grants is believed to have gone extinct in the wild, the Kihansi spray zone toad (*Nectophrynoides asperginis*), although the extinction trajectories of several other amphibian species are also of great concern due to the spread of chytrid fungi. The predicted declines of some, like the Taita thrush (*Turdus helleri*), are suggested to have been arrested by CEPF interventions. In some cases, steps toward recovery in CEPF-target species are indicated through field surveys. For most, however, we must rely on proxies of habitat protection and diminishment of threats for assessing the program's impact on trajectories of species loss.

Given that natural habitats within Hotspots are highly disturbed, and that extinction rates are typically elevated as the last of the habitat disappears, even seemingly minor achievements in habitat protection and improved ecological conditions may have a considerable benefit for a large number of species edging towards extinction. Within most Hotspots, much of the major habitat loss (ranging from 70% to 95%) occurred decades to millennia ago. The vast majority of arable land was converted early on and industrial logging, agriculture, and other development has taken out much of the remaining accessible habitat over the last few decades (there are examples of recent dramatic loss, such as the corridor between the montane forests of the Talamanca Highlands of Costa Rica and the Indio-Maiz lowlands of Nicaragua that has recently been severed due, in part, to an expansion of pineapple and banana plantations, the high deforestation rates in the Tumbes-Choco forests, and the lowland coastal forests of East Africa and the Guinean forests of West Africa continue to decline due to agricultural pressure and logging). Considerable extinction of local endemics and some area-sensitive species is likely to have already occurred well before CEPF arrived. Some species populations may have stabilized after a period of equilibration, but many others are likely to be incrementally moving closer to thresholds of extinction in progressively more degraded landscapes experiencing increasingly intensive threats. A given habitat loss event during this stage of ecoregion decline (that is, the present situation of less than 30% natural habitat) may, therefore, have an increasingly high

probability of species extinction associated with the loss of the last habitats. This is especially the case in ecoregions with pronounced local endemism and beta-diversity (that is, turnover over distance or along gradients), such as in the Cape Floristic Province, New Caledonia, Succulent Karoo, Tropical Andes, Tumbes-Choco, Mesoamerica, and Polynesia/Micronesia regions. Some species do seem to be able to hang on even under dire conditions, the Cebu flowerpecker (*Dicaeum quadricolor*) and the Haitian amphibians of the Massif de la Hotte offer some resilient examples, but as habitats vanish and conditions erode the rate of extinction will inexorably rise.

CEPF's actions that are aimed at securing the last intact habitat fragments and restoring conditions across degraded landscapes can be assumed to be making a real difference in reducing the rate of biodiversity loss at a point where extinction rates are predictably high and accelerating within most regions. *If invertebrates, plants, fungi, and other non-vertebrate phyla are considered, one can reasonably surmise that the survival prospects of at least several thousands, if not hundreds of thousands, of species have been significantly improved around the world through CEPF's actions.* Appendix 1 of this evaluation provides an argument for many thousands rather than hundreds of beneficiary species. A conservative figure of 55,000 threatened species directly benefitting from CEPF projects over the last decade is suggested based on extrapolations from global patterns of diversity within ecosystems, the proportion of threatened species documented within taxa, and habitat directly affected by CEPF projects within Hotspots (Appendix 1).

Measuring stabilization or recovery in the status of threatened vertebrates on the IUCN Red List, though, requires careful field surveys and monitoring of trends over years to decades (Table 1). All CEPF Ecosystem Profiles have identified tracking the status of Red List species as a prominent objective, and data gathering on Red List criteria is underway in many regions. However, shifts across major Red List categories for most vertebrates seems to occur over decades, in general, so it is too early to assess impact using this metric. Moreover, the extent and quality of the georeferencing of CEPF projects to Red List species has been patchy among the regions and projects.

CEPFs pioneer efforts to georeference threatened species within remaining habitats (KBAs), employ Red List species information for discriminating priority sites and actions, and fill in gaps for data deficient species (emphasizing priority taxa rather than all species) are solid efforts aimed at maximizing the benefit of CEPF investments for species conservation. That being said, taken together, the Ecosystem Profiles and Region Assessments suffer from a lack of a standardized approach for counting Red List species within Hotspots and KBAs, tracking those targeted by CEPF projects, and georeferencing Red List species to specific KBAs or CEPF projects. In fact, a thorough review of CEPF literature, reports, and websites (including the CI Hotspot website) still produced major gaps for the total number of Red List species within Hotspots. More recent Ecosystem Profiles are showing improvement in all of these areas (for example, Caribbean).

Overall, though, CEPF's continuing focus on species conservation, with sizeable and sustained investments in many important regions and direct action for multiple species, made the global program the most significant champion for species over the last decade. The global program has

stepped in at a decisive time to provide medium-sized grants for critical projects that would have been difficult to fund otherwise, which, in turn, have catalyzed large numbers of activities for species conservation in important areas. The sheer number of species around the world directly benefiting from targeted CEPF projects dwarfs any other concurrent conservation initiatives.

This steadfast focus on species is profoundly important at this critical juncture in conservation's history. The pendulum of conservation focus has swung heavily towards ecosystem services and climate change in recent years. While these *are* crucial issues, attention to species conservation needs to be maintained because: (i) reducing current threats to species will help them to adapt to climate change, allowing them to continue to play an important role in the provision of ecosystem services; (ii) the needs of threatened species are often not met by projects strictly focused on poorly-defined ecosystem services, climate change, or poverty alleviation or even projects focused on protected area management without targeted actions for species; and (iii) biodiversity loss represents a pivotal and irremediable calamity. Indeed, the loss of Earth's slowly evolved biodiversity represents an irreversible—at least over a scale of millions of years—loss of genetic opportunities and other ecosystem services to human society. Climates can change over the scale of tens to thousands of years and society can adapt to some degree, but the loss of biodiversity is functionally permanent and we, as a species, have only a few decades to protect what biodiversity remains given current trajectories of loss and degradation. In a robust global or regional conservation strategy, there is no substitute for a large component of conservation projects targeted at individual threatened species and their habitats. CEPF's programs largely fulfilled this critical role while the world's attention was diverted elsewhere.

Table 1. Number of Red List Threatened Species for mammals, birds, reptiles, amphibians, invertebrates, plants, and freshwater fish for each Hotspot. Reptiles, plants, invertebrates, and fish have been poorly assessed worldwide, in general. The majority of values are taken from the CEPF and CI Hotspot websites, although, in a few cases, threatened species lists provided by governments or technical studies were used . n/a = not available.

Hotspot	# Red List (CE, E, V) Mammals in Hotspot	# Red List (CE, E, V) Birds in Hotspot	# Red List (CE, E, V) Reptiles in Hotspot)	# Red List (CE, E, V) Amphibians in Hotspot	# Red List (CE, E, V) Inverts in Hotspot	# Red List (CE, E, V) Plants in Hotspot	# Red List (CE, E, V) Fish in Hotspot
Atlantic Forest	21	55	n/a	14	n/a	n/a	n/a
California Floristic Province	5	4	17	8	30	565	15
Cape Floristic Region	1	0	n/a	7	n/a	1435	n/a
Caribbean Islands	27	51	37	145	n/a	428	5
Caucasus	18	11	10	4	n/a	729+[1]	7
Cerrado	4	10	n/a	2	n/a	n/a	n/a
Chilean Winter Rainfall - Valdivian Forests	5	6	n/a	15	n/a	~600	n/a
Coastal Forests of Eastern Africa (without Eastern Arc Mountains	29 (6)	28 (2)	n/a	33 (4)	7	236	n/a

included)							
East Melanesian Islands	20	33	n/a	5	n/a	n/a	n/a
Eastern Afromontane	48	35	n/a	30	n/a	n/a	n/a
Guinean Forests of West Africa	35	41	n/a	39	n/a	n/a	n/a
Himalaya	45	50	16	12	3	36	n/a
Horn of Africa	8	9	n/a	1	n/a	n/a	n/a
Indo - Burma	60	73	31	46	n/a	247	32
Irano - Anatolian	3	n/a	n/a	2	n/a	n/a	n/a
Japan[2]	47	90	14	18	118	1399 (+327other non-vascular plants)	76
Madagascar/Indian Ocean Islands	51	57	n/a	61[3]	n/a	n/a	n/a
Madrean Pine - Oak Woodlands	2	7	n/a	36	n/a	n/a	n/a
Maputaland - Pondoland - Albany	2	0	n/a	6	n/a	n/a	n/a
Mediterranean Basin	11	9	n/a	14	n/a	n/a	n/a
Mesoamerica	29	31	n/a	232	n/a	n/a	n/a
Mountains of Central Asia	3	n/a	n/a	1	n/a	n/a	n/a
Mountains of Southwest China	3	2	n/a	3	n/a	n/a	n/a
New Caledonia[4]	3	7	3	1	413	279	97
New Zealand[5]	3	37	11	4	280	797	5
Philippines	47	56	n/a	48	n/a	n/a	n/a
Polynesia - Micronesia	9	96	6	1	121	243	n/a
Southwest Australia	6	3	n/a	3	n/a	2500[6]	n/a
Succulent Karoo	1	1	n/a	n/a	n/a	851[7]	n/a
Sundaland	60	43	n/a	59	n/a	n/a	n/a
Tropical Andes	14	110	n/a	363	n/a	n/a	n/a
Tumbes – Choco	7	21	n/a	8	n/a	n/a	n/a
Wallacea	44	49	n/a	7	n/a	n/a	n/a
Western Ghats and Sri Lanka	31	15	4	52	n/a	229	1

[1]The Red List for plants of the Caucasus Hotspot is due in early 2010, a CEPF-supported project.
[2]Red List data for Japan: http://www.biodic.go.jp/english/rdb/rdb_f.html

[3]Recent genetic analyses suggest Madagascar's amphibian diversity is close to double of current figures with likely consequences for increasing Red List numbers (Vieites *et al.* 2009)
[4]Red List species for New Caledonia from: http://cmsdata.iucn.org/downloads/new_caledonia.pdf
[5]Red List species for New Zealand from: http://nzpcn.org.nz/page.asp?help_faqs_NZ_plants; http://www.teara.govt.nz/en/
[6]Source: (Hopper & Gioia 2004, but see Gole 2006 which lists only 371 threatened plant species)
[7]Red List plant numbers for the Succulent Karoo from the following: http://www.worldwildlife.org/wildworld/profiles/terrestrial/at/at1322_full.html

Habitat Protection

Protected Areas

Simply stated, there is no substitute for protected areas as the single-most effective (and cost effective over the long-term) way to save the largest number of species, habitats, and ecological interactions and processes. Protected natural habitats on land, around the rivers, and in the sea are the key to reducing biodiversity loss. Managed landscapes provide great refuge for many species, yet protected areas offer irreplaceable conditions to vast numbers of species and populations that are sensitive to even low levels of disturbance over time. They also consistently provide conditions that offer species and populations the best chance for local adaption to climate change.

Dynamic change characterizes our planet's history and people have long been a well-integrated species within most ecosystems. However, the Hotspots approach, with CEPF as a mechanism for implementation, promotes outcomes focused on reducing biodiversity loss within the 'old growth' part of our planet, broadly defined as 'remaining natural habitat' not heavily impacted by humans. Clearly, there are some exceptions, such as projects focused on migratory species and some that others survive well within production landscapes. However, CEPF has steadfastly retained a focus on strengthening and expanding the global protected area network, in partnership with governments and other funds like the Global Conservation Fund (GCF) and GEF, and protecting the species found within them through a range of activities from technical assistance for reserve staff and finding sustainable funding mechanism to engendering ownership and support within surrounding communities. A review of all CEPF projects reveals a consistent emphasis on improving management capacity within existing protected areas through PA and surrounding habitats. This is reflected in the numbers of projects focused on PA management, the budget allocations towards these activities, and multiple efforts to secure sustainable financing for long-term stewardship. CEPF is now employing PA management effectiveness tools (Stolton *et al.* 2003, 2007) for all protected area projects, which will enable improved tracking of progress in the future. CEPF's unwavering emphasis on protected areas as the foundation for protecting biodiversity through a tumultuous decade of shifting conservation focus and intensifying biodiversity loss represents a major contribution to the global conservation agenda.

New Protected Areas

Although the addition of new protected areas equivalent to an area the size of Cuba is substantial and encompasses a wealth of biodiversity, including some globally outstanding concentrations of species, it is roughly 1% of the remaining natural habitat within the targeted Hotspots. The

lesson here is that despite solid investment and much hard work, the creation of protected areas is a slow process, in general. On occasion, large protected areas or networks of protected areas are gazetted rather quickly (CEPF's contribution towards the creation of the 26,000 km^2 Sperrgebiet National Park in Namibia, the second largest protected area in Sub-Saharan Africa, is a notable example), but slow accretion of reserves is the norm.

CEPF's contribution should not be heavily judged on the rate of demarcation of new protected areas relative to the desired protected landscapes (full set of KBAs and corridors) put forth in ecosystem profiles. Rather, the growth of the protected areas system, buffer landscapes, and corridors after one to two decades will be the legacy of CEPF given the underlying premise that applying the CEPF model to regions (that is, supported science-based plans, implementation grants and technical assistance, venues for dialogue, focus on sustainability) will actuate on-the-ground conservation over time. The landscape context of the habitat that has been protected better reflects the significance of an addition far more than just the total hectares. For example, is the habitat among the highest of the high priorities within an ecoregional (e.g., CEPF Ecosystem Profile) or global conservation strategy? Is it an isolated fragment or is embedded within a larger ecosystem with inherently greater ecologic resilience and a refuge for area-sensitive species? Are the management or defensibility costs sufficiently low to allow adequate management or even persistence over time? Do the new protected areas make up a good proportion of those candidate areas identified in a regional strategy that had a medium to high chance of protection? CEPF's contribution could be deemed profound if it helped protect the set of protected areas that realistically were 'available' over the next few decades, with the remainder practically considered 'out of reach' due to expansion of agriculture or other drivers of habitat or species loss.

Arguably, CEPF's greater contribution to habitat conservation within each 3 to 5 year window of investment has been to strengthen the effectiveness of management within existing protected areas and encourage more biodiversity-compatible management across production landscapes, rather than the addition of new protected areas. Globally, CEPF claims it has improved management on utilized (natural habitat, but not formally protected and used for grazing, non-timber forest products, timber production, agriculture, etc.) landscapes for an area the size of Britain, equivalent to roughly 13% of the remaining natural habitat within Hotspots (Table 1). Improving management within such habitats emerges as particularly significant where it provides adjacent habitat acting as a buffer to protected areas and relatively intact natural ecosystems.

CEPF's careful and thorough consultation with biodiversity and protected area specialists during the profiling phase has helped ensure that truly significant blocks of habitat are the focus of projects. For example, the Indo-Maiz forests of southeast Nicaragua remain the last large block of lowland moist forest in southern Mesoamerica; the forests of Taveuni, Fiji are among the last in the South Pacific to remain intact from the volcanic peaks to the sea and host an exceptionally distinct biota; and the western arc of the Amazon forests are simply the richest ecosystems on the planet. Spending sufficient time and resources at the outset of a regional program to identify genuine priorities continues to be a key element for significant gains.

The reserve network established for the Knersvlakte region of the Succulent Karoo illustrates CEPF's ability to identify and act on global habitat priorities. This network of former goat and sheep pastures protects one of the most distinctive and outstanding plant communities anywhere in the world. The local richness and endemism within these assemblages tops the global list for xeric ecosystems, with 1,324 plant species, more than 140 locally endemic species, with greater than 50 species recorded in 10 m^2 of habitat. At first glance the habitats are exceptionally uncharismatic, but CEPF's focus on biodiversity in all of its forms, respect for local science and scholarship, and intensively participatory approach for identifying priorities has enabled the program to bring to fruition a globally outstanding protected area. This particular reserve network presents an interesting case where all the right elements for success were in place—high quality surveys, biodiversity mapping, taxonomic knowledge, and identification of priority sites within the area was largely in place prior to CEPF's arrival; a committed and competent local NGO with exceptional staff to undertake the hard work of rights, real estate, negotiations, and long-term management; a grant program willing to support a broad range of tasks necessary to build a reserve network; and an existing trust fund for land purchase specifically dedicated to plant conservation areas in the Karoo.

Habitat Loss

Complementing CEPF's activities aimed at formal protection of natural habitats are efforts to reduce habitat loss, whether it is within or outside of formal protected areas. For most Hotspots, threats to habitat are widespread and intense, and often being driven by trends in distant economies or other external factors. A consistent pattern of CEPF investment strategies and implementation is an adequate identification of the drivers of habitat loss and an efficacious targeting of activities best suited for civil society groups to address threats, despite the relatively simple threat assessments documented in Ecosystem Profiles and Final Regional Reports. Ecosystem Profiles typically present a qualitative synopsis of threats, root causes, outcomes affected, and some intra-regional patterns and lack the more involved rankings, characterizations, results chains, root cause analyses, drivers of change analyses (DOC), etc. commonly seen in ecoregion-scale assessments and strategies of other conservation programs (for example, WWF, The Nature Conservancy, Conservation International). For the most part, the profiles accurately identify the critical drivers and interactions affecting habitat loss and which general interventions can make the most difference, but they lack in-depth social and institutional analyses. CEPF's extensive consultations with local stakeholders and specialists, as well as departments within the donor organizations that focus on root causes, appear to provide adequate direction for effective profile investment. For this reason, 'cutting-edge' threat analysis may not be a particularly important area of growth for CEPF. (However, CEPF profiles and overall conservation success would be improved if a 'vision' of how the conservation community, particularly the civil society component which is the target of CEPF, should be best configured for strong and sustained effectiveness [see Chapter 2]).

CEPF strategic directions and investment portfolios are consistently well-tailored to the particular pattern of threat within each region. Good leadership in profile development and program coordination has helped produce an adequate balance of activities addressing threats of interest to local NGOs to advance their capacity, tidal waves of habitat loss associated with

external drivers, and crisis threats to key biodiversity areas and corridors. CEPF has done an admirable job in finding a good balance throughout all of the regions. A clear example is CEPF's efforts to empower civil society groups to organize and advocate against several major road development projects in Mesoamerica, or at least negotiate for design and practices that would minimize biodiversity impacts. Major roads spell trouble for forested landscapes as settlement, expansion, and hunting reduce habitat and species populations for decades to come in surrounding forests. In this case, reacting to impending crises had the dual result of trying to mitigate a major driver of biodiversity loss and strengthening the capacity and confidence of the conservation community through collective engagement on a critical issue. The habitat loss threats that CEPF projects have addressed are as diverse as the regions themselves, from grazing, fire, and logging to agricultural expansion, invasive species, settlement, and climate change.

Innovative approaches to reduce habitat loss and degradation are abundant in CEPF activities. For example, in the Succulent Karoo, the Namaqualand Wilderness Initiative subsidized the building of waterpoints (watering structures), but only if they located such that they diverted heavy grazing pressure away from important biodiversity areas.

Four Fundamental Goals of Global Biodiversity Conservation

How well has CEPF done in addressing the four fundamental goals of global biodiversity conservation (Noss 1992) that are applicable from local to global scales:

- Representation;
- Maintaining viable populations of species;
- Sustaining key ecological processes; and
- Enhancing resilience to disturbance & long-term change (for example, fire, flood, climate change)?

Representation

Representation refers to the conservation goal of 'saving all the pieces', from populations, species, and higher taxa to assemblages, habitats, and biomes. The degree of desired representation largely determines the nature and resolution of priorities in a global or regional conservation strategy. For CEPF at a global scale, the intent was to represent all of the Hotspots in its conservation investment portfolio (that is, those that fall within World Bank client countries and CBD signatories.) Biodiversity Hotspots, 34 regions worldwide where 75 percent of the planet's most threatened mammals, birds, and amphibians, and an estimated 50 percent of all vascular plants and 42 percent of terrestrial vertebrates survive within habitat covering just 2.3 percent of the Earth's surface (Mittermeier *et al.* 1999, Myers *et al.* 2000), initially delimited CEPF investments. Hotspots, by definition, are exceptionally representative of a good portion of the Earth's terrestrial species diversity.

In regards to higher organizations of diversity—distinct communities or assemblages of species, habitat types, biomes, etc.—CEPF's past and active investment regions are markedly diverse and representative:

- 5 of the Earth's 8 biogeographic realms are represented (Olson *et al.* 2001);
- 8 of 14 terrestrial biomes;
- 5 of 12 freshwater biomes (Abell *et al*. 2008);
- nearly a quarter of the planet's terrestrial ecoregions; and
- a quarter of the world's freshwater ecoregions.

Global-scale conservation priorities are well-covered:

- 21 of the 34 Hotspots, so far;
- nearly a quarter of the Global 200 priority ecoregions (Olson & Dinerstein 1998, a blend of representative and distinctive biodiversity priority regions that encompasses all the Hotspots and includes marine and freshwater biomes);
- a third of the Alliance for Zero Extinction (AZE) priority sites (that is, a prioritized site of last sites holding unique terrestrial vertebrate and conifer species; Ricketts *et al.* 2005); and
- 40 percent of the world's Endemic Bird Areas (that is, areas with concentrations of endemic birds; Stattersfield *et al.* 1998).

Some terrestrial biomes—tundra, boreal forests and taiga, and flooded grasslands and savannas—are not represented within Hotspots as these biomes lack concentrations of endemic species. Temperate biomes are underrepresented in the last decades' investment portfolio. Only the Caucasus region is temperate, as well as portions of the upcoming Mediterranean region. Additional Hotspots that are not yet on CEPF's horizon are largely temperate including the mountains of Central Asia, Japan, Irano-Anatolia, and the Mediterranean-Climate Biome regions of Southwest Australia, Chilean Winter-Rainfall/Valdivian Forests, and the California Floristic Province.

Overall, CEPF's conservation targets represent a good diversity of life's expression on Earth. The Hotspots targeted to date by CEPF sequester extraordinary levels of unique species and each is a global conservation priority in the Hotspots analysis and Global 200 priorities (Olson & Dinerstein 1998). Taken together they represent a respectable portion of the Earth's diverse ecosystems and all are exceptionally important assemblages of species at a global scale. CEPF's contribution towards achieving adequate representation in our species' global conservation effort over the last decade is enormous, especially given that prior conservation progress in more than half of the target regions was commonly slow and incremental.

Maintaining Viable Populations of Species

Considerable empirical and theoretical work is available to define a viable population ecologically, but in terms of practical conservation, maintaining a viable population of a species means that the species enjoys a high probability of surviving into the future, despite natural variation in demography and environmental conditions, predictable natural disturbances, and persistent, but low-level, pressure from human activities even if ongoing management is required. Many endangered species will require focused attention and resources into the future given the threats they and their habitat continue to face. Several critically endangered birds on Pacific islands fall into this category because of the infeasibility of completely eradicating

invasive rats on larger islands. The Endangered kakerori flycatcher (*Pomarea dimidiate*) of Raratonga provides a classic example (a project supported by CEPF). Other direct threats to populations, such as the wildlife and bushmeat trade, emerged as investment priorities in several regions, but the problem is so great, that even after multiple projects by CEPF and others, forests continue to be emptied except around a few vigilantly patrolled protected areas. Most field-based CEPF projects help maintain species populations indirectly through strengthening protected areas or managed landscapes.

The rigor by which population viability issues structure project design, implementation, and evaluation varies considerably among species-relevant CEPF projects, but is low, in general. CEPF's ability to address this critical issue would be well-served in the future through more thoughtful and standardized approaches to population viability. Requiring grantees to monitor criteria and indicators associated with Red List categories, even at a basic level or only to establish a baseline that could be revisited, would help. CEPF, however, has focused considerable conservation attention at the species-level. CEPF planning teams have gone to great lengths to assemble available information on threatened and vulnerable species and estimate global and regional population numbers. These are important first steps in effectively addressing viability issues.

Together with many TNC (The Nature Conservancy), Wildlife Conservation Society, Conservation International, and WWF ecoregional strategies, CEPF's species focus is setting standards for establishing species conservation targets for geographic distribution and viability. The conservation visions elaborated in CEPF's Ecosystem Profiles initially focused on representing distinct concentrations of threatened species and estimating total numbers in the regions. Presence/absence was estimated for individual KBAs, but population estimates were not typically available. Due to concerns of comprehensiveness and quality of species data, however, guiding discriminators for representation are beginning to be expanded in later profiles to include distinct habitat types and biogeographic sub-units as proxies for distinct assemblages of species. Perhaps similar approaches for proxies for viability could be explored in the development of future ecosystem profiles, with rankings of priority habitat areas for populations of key species identified.

Sustaining Key Ecological Processes

Keystone ecological processes like flood events, seasonal movements of wildlife, and fire regimes act as major regulators of diversity and ecosystem processes such as habitat complexity, nutrient cycles, and succession. For some ecoregions, such processes have long been recognized as priority for conservation action, exceeding the priority for investment of both species and habitats, due to their overarching importance for maintaining regional biodiversity.

CEPF's support to civil society groups limits the program's contribution towards sustaining key processes as few groups influence conservation at scales at which these ecological processes operate over. That being said, for some key biodiversity areas several CEPF projects do integrate key ecological processes as targets on a local scale, for example, the forest fire management projects in Belize, Mexico, and Guatemala, and watershed conservation projects in the Cape and Eastern Arc Mountains. Returning natural processes to regimes bounded by their natural range of

variation can be critical. For example, many Mediterranean-climate shrublands, such as in the Cape fynbos and North African habitats, are adapted to be resilient in the face of fire, but increased fire frequencies can greatly alter natural communities through extirpation of species and changes to species compositions. The Succulent Karoo's vegetation evolved with low-level grazing by wildlife. Intensive grazing by goats and sheep across whole landscapes has altered plant communities and structure. Even if not eaten, the regeneration of many species is impacted through trampling by goats and ostrich in this region. CEPF's focused work on grazing management in the Succulent Karoo, particularly in key biodiversity areas, has been innovative and effective. Subsidizing watering points, but only in locations away from critical habitats, and collaboratively developing best practices for grazing with Natural Resource staff from local municipalities has prompted rapid mainstreaming of biodiversity into landscape-scale land-use.

Enhancing Resilience to Disturbance & Long-Term Change

A good rule of thumb employed by conservation planners is that the more intact a natural landscape is, the more resilient it is to large-scale stochastic and deterministic disturbances and long-term changes. As habitat blocks diminish in size and a landscape becomes more porous and fragmented, native species, habitats, and processes are less able to weather and rebound from disturbance events and changing conditions. CEPF's Ecosystem Profiles are guided by first principles of conservation landscape design; for example, larger blocks of natural habitat with minimal edge and high connectivity are a desirable state. CEPF's goal to set into motion protection of larger, well-connected blocks of natural habitat through the Key Biodiversity Areas (KBA) and the Corridor approach would help maintain resilient ecosystems across larger landscapes, but realization of such outcomes will take time, typically over decades. CEPF's efforts to maintain or restore driving ecosystem processes, such as fire, floods, and grazing, also enhance resilience in natural systems. Focusing investments on ecological processes related to resilience may be of equal, if not greater importance, than many other conservation activities for some ecosystems. For example, Mediterranean-climate ecosystems are slated to become considerably hotter and drier under most climate change predictive models and shifts along the sharp gradients of mountain systems are of concern.

As in most regional conservation strategies, CEPF Ecosystem Profiles and Final Assessments are consistently weak in regards to conscious evaluations of resilience issues. One has to search through grant portfolios for any direct relevance. Although any success in preserving habitats, protecting species, and diminishing threats will contribute to improved ecologic resilience, there is much room for improvement in CEPF's integration of resilience issues into planning and implementation. In the future, some simple guidelines for managing resilience at local scales could be shared with natural areas managers. For example, transects of natural habitat along natural gradients should be maintained in as good a condition as possible through focused restoration, invasive control, or other relevant activities to allow native species the best chance of local survival and adaptation in the face of disturbance and climate change (Olson *et al.* 2009).

To be fair, most global conservation programs fall well short of adequately incorporating issues of population viability, key ecological processes, and ecologic resilience into planning, objectives, and evaluation. The scale and timeframe of most projects are typically much smaller than the dynamic regimes of populations and processes. Advances over the last ten years in

conceptual development and integration of these issues into on-the-ground programs bode well for improvements in the future.

Benefits to People

Many compelling arguments for saving biodiversity arise from the diverse and critically important ecosystem services natural systems provide to humans. Protecting and restoring services is critical for maintaining healthy societies and economies, alleviating poverty (note, contributions of the global CEPF program to poverty alleviation are documented in several CEPF publications), achieving food security, and human well-being, in general. Conservation projects commonly employ ecosystem services as a logical tool to motivate stakeholders and simultaneously achieve related biodiversity outcomes.

Strategic directions focused on reconciling biodiversity conservation and development objectives through protection of ecosystem services are a recurring theme of CEPF programs, and multiple projects have ecosystem service elements as primary objectives, outcomes, or motivators. CEPF projects frequently emphasize the value of local ecosystem services, such stable water supplies and flood control afforded by intact watersheds. For example, CEPF projects in Tanzania have effectively argued for forest protection for critical watersheds of major cities. In addition to watershed functions, arguments have been made for enhanced productivity or production landscapes through improved forage, pollination, and biological control, non-timber forest products, soil retention, a basis for tourism, and a range of other relevant services. Clearly, CEPF coordinators delved into the rich and varied literature on ecosystem services, valuations, and their use as conservation tools as they are incorporated into nearly every project proposal and report at some level. Valid economic arguments linked to ecosystem services, too, influenced successful project outcomes.

From a global perspective, CEPF's biggest impact on ecosystem services is the genetic, medicinal, food source, biocontrol, and other potential opportunities saved through the improved protection of an enormous number of distinct species. The actual habitat area protected is minor in relationship to that required to begin to meaningfully influence global processes like carbon sequestration and climate change, although every bit helps. Locally, however, CEPF projects protect and maintain ecosystem services for a considerable number of people and communities around the world. Livelihoods and economies are improved at many scales within the regions.

Contributions to International Conventions

The contribution of the CEPF program towards achieving objectives of Multilateral Environmental Agreements (MEAs; Box 1) lies primarily in helping to attain the reduction in biodiversity loss targeted by the Convention on Biological Diversity (CBD, 1992) and in demonstrating how aid effectiveness can be enhanced through donor coordination as espoused in the Paris Declaration (2005) and Accra Agenda for Action (2008).

CEPF's prime directive to arrest the loss of species within hyper-rich regions explicitly pursues the CBD 2010 goal. CEPF's significant contribution towards achieving this target is outlined

previously under the *Extinction Crisis* section. CEPF illustrates well the advantages of close donor coordination: enhanced complementarity of investments and avoiding duplication of effort at regional scales; avoiding parallel implementation structures; shared technical expertise and expanded networks and influence; substantial fiscal and logistical savings of a shared global secretariat; and combined resources enabling the significance and sustainability of outcomes to be improved. The buffers afforded by larger investment programs facilitate greater innovation and investments in areas of perceived risk and uncertainty. Testing new approaches and attempting conservation activities under difficult conditions are imperative in the face of the juggernaut of biodiversity loss. CEPF's Ecosystem Profiles and grant portfolios are developed through close collaborations with governments, helping them to operationalize development and environment strategies implemented, in part, through CEPF's results-oriented frameworks.

For other agreements, CEPF projects have provided modest support, directly or indirectly, to a range of desired outcomes. Protection of wetlands throughout the Hotspots through CEPF projects supports the objectives of the Ramsar Convention. Examples include the Mahavavy-Kinkony wetland complex in Madagascar, the Caño Negro wetlands and Maquenque National Refuge of Southern Mesoamerica, and several initiatives in the Caucasus. The scale and global reach of CEPF programs has clearly accelerated the growth of RAMSAR initiatives in some key areas. Several projects, such as training on the wildlife trade to reserve managers in the Caucasus and patrols for rare succulent poaching in reserves of the Succulent Karoo relate to the trade in endangered species (CITES). CEPF worked to combat desertification, in line with the UNCCD Agreement, in the Succulent Karoo through extensive grazing management efforts that ranged from developing and implementing management plans for sensitive habitats within priority Corridors to working with municipal and provincial governments to apply management guidelines and extension services to a range of pastoral practices. Effective habitat conservation and land use management at local and regional scales all helps to ameliorate the impacts of climate change (for example, UNCC and UNCCD; Box 1). Studies on climate-sensitive plants in the Succulent Karoo, such as several on mortality trends in populations of the quiver tree along climate gradients, are providing points of engagement with government on climate change issues. Several Neotropical projects are working with REDD (United Nations Collaborative Program on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) to explore opportunities to reduce habitat loss and create mechanisms for sustainable funding.

Box 1: Multilateral Environmental Agreements Relevant to CEPF's Mission

The Convention on Biological Diversity (CBD, 1992) – The objectives of the CBD are set forth in Article 1 of the Convention, namely "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing and utilization of genetic resources". The CBD is the first comprehensive global agreement to address all aspects of biological diversity. (The Cartagena Biosecurity Protocols were appended to the CBD in 2001 and the Jakarta Mandate sets forth common concerns for the conservation and sustainable use of marine and coastal biodiversity). Designated as the International Year for Biological Diversity, 2010 marks the target for the Parties to the CBD to achieve a "significant reduction of the current rate of biodiversity loss."

This target was endorsed by the World Summit on Sustainable Development and the U.N. General Assembly and was incorporated as a new target under the Millennium Development Goals.

The Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention) – The CMS aims to conserve avian migratory species throughout their range. It is an intergovernmental treaty concerned with the conservation of wildlife at a global scale.

Convention on the International Trade in Endangered Species (CITES, 1977) – is based on a tiered approach to the achievement of two central objectives: reducing negative impacts of international trade in endangered species, and working to prevent international trade contributing to the reduction of a species (that do not yet have CITES status) to endangered levels.

Ramsar – The Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar Convention, 1971), has a clearly stated mission: "the conservation and wise use of wetlands by national action and international cooperation as a means to development throughout the world." The Conventions original emphasis was on the conservation and wise use of wetlands primarily to provide habitat for migratory birds, but has been broadened to cover all aspects of the conservation and sustainable use of wetlands; recognizing that wetlands are ecosystems that conserve biodiversity in general as well as for the well-being of human communities.

World Heritage Convention (WHC, 1980) – The convention concerning the protection of world cultural and natural heritage provides financial mechanisms to protect objects of cultural and natural heritage, which are of value to present and future generations. WHC establishes that 'cultural heritage' includes monuments that are of universal value from the perspective of science, including sites that include the works of man or the combined works of nature and man, which are of outstanding historical, aesthetic, ethnological or anthropological value. WHC states that 'natural heritage' includes natural features and biological formations or groups of such formations that are of outstanding universal value from the aesthetic or scientific view, including the habitats of threatened species of plants and animals of outstanding value. Articles relating to the protection of natural heritage are the main elements of interest as regards the conservation of biodiversity.

Kyoto Protocol, Montreal Protocol (CNUCC) – These agreements are among several climate change and ozone protection agreements that nations around the world are in agreement to ameliorate the negative impacts of climate change and ozone depletion.

United Nations Framework on Climate Change (UNCC) – The UNCC sets an ultimate objective of stabilizing atmospheric concentrations levels. These levels should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change and to enable economic development to proceed in a sustainable manner. To achieve this objective, general commitments are needed to address climate change, adapt to its effects, and report on the action they are taking to implement.

United Nations Convention to Combat Desertification (UNCCD) – The UNCCD in the countries that are experiencing serious drought and/or desertification implicitly considers biodiversity issues because of its concern with ecosystem conservation. UNCCD has developed long-term strategies based on the rehabilitation, conservation and sustainable management of land, that have strong links to the objectives of the CBD and other biodiversity related agreements.

The Paris Declaration (2005) – In this international agreement, over one hundred ministers, heads of agencies and other senior officials adhered and committed their countries and organizations to continue to increase efforts in harmonization, alignment and managing aid for results with a set of monitorable actions and indicators. The Declaration aims for ownership of strategies by countries, alignment of objectives among countries, harmonization of efforts, results, and mutual accountability. The *Accra Agenda for Action (AAA; 2008)* builds on these commitments to accelerate progress towards enhanced Aid Effectiveness among countries through the use of country systems, relaxed restrictions and conditions for aid, and early sharing of plans.

Measuring Impact within Hotspots

Assessing the impact of the CEPF global program in relationship to its strategic objectives requires monitoring two key features:

(1) Changes in the biological situation on the ground, within the context of a science-based conservation vision for the region, and its trajectories of change (addressed in this section), and

(2) The "effectiveness" of a region's conservation community (broadly speaking, civil society, government, academia, etc.) in achieving and sustaining conservation outcomes (further developed in Chapter 2).

Changes in relationship to key features of the region's biological vision (for example: larger blocks of remaining habitat and distinctive communities [KBAs in CEPF parlance; Fig. 1]; connecting habitats; keystone, landscape, or sensitive species, key ecological processes; threats and drivers of change for habitats, species, and processes) and for the conservation community *as a whole* (for example, ability to address a wide range of conservation issues, a good number and dispersion of skilled organizations, sustainable funding, conservation tools, and enabling conditions for effective conservation) are relevant metrics, more so than cumulative totals of hectares, NGOs engaged, workshops facilitated, or aggregated measures for improvements in the capacity of individual NGOs.

Ideally, one would monitor indicators for the biology and conservation community in Hotspots that have benefited from a CEPF investment program and a similar set of indicators for those that have not to act as controls. (All Hotspots had some level of ongoing conservation investment from other sources prior to CEPF, so the key question relates more to the impact of the nature of the investment and less to the scale). With such a design, one can begin to answer the question does a CEPF 'model' of investment (in terms of scale, duration, focus, and model of implementation) makes a significant difference beyond a similar level of investment to the public sector or other more traditional conservation modalities? In each, one would evaluate appropriate metrics across three stages: (i) prior to or at the initiation of a CEPF program, (ii) at the end of the CEPF program, and (iii) 10 to 20 years after the end of the investment period. Measures from the post-CEPF period would shed most light on the sustainability of conservation impacts. At

present, no CEPF program ended more than 5 years ago making any assessments of long-term (decadal-scale) impact tentative. Our collective experience suggests that much time, decades to generations, is often required to achieve lasting conservation success. However, frequent and periodic reviews of results and effectiveness, using the tools and information that are available, remain important to refine approaches and track progress.

The regional-scale monitoring that CEPF has conducted primarily focuses on progress towards achieving quantities and conditions outlined in the logical frameworks for each region, but more careful attention is needed to indicators and how they are measured in order to confidently attribute regional-scale changes to CEPF interventions (note, CEPF is in the process of testing the effectiveness of CEPF investments in protecting target KBAs relative to KBAs that received non-CEPF support or no support within the same region). Controls and analyses of confounding factors and biases are necessary for correctly testing the efficacy of different intervention in achieving outcomes and objectives. These would need to be considered more carefully at the outset of planning and implementing grant portfolios. One could mine existing project data and conduct global program-wide analyses, but non-standardized reporting and variation in data quality make this a complicated task. Synthesizing and analyzing data across multiple projects and controls sites could be coordinated by a grantee or implementation team.

Given the real limitations of time, dispersed and variable data, non-standardized reporting across regions, and the absence of design for testing global impact, how can we best estimate the value of CEPF programs to advancing conservation within individual Hotspots? A straightforward, albeit subjective, approach is to consider that each region can be situated along a continuum of biodiversity protection or civil society 'effectiveness states'. The 'state of biodiversity protection' continuum would range from a situation where none of the priority habitats, landscapes, or species aspired to in regional conservation strategies and visions (for example, Ecosystem Profiles) enjoy effective protection to a scenario where the 'conservation landscape' is well protected and looked after. The continuum for the 'state of effectiveness' of each Hotspot's conservation community is discussed further in Chapter 2. Clearly, there are many combinations of features along both of these continua, but qualitative categorizations offer a coarse tool to measure progress over time:

Different "States of Biodiversity Protection"

1. **Poor** – No robust ecoregion-scale conservation strategy; few if any formal protected areas; few, if any, policies or laws constrain threats to biodiversity; sensitive species exploited or at risk; existing habitat linkages among larger remaining blocks of habitat being broken or degraded; low awareness or support for conservation; rates of habitat loss and threats to species are high.

2. **Nominal** – One or two protected areas, often poorly resourced and managed, and continuing to be degraded; many important habitats, corridors, representative communities, and species receiving no conservation action; high levels of species exploitation; widespread and intense habitat loss and fragmentation; key linkages among habitats continuing to be degraded and lost; biodiversity compatible policies and laws may exist but not enforced; strategy may be available but not widely adopted or implemented.

3. **Basic** – A network of protected areas in place with varying degrees of management effectiveness and resources; battling multiple threats in places; habitat corridors not a focus for conservation action or management; government support for conservation and protected areas variable and creating uncertainty in long-term survival of PAs; several species with focused management; some engagement of communities and private sector operations as stewards in buffer areas or production landscapes; extant conservation strategies not benefitting from recent advances in strategy development (e.g., representation analyses, analyses of spatial data, landscape ecology analyses, etc.).

4. **Improving** – At least ½ of the KBAs, key biological corridors, and key species are enjoying conservation attention or adequate protection; several larger habitat block retain adequate habitat connectivity to other areas; the majority of protected areas and buffer habitats managed effectively; biodiversity policies and laws taken seriously but with some lapses; management resourcing is improving but not stable everywhere; a robust and modern conservation strategy is in place.

5. **Adequate** – A robust and modern conservation strategy in place and enjoys broad consensus; the majority of key biodiversity areas and critical habitat corridors lie within protected areas or are managed in a way compatible with biodiversity conservation; keystone, landscape, and sensitive species are maintaining viable populations and regaining their functional role in ecosystems; a wide range of taxa being considered in conservation management; restoration is a major emphasis of conservation activity; management plans are in place for all protected areas; management is sustained and adequately resourced; habitat loss no longer effects the core conservation network in a significant way.

Clearly, these characterizations do not cover every scenario and many different combinations of features exist, but as qualitative, coarsely-resolved approximations, one can place most ecoregions (and conservation communities, refer to Chapter 2) within one of these categories with relative ease and accuracy. One would want to track how much improvement a particular region underwent during and after application of a CEPF program, if that improvement was sustained over time, and if it could be confidently attributed to CEPF intervention. Measuring a standard set of indicators for Hotspots not addressed by CEPF over the same time period could allow one to test if it is the 'type' of CEPF investment that is responsible for any marked improvements.

The thresholds and capacity for movement between different states along both of these continua will vary among Hotspots due to inherent differences in the initial level of degradation and threats to biodiversity as well as the social, economic, political, and cultural characteristics of each region. Thus, for biological analyses, both the state of remaining habitats and the degree of functional protection are useful parameters to estimate. All Hotspots are defined as having less than 30% of remaining natural habitat. Some have as little as 5%. Even with the set of ecoregions that have only 5% left—Indo-Burma, Mediterranean Basin, Horn of Africa—the actual area, block size, and connectivity of remaining habitat may differ depending upon the original size of the each region and the patterns of habitat loss. One can place each Hotspots within different broad characterizations of current degradation (note, there are not 'intact' or 'relatively stable' categories as any ecoregion that has lost over 70% of its natural habitat will not fit these definitions)(Figs. 2, 3):

1. **Critically Endangered** – Less than 15% natural habitat left; few, if any larger blocks; habitat remnants across landscape highly isolated and fragmented; edge effects pervasive throughout remaining habitat; key ecological processes disrupted.

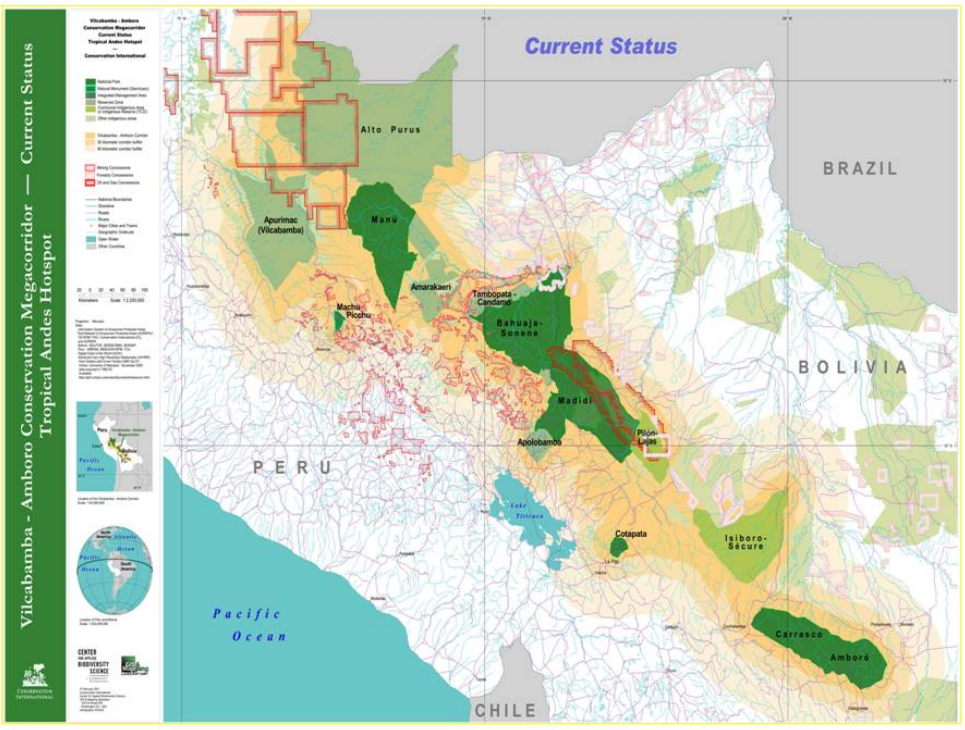
2. **Endangered** – Less than 20% natural habitat left; only a few larger blocks remain; only a few mosaics of habitat that retain any level of ecological connectivity persist; keystone processes and core habitat areas persist only within larger blocks; loss of representative communities pronounced.

3. **Threatened** – 25% to 15% of natural habitat remains; a few larger blocks remain; some connectivity in a few remaining landscapes; core habitats in a few larger blocks; loss of representative communities advanced.

4. **Vulnerable** – 30% to 15% natural habitat remains; several larger blocks of habitat and habitat complexes with some connectivity and habitat corridors remain; several examples of core habitat persist; remaining blocks of habitat representative of a good proportion of distinct biogeographic subunits.

Employing "states" to track landscapes and constituencies mirrors the approach used for the IUCN Red List of Threatened Species which uses demographic criteria, range trajectories, and threats to assess the status of entire species or regional populations. The relatively low resolution of change afforded by broad characterizations and the slow pace of observable habitat degradation across landscapes means that measurable changes may be documented only after decades. Similarly, species specialists observe relatively slow shifts in the status of species along the Red List continuum.

In summary, improvements in the state of biodiversity on-the-ground must be measured in relationship to a well-developed conservation vision—the zoning across the region that will sustain a balance of biodiversity and human needs. The impact of an investment program should measure the capacity or effectiveness of the conservation community as a whole, or, at least the entire civil society constituency as a functional entity.



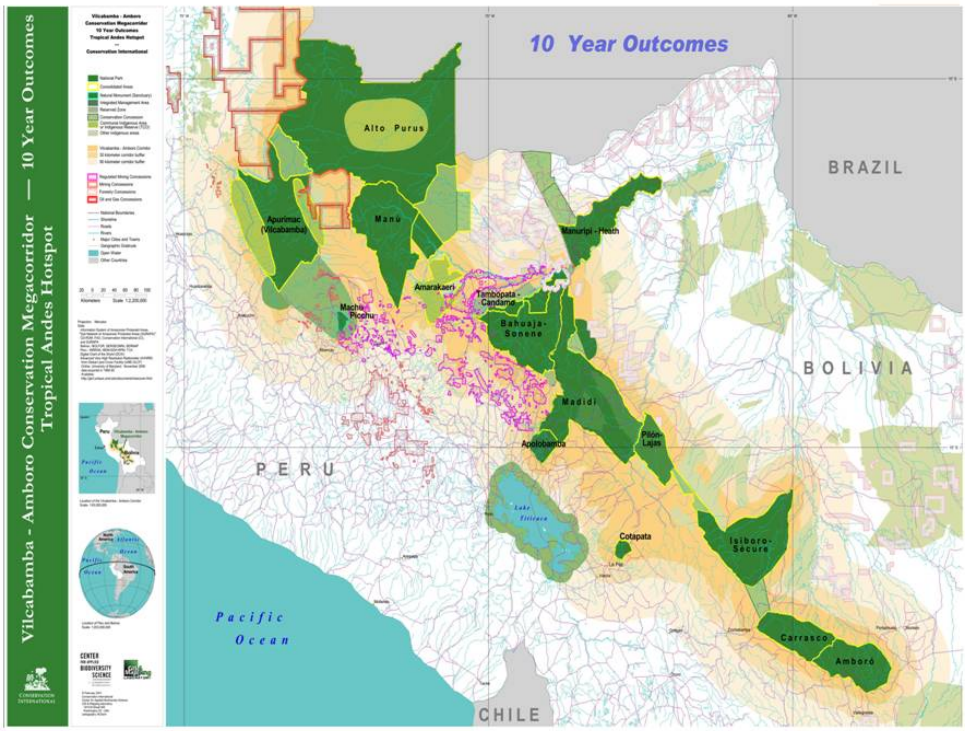


Figure 1. The 2001 ‘state of protection’ and 10-year conservation ‘vision’ put forth in the CEPF Vilcabamba-Amboro Ecosystem Profile for the Tropical Andes.

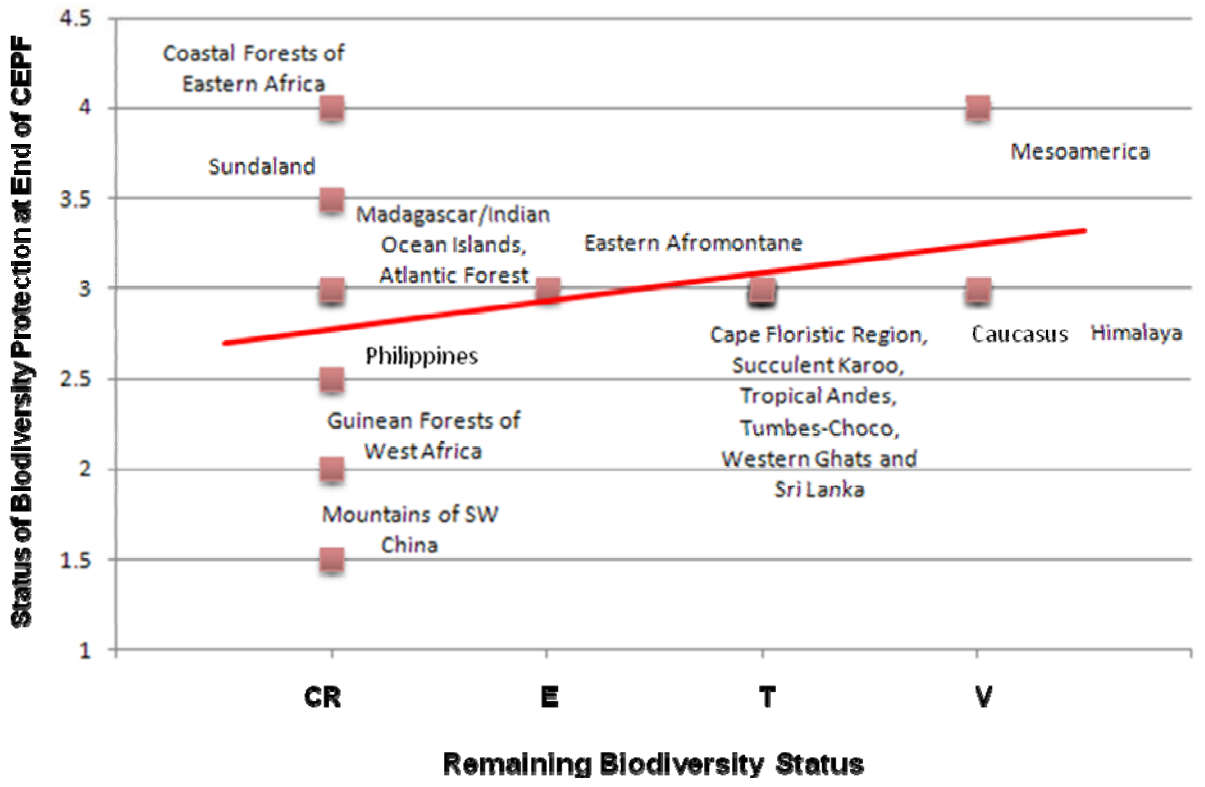


Figure 2. Relationship of remaining biodiversity status to 'state of biodiversity protection' among CEPF investment Hotspots. Refer to the categorizations in the text above for a key to the states of biodiversity protection. The red line is a trend line that should be ignored. Western Ghats and Sri Lanka value is for the state at initiation of CEPF.

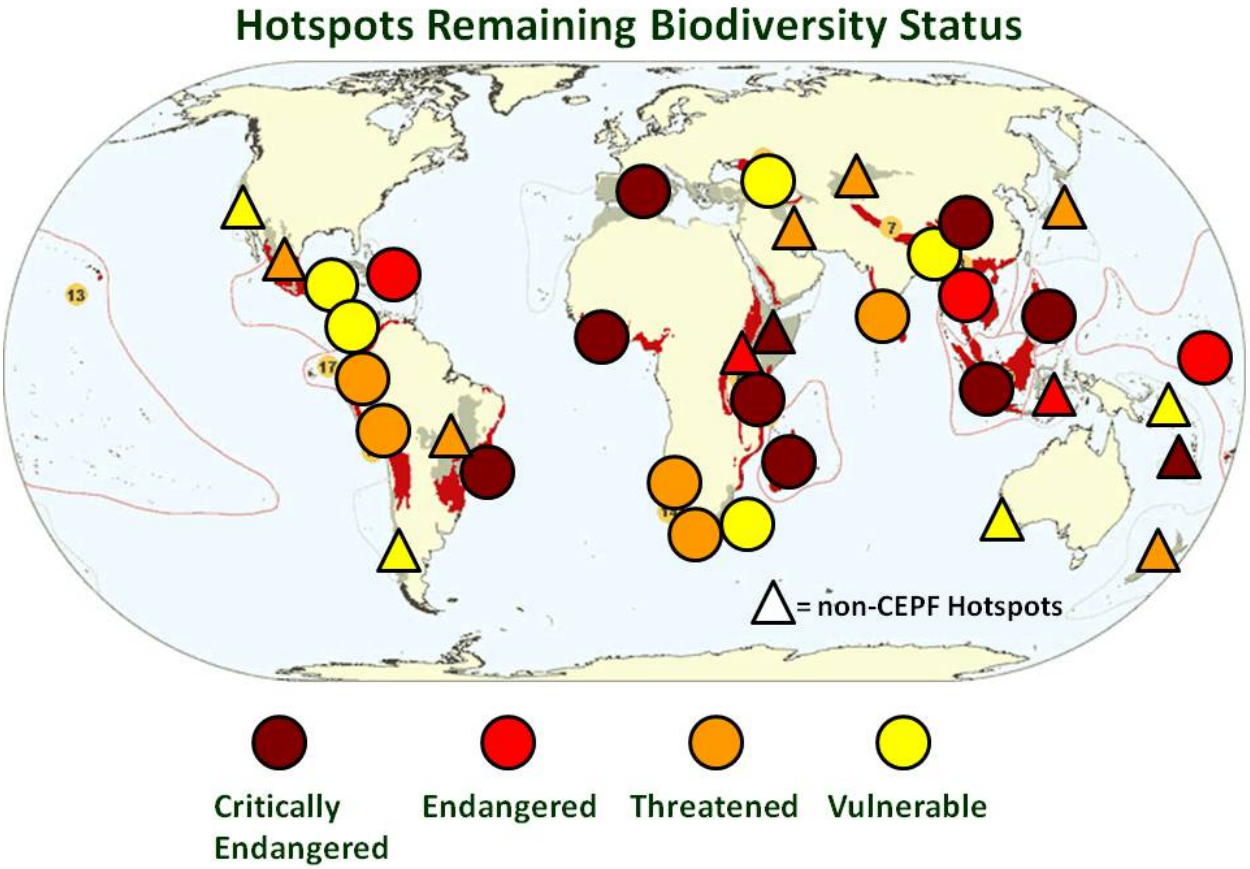


Figure 3. Remaining biodiversity status for all 34 Hotspots. Status categories are defined in the text.

Improving the State of Biodiversity Protection within Hotspots

Conservation visions (that is, strategies, ecosystem profiles, plans) put forth a science-based approximation of what the balance between biodiversity conservation and human-dominated landscapes should be to adequately achieve goals of biodiversity conservation (that is, representation, viable populations, sustain processes, resilience), maintenance of ecosystem services, and human society (settlements, agriculture, industry, resource utilization, etc.) (Fig. 1). The vision serves as a reference point to ensure that the ecologically important features remain core conservation targets and that planning and implementing conservation occurs on the scale at which natural ecosystems operate. Visions and strategies guide conservation action and investments (for example investment timing, sequence, level, and tradeoffs associated with different actions). The most useful strategies emerge from the best available science and logical analyses, and a thorough consultative and participatory process that engenders broad consensus and buy-in. Regional strategies can also provide a geographical or ecological flagship for developing a sense of stewardship among the conservation community as a whole.

Six central elements configure the biological portion of a strategy:

- priority blocks of natural habitat (for example, KBAs) based on size, representation value for distinct assemblages, landscape-level considerations of processes, defensibility, etc.;
- the degree of connectivity across landscapes measured through the number and quality of linkage habitats (that is, corridors in the biological sense);
- a logical set of keystone, landscape, indicator, or sensitive species that reflect ecosystem health, function, and threat;
- the state of certain ecological processes that sustain biodiversity;
- the nature and rate of habitat/species loss or gain (i.e., threats, drivers of change); and
- the ability of the ecosystem to be resilient in the face of change and disturbance.

CEPF's Ecosystem Profiles address the first five elements to varying degrees of quality and thoroughness. One can use the landscapes, zoning, and management proposed in the Ecosystem Profiles and other strategies for what conservation 'success' should look like on the ground. And prioritizations of different elements should, in theory, provide benchmarks of progress and guide action and investments. CEPF Ecosystem Profiles have not yet systematically approached identifying benchmarks that are clearly associated with the six central elements above.

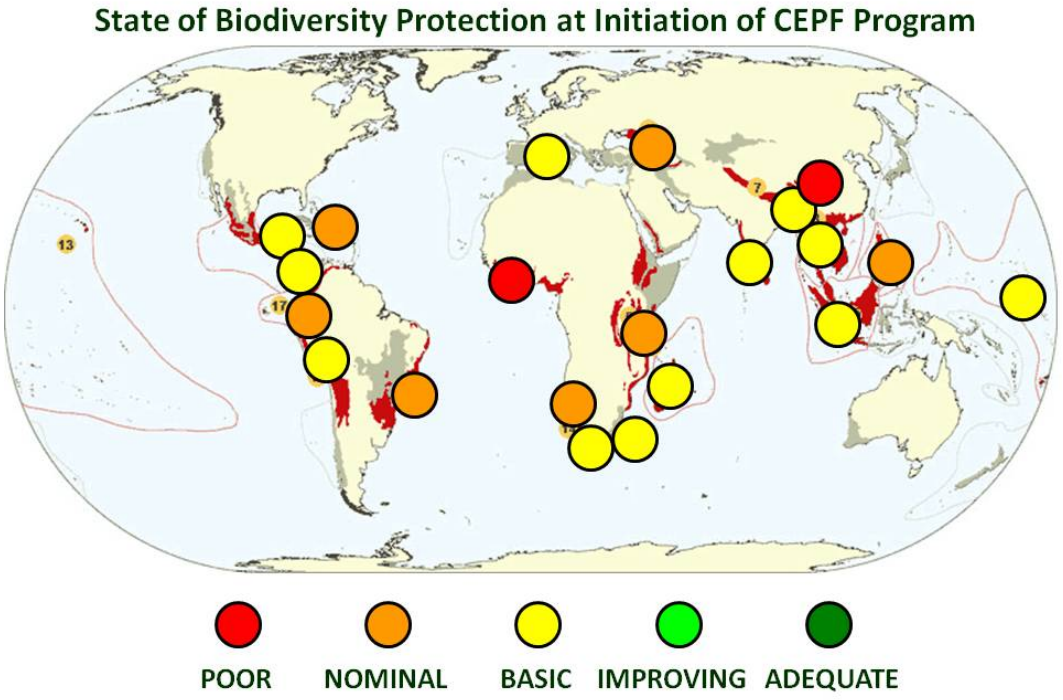
Being necessarily ambitious is important in conservation visions, but the reality on the ground is that the zoning desired in conservation strategies is quite optimistic given the usual low level of protection and the forces of change operating within regions. And it should be kept in mind that the zonation for conservation purposes in most ecoregion strategies ranges from roughly from 15% to 40% of remaining natural habitat. Forty percent may seem like a lot, but when one considers that the ecoregions have already lost at least 70% this level should be viewed as a minimum and not easily negotiated away. The shifting baseline effect is at work in terrestrial conservation strategies as it is in fisheries management, and should be well understood by all stakeholders as strategies are developed. CEPF should also make more of an effort to prioritize the priorities to guide the conservation community in understanding what to fight hardest for, what sequence is best for different actions, and what to let go of in the inevitable negotiations of zoning. CEPF Ecosystem Profiles in the future would benefit from a more systematic ranking of priorities and developing benchmarks for progress well-calibrated to major elements within each vision.

Despite some room for improvement, CEPF's profiles are, in general, soundly constructed and can provide a roadmap and advocacy tool for the future. Formal protection and land-use changes (zoning) takes much time, negotiation, and development of alternative livelihood options. The degree of progress the conservation community can make towards the vision of success within 5 years more likely lies toward the current situation in most ecoregions (that is, no major advances). Therefore, the contribution of CEPF programs should be viewed more in light of how they have set the stage for progress towards achieving conservation visions over decades, at least the core elements of those visions, rather than how much formal protection of priority habitat blocks and corridors they have accomplished. (The same can be said for 'saving' species and sustaining processes). CEPF programs are primarily responsible for changing conditions within local societies to promote more effective stewardship of habitats, species, and processes into the

future. Thus, even modest levels of new protected areas and stabilized species populations throughout the CEPF global program should be viewed as achievements and indicators of good progress. Other global-scale conservation programs should be similarly judged. CEPF's niche and true value lies in increasing the potential for positive change over coming decades.

Only minor changes in key biological elements (that is, actual habitat/species/processes on the ground) typically occur before and after CEPF programs (Tables 2, 3, 4, Fig. 4, 5). Major shifts towards the landscape zoning desired in conservation visions are not common within 5 years, and should not be expected, during or immediately after the application of a program. As an example, the Succulent Karoo program contributed to the establishment of an outstanding set of biodiversity-rich and sizeable conservation areas, but at the scale of the priority corridors and associated KBAs, these advances in formal protection are still quite modest (however, good progress towards better management of production landscapes adds to the progress)(Fig. 5).

For most regions, CEPFs immediate impact on the ground will primarily be in fine-tuning the boundaries of already established protected areas, improving their management, creation of new protected areas in pockets of remaining habitat, and improving conditions for the persistence of some subset of biodiversity within utilized landscapes. (A few hotspots do have larger tracts of remaining habitat, such as the Northern Andes, where larger protected areas could be potentially established).



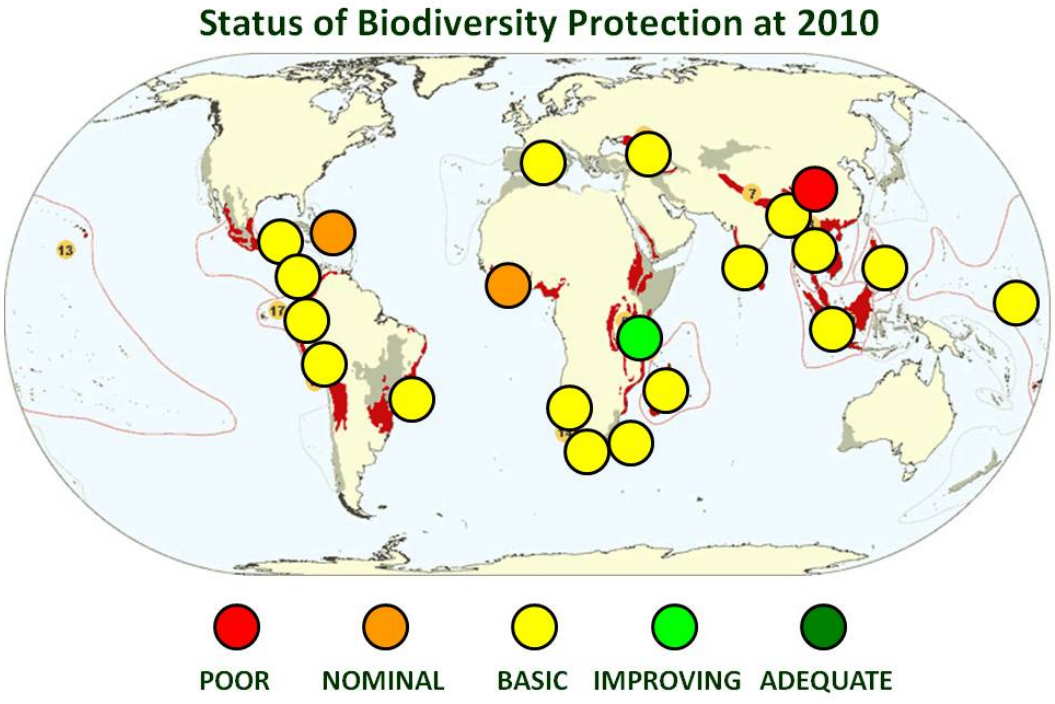


Figure 4. State of biodiversity protection at initiation of CEPF program and in 2010 for all CEPF target Hotspots.

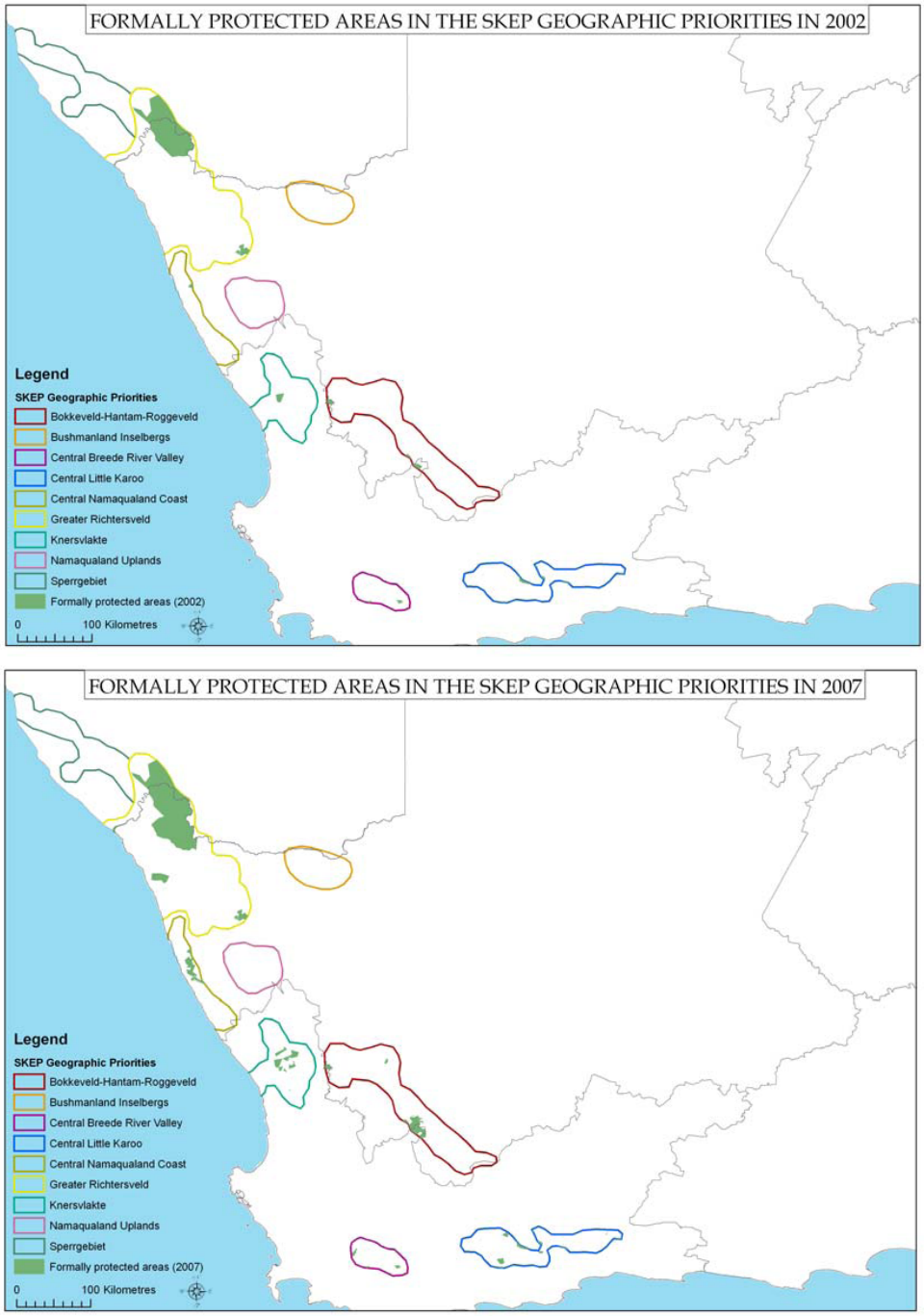


Figure 5. Additions of formally protected areas in the Succulent Karoo attributed, in part, to CEPF investments. In conservation terms, this represents very good progress, but considerably more habitat would have to be zoned or managed for protection over the coming decades to begin to reach balance reflected in KBAs and corridors. The full extent of the new Sperrgebiet National Park in Namibia is not shown.

Table 2. New protected areas or additions, improved management of extant PAs and utilized landscapes, number of KBAs, Corridors, and reported targeted threatened species by CEPF-Hotspot.

Hotspot	Hectares (ha) new or addition protected areas	Ha extant PAs with improved management	Ha utilized landscapes with improved biodiversity management	# Key Biodiversity Areas identified	# conservation Corridors identified	# reported threatened species directly targeted
Atlantic Forest	636,500	100,000	91,400	182	2	168
Cape Floristic Region	184,785	528,641	503,915	n/a	5	739
Caribbean	In progress	In progress	In progress	290	n/a	In progress
Caucasus	277,536	1,230,000	1,200,000	50	10	50
Coastal Forests of Eastern Africa	165,589	n/a	n/a	160	n/a	310
Guinean Forests of West Africa	186,268	n/a	n/a	41	n/a	n/a
Himalaya	In progress	In progress	In progress	175	13	In progress
Indo - Burma	In progress	In progress	In progress	362	53	In progress
Madagascar/Indian Ocean Islands	967,837	n/a	n/a	n/a	n/a	3
N Mesoamerica	470,891	3,100,000	6,667,835	24	2	53
S Mesoamerica	78,089	1,200,000	n/a	442 for both	3	9
Mountains of Southwest China	195,000	n/a	6,500,000	11	3	30
Philippines	329,893	n/a	891,731	3, same as corridors	3	n/a
Polynesia - Micronesia	In progress	In progress	In progress	~161, under revision	n/a	In progress
Succulent Karoo	2,905,860	160,000	n/a	7, same as corridors	7	n/a
Sundaland	146,576	29,000	500,000	73	n/a	49 spp. in 4 KBAs
Tropical Andes	5,100,000	n/a	n/a	n/a	3	n/a
Tumbes – Choco	61,686	n/a	851,229	n/a	1	209
Western Ghats and Sri Lanka	In progress	In progress	In progress	126	5	In progress
Total	11,706,510	6,347,641+	11,206,110+	-	-	1,620 reported

n/a = not available

Table 3. Hotspot biodiversity status: percent remaining habitat, remaining habitat, remaining habitat status, state of biodiversity protection at initiation of CEPF, state of biodiversity protection at end of CEPF for each of the 34 Hotspots . The 'state of biodiversity protection' was estimated from CEPF Final Reports, Ecosystem Profiles, and other documentation for each region. Shaded cells represent CEPF investment regions.

Hotspot	% Remaining Habitat	Remaining Habitat (km^2)	Remaining Biodiversity Status	State of Biodiversity Protection at Initiation of CEPF	State of Biodiversity Protection at 2010
Atlantic Forest	8	99,944	CE	2	3
California Floristic Province	25	73,451	V	4	4
Cape Floristic Region	20	15,711	T	3	3
Caribbean Islands	10	22,955	E	2	2
Caucasus	27	143,818	V	2	3
Cerrado	22	438,910	T	2	2
Chilean Winter Rainfall - Valdivian Forests	30	119,143	V	4	4
Coastal Forests of Eastern Africa	10	29,125	CE	2	4
East Melanesian Islands	30	29,815	V	2	2
Eastern Afromontane	10	106,870	E	2	2
Guinean Forests of West Africa	15	93,047	CE	1	2
Himalaya	25	185,427	V	3	3
Horn of Africa	5	82,968	CE	1	1
Indo - Burma	5	118,653	E	3	3
Irano - Anatolian	15	134,966	T	2	2
Japan	20	74,698	V	4	4
Madagascar/Indian Ocean Islands	10	60,046	CE	3	3
Madrean Pine - Oak Woodlands	20	92,253	T	2	2
Maputaland - Pondoland - Albany	24	67,163	V	3	3
Mediterranean Basin	5	98,009	CE	3	3
Mesoamerica	20	226,004	V	3	4
Mountains of Central Asia	20	172,672	T	2	2
Mountains of Southwest China	8	20,996	CE	1	1
New Caledonia	27	5,122	CE	3	3
New Zealand	22	59,443	T	4	4
Philippines	7	20,803	CE	2	3

Polynesia - Micronesia	21	10,015	E	3	3
Southwest Australia	30	107,015	V	3	3
Succulent Karoo	29	29,780	T	2	3
Sundaland	7	100,571	CE	3	3
Tropical Andes	25	385,661	T	3	3
Tumbes – Choco	24	65,903	T	2	3
Wallacea	15	50,774	E	2	2
Western Ghats and Sri Lanka	23	43,611	T	3	3
Key			CE=critically endangered E=Endangered T=Threatened V=Vulnerable	1=poor 2=nominal 3=basic 4=improving 5=adequate	1=poor 2=nominal 3=basic 4=improving 5=adequate

Table 4. The "state of biodiversity protection" within Hotspots reflects how advanced protection and effective management are for core elements of a region's conservation vision for habitats, species, and processes. The levels are estimated from reviews of current habitat and protected area data, various ecoregional assessments, and CEPF reporting. Any estimated changes to levels at the initiation of a CEPF program and at the end of the program (within 4 years) are represented by 2 numbers in a cell connected by an arrow, respectively. The levels are assessed for each region as a whole, rather than highlighting particular successes within each region, if present. Note that some levels may appear as 2 or 3 due to the distribution patterns of natural habitat or inherent ecologic resilience of a particular habitat type, even though there may be no formal action for protection. Shaded cells are CEPF regions.

Hotspot	Core Habitats (KBAs)	Biological Corridors	Biodiversity in Matrix	Key Species	Key Ecological Processes	Threats	Ecologic Resilience
Atlantic Forest	1→2	1	1	1	1	2	1
California Floristic Province	3	3	2	3	2	2	2
Cape Floristic Region	1→2	1	1	2	2	2	2
Caribbean Islands	2	1	1	1	2	1	1
Caucasus	1	1→2	1	2	2	1→2	2
Cerrado	1	1	1	1	1	1	1
Chilean Winter Rainfall - Valdivian Forests	2	2	1	2	2	2	2
Coastal Forests of Eastern Africa	1→2	1	1	1→2	2	1→2	2
East Melanesian Islands	1	1	1	2	2	1	2
Eastern Afromontane	2	1	1	2	2	2	2
Guinean Forests of West Africa	1→2	1	1	1	1	1	1
Himalaya	2	2	1	2	2	2	2
Horn of Africa	1	1	1	1	1	1	1
Indo - Burma	2	1	1	1→2	1	1	1
Irano - Anatolian	1	1	1	1	1	1	1
Japan	3	2	1	3	2	2	2
Madagascar/Indian Ocean Islands	2	1	1	1	1	1	1
Madrean Pine - Oak Woodlands	1	1	1	1	2	1	2
Maputaland -	2	2	1	2	2	2	2

Pondoland - Albany							
Mediterranean Basin	2	1	1	2	1	1	1
Mesoamerica	3	2	1	3	3	1→2	2
Mountains of Central Asia	2	2	1	1	2	1	2
Mountains of Southwest China	1	1	1	1	1	1	1
New Caledonia	2	1	1	1	2	1	1
New Zealand	3	2	2	3	3	2	2
Philippines	1→2	1	1	1→2	2	1	1
Polynesia - Micronesia	1	1	1	2	2	1	1
Southwest Australia	2	1	2	3	2	2	2
Succulent Karoo	1→2	1	1→2	1→2	1	1	1
Sundaland	2	1	1	1→2	2	1	1
Tropical Andes	1	1	1	2	2	1	2
Tumbes - Choco	1→2	2	1	2	2	1→2	2
Wallacea	1	1	1	1	2	1	2
Western Ghats and Sri Lanka	2	1	1	2	2	1	2
Key to 'States' of Protection	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving	1=poor 2=initial 3=improving

Factors of protection for core elements of conservation strategies considered in estimations (Note: these are not comprehensive and are intended to illustrate the kinds of features that are relevant to consider; some features may be relevant to more than one category):

1. Key Biodiversity Areas (KBAs) - new protection; improved management (e.g., protected area management effectiveness parameters [e.g., PA METT] including sustained funding
2. Corridors (true ecologic connectors versus CEPF implementation Corridors) - new protection; improved management; restoration
3. Matrix managed effectively for biodiversity conservation - buffer areas to PAs; important areas where no PA is feasible; important corridors where no PA is feasible
4. Indicator/Focal Species (Sensitive, Flagship, Iconic, Keystone) - population parameters (size, age class structure, sex ratios, meta-population dynamics, and other Red List or population criteria; trajectory of population increasing, stable, decreasing; range trajectory expanding, decreasing, stable; ecological role of species
5. Key ecological processes – succession; disturbance; productivity; seasonal movements, dispersal, migration; etc.
6. Drivers of Change/Threats–Major Threats to Habitat & Processes within KBAs & priority corridors: a. intensity (low, moderate, high with criteria tailored to threat); b. area affected over time (expanding, decreasing, stable using defined region as boundary). Major Threat to Focal Species: a. intensity (low, moderate, high with criteria tailored to threat); b. area affected over time (expanding, decreasing, stable using defined region as boundary
7. Ecologic Resilience – refugia and adaptation corridors for climate change; resilience to periodic disturbance events, etc.

Findings

Action in Important Places

- The single most significant contribution of CEPF has been to provide much needed conservation attention to many of the highest priority biodiversity regions around the world which, for one reason or another, have not received adequate attention from national governments nor galvanized the sustained interest of the international conservation community.

- Without CEPF's intervention, it is highly unlikely that other conservation programs operating a decade ago could have, or would have, stepped in to jump-start meaningful conservation in these largely neglected regions, many with high investment risk and uncertainty. Given how rapidly our planet is changing, many species, populations, habitats, and ecological processes can be lost in ten years. Thus, the incremental benefit of CEPF to the Convention on Biological Diversity's (CBD) 2010 goal to achieve a "significant reduction of the current rate of biodiversity loss" has been tremendous for this contribution alone.

- CEPF's contribution towards achieving adequate representation over the last decade is enormous; especially given that, before CEPF, conservation progress in more than half of the target regions was exceedingly slow and incremental.

A Focus on Species and Protected Areas

- CEPF's continuing focus on species conservation, with sizeable and sustained investments in many important regions and direct action for multiple species, made the global program the most significant champion for species over the last decade.

- The global program has stepped in at a decisive time to provide medium-sized grants for critical projects that would have been difficult to fund otherwise—without having to resort to mental gymnastics to justify species conservation benefits to human welfare—which, in turn, have catalyzed large numbers of activities for species conservation in important areas. The sheer number of species around the world directly benefiting from targeted CEPF projects dwarfs any other concurrent conservation initiatives.

- CEPF's unwavering emphasis on protected areas as the foundation for protecting biodiversity through a tumultuous decade of shifting conservation focus and intensifying biodiversity loss represents a major contribution to the global conservation agenda.

- Arguably, CEPF's greater contribution to habitat conservation within the 3 to 5 year window of investment has been to strengthen the effectiveness of management within existing protected areas and encourage more biodiversity-compatible management across production landscapes, rather than the addition of new protected areas.

Estimating the Number of Species with Improved Status

- The estimated total of threatened species *directly* benefitting from CEPF projects over the last decade is conservatively estimated at 55,000 threatened species (Appendix 1).

- The rigor by which population viability issues structure project design, implementation, and evaluation varies considerably among species-relevant CEPF projects, but is low, in general.

Benefits to People/Ecosystem Services

- From a global perspective, CEPF's biggest impact on ecosystem services is the genetic, medicinal, food source, bio-control, and other potential opportunities conserved through the improved protection of an enormous number of distinct species. The actual habitat area protected is minor in relationship to that required to begin to meaningfully influence global processes like carbon sequestration and climate change, although every bit helps. Locally, however, CEPF projects protect and maintain ecosystem services for a considerable number of people and communities around the world. Livelihoods and economies are improved at many scales within the regions.

Contributions to Multilateral Environmental Agreements

- The contribution of the CEPF program towards achieving objectives of Multilateral Environmental Agreements (MEAs; Box 2) lies primarily in helping to attain the reduction in biodiversity loss targeted by the Convention on Biological Diversity (CBD, 1992) and in demonstrating how aid effectiveness can be enhanced through donor coordination as espoused in the Paris Declaration (2005) and Accra Agenda for Action (2008).

Measuring Biological Impact

- Only minor changes in key biological elements at landscape-scales typically occur before and after CEPF programs. Major shifts towards the landscape zoning desired in conservation visions are not common within 5 years, and should not be expected, during or immediately after the application of a program. For most regions, CEPFs immediate *biological* impact on the ground will primarily be in fine-tuning the boundaries of already established protected areas, improving their management, creation of new protected areas in pockets of remaining habitat, connecting KBA's through corridor creation, diminishing direct threats to species and habitats, and improving conditions for the persistence of some subset of biodiversity within utilized landscapes.

Recommendations

Ecosystem Profiles

- The Ecosystem Profiles and Region Assessments require a standardized approach for counting Red List species within Hotspots and KBAs, tracking those targeted by CEPF projects, and georeferencing Red List species to specific KBAs or CEPF projects.

- "Cutting-edge" threat analysis in Ecosystem Profiles may not be a particularly important area of growth for CEPF.

- Due to concerns of comprehensiveness and quality of species data, however, guiding discriminators for representation are beginning to be expanded in later Ecosystem Profiles to include distinct habitat types and biogeographic sub-units as proxies for distinct assemblages of species. Similar approaches for proxies for viability could be explored in the development of future ecosystem profiles, with rankings of priority habitat areas for populations of key species identified. Moreover, priority-setting of habitat fragments would be more robust if the context of the habitat within the broader landscape was considered, as well as its probability of persistence (e.g., defensibility, threat analyses).

Building Ecosystem Resilience Adaptation Guidelines into Projects

- Some simple guidelines for managing ecosystem resilience at local scales could be shared with natural areas managers and resilience issues should be more fully integrated into Ecosystem Profiles.

Setting the Stage for Conservation is the Most Important Biological Measure

- The contribution of CEPF programs should be viewed more in light of how they have set the stage for progress towards achieving conservation visions over decades, at least the core elements of those visions, rather than how much formal protection of priority habitat blocks and corridors they have accomplished.

Chapter 2
Increasing Effectiveness of the Conservation Community

CEPF Strategic Framework Component 2:
Increasing local and national capacity to integrate biodiversity conservation into development and landscape planning

Demonstrating that Investing in Civil Society Works

"Reconciling ecosystem conservation with sustainable development on different scales across complex jurisdictional boundaries, often in situations of weak governance, is perhaps the major challenge facing the conservation and development communities. Mobilizing civil society to play a more effective role in this process is the CEPF niche."

CEPF Strategic Framework 2007

CEPF's substantial achievements make the case that conservation investment through civil society delivers significant gains, often as great as or greater than those into governments, and is an essential building block for conservation success. Conservationists incrementally refine the technique, or recipe, for 'successful' conservation—a robust conservation strategy realized on-the-ground and an effective and vigilant conservation community that broadly includes civil society, governments, the private sector, and donors. The role of civil society as a competent and active constituency is increasingly recognized as a *critical* ingredient for success for many reasons:

- Civil society actors can be *well-dispersed* throughout regions, functioning as vigilant advocates and on-the-ground, long-term stewards for biodiversity, and a strong constituency can collectively address a diverse range of conservation issues relevant at local to international scales.
- They are not beholden to government policies, budgets, bureaucracy, and timelines allowing for flexibility of relationships and actions, innovation, and rapid action.
- An organized and credible community gets invited to the negotiating table and brings a voice for the people interacting directly with ecosystems.
- Patterns of biodiversity loss around the world have shown us that without civil society's well-being and long-term support for conservation, natural habitats will inevitably be eroded over time, especially as the demand for land and resources grows.

The Critical Need for a Vision for an Effective Conservation Community

CEPF's underlying philosophy, albeit not explicitly defined, suggests there is a threshold for strengthening civil society's role in conservation above which its influence is considerable and sustained. The specific sectors of civil society that should be the primary targets for

strengthening are not well elaborated in CEPF documentation or strategies. A wide range of actors, such as international NGOs, local and national NGOs, local groups and communities, the business sector, academia, and the media are all supported to varying degrees within different regions. However, CEPF programs across the board lack an explicitly defined 'vision' for the effectiveness of the conservation community within a given Hotspot, one that would be similar in nature and function as are the biological visions that are presently developed in Ecosystem Profiles. A carefully defined vision for the conservation community, particularly for the civil society sector targeted by CEPF, can provide a touchstone for investment strategies and project portfolios. While specific evaluations of local actors and conditions may not be helpful to include Ecosystem Profiles, due to potential political and social sensitivities, a general vision that enjoys broad consensus is important to include. Investment strategies and strategic directions of CEPF's regional programs emphasize many facets of strengthening that could structure such a vision, including, but not limited to, developing a range of skills, providing resources to grow towards independence, opportunities to create a shared vision of conservation success, identifying sustained financing, development of conservation tools such as GIS capacity and databases, and new alliances, partnerships, and venues for ongoing discussion among stakeholders.

The experience of CEPF and others has shown that building a strong civil society constituency takes considerable time, typically longer than a 5-year investment program, and it requires substantial funding as the skills and confidence necessary for sustainable advocacy take time to develop. Effective networking and diplomacy of CEPF staff and the maintenance of long-term relationships are essential to facilitate the evolution of a collegial and coordinated community. This is all challenging, expensive, and time-consuming work that will have little to show in the way of traditional conservation outcomes—immediate and quantifiable benefits to biodiversity like protected areas and species 'saved'—after 5 or even 10 years. Credit is due to CEPF and the donors for amply supporting the foundational actions that will ultimately influence the long-term persistence of biodiversity within regions.

Early indicators—respectable additions of protected areas and managed landscapes, leaving behind a credible and confident NGO community responsible for leveraging funding well beyond initial investments, science-based strategies guiding conservation actions in multiple sectors, and continuing fora for dialogue among stakeholders and interactions with government—suggests that CEPF has facilitated civil society in reaching a point of independently sustained growth and activity in many regions (Table 5). Multiple examples also exist of how projects have successfully integrated biodiversity issues into government and private sector thinking and operations, as well (Box 2).

Table 5. NGOs created or strengthened, number of new forums, indigenous groups engaged, industries engaged, sustainable funding mechanisms established, and millions USD leveraged.

Hotspot	# of NGOs strengthened or established	# of forums/alliances /networks established	# of indigenous groups engaged	# of industries engaged	# of sustainable funding mechanisms established	Millions USD leveraged
Atlantic Forest	n/a 107strengthened	6	n/a	3	0	11.2
Cape Floristic Region	n/a 117 created or strengthened	14	n/a	7	0	3.8
Caucasus	n/a 1 new group	4	n/a	0	1	22
Coastal Forests of Eastern Africa	30+	4	146	1	0	3.7
Guinean Forests of West Africa	n/a 25 strengthened	5	140	4	3	11.9
Himalaya	In progress	5	2	2	0	In progress
Indo - Burma	80	5	2	3	0	In progress
Madagascar/Indian Ocean Islands	n/a	1	n/a	1	1	20
N Mesoamerica	n/a	6	20	2	3	38.3
S Mesoamerica	22	4	5	3	1	41
Mountains of Southwest China	Strengthened 158	10	n/a	1	0	n/a
Philippines	n/a	6	n/a	n/a	0	2.65
Polynesia - Micronesia	In progress	1 so far	In progress	In progress	1	In progress
Succulent Karoo	20	8	n/a	5	1	4.5
Sundaland	6 new	2	1	2	0	n/a
Tropical Andes	37	7	17	4	1	18
Tumbes – Choco	6	2	3	5	3	11.4
Western Ghats and Sri Lanka	In progress 50-100 supported	6 so far	2 so far	4 so far	In progress	In progress
Total[a]	35 helped to establish	84	50	22 [b]	14	188.45 (222[a])

[a] totals obtained from CEPF Secretariat

[b] e.g., tourism, fisheries, rice, coffee, tea, rubber, mining, forestry, rural livelihoods, wine, rooibos tea, citrus, flowers, silk, paper and pulp, palm oil, cacao, Brazil nuts, honey, agroforestry, butterfly cultivation, potatoes

Box 2: Mainstreaming Biodiversity

A true benchmark of conservation progress is when governments share the same vision for conservation success—the landscape zoning and best practices for resource use—with the broader conservation community, and work together through partnerships and alliances to implement it on the ground. A consistent and simultaneous engagement of governments while strengthening civil society has been a guiding philosophy in all CEPF investment strategies. Many examples indicate the value of this approach:

Municipal governments in the Succulent Karoo have been partners in developing widely-used best practices for grazing and other land use practices through such forums as the Namaqualand Wildlife Initiative, and have been active participants in regional forums for conservation, such as the Namaqualand Biodiversity Forum. In addition, various government agencies, such as Land Care and the Department of Agriculture, participated in training programs to increase awareness of conservation and management issues throughout the region. SKEP, the Succulent Karoo Ecosystem Partnership, has made a concerted effort to inform all local and national governments of the conservation and development goals and issues put forth in the ecosystem profile. SKEP, itself, has been transferred to SANBI, the biodiversity agency for South Africa, a move that will help integrate SKEP conservation targets and priorities into South African institutional frameworks. In Namibia the Namibian Nature Foundation, which works closely with government agencies, has generated considerable interest within the government to apply the CEPF model for strategy development for the remainder of its coastline ecosystems that lie outside of the Succulent Karoo.

The Atlantic Forest's Instituto Amigos da Reserva da Biosfera da Mata Atlântica worked with governmental and nongovernmental partners to bring isolated protected areas under one integrated management strategy to increase habitat protection and reduce negative pressures, such as poaching, logging, forest fires, and unplanned land occupation. The management strategy involves strategic coordination between the government's protected areas' programs, key stakeholders in the region, and related initiatives. Additionally, efforts among environmental management organizations at the municipal, state, and federal levels, as well as private reserve owners, are underway.

The Instituto de Pesquisas da Mata Atlântica has also implemented an innovative project that developed a conservation strategy for their state in Brazil. The results of this project permeated three levels of influence: the creation of a Red List of fauna and flora; an assessment of the protected areas; and the setting of priority areas and conservation actions. The first Red List officially recognized by the state's government identified 998 threatened species (222 of fauna and 776 of flora). The state's Environmental Department is using the list to develop a biodiversity conservation policy, specifically for conceding licenses for infra-structure and development projects. The results are also supporting proposals for the creation of new protected areas. In addition, an assessment of the current management status of 20 state and federal protected areas in Espírito Santo has provided the agencies responsible for their management with important guidelines for improving their work and reviewing their management plans. Furthermore, the priority-setting exercise has also been channeled into new projects and investments by the state government.

Government representatives and environment specialists participate in the development of Ecosystem Profiles within every region. Strategies created through a highly consultative process carry considerable

weight within governments, in general. CEPF's profiles in many regions offer the most technically robust and consensus-driven vision for conservation within many Hotspots. There are many instances where Hotspot governments have adopted many of the elements, if not the broader strategies, in their national-level planning and resource management programs.

How much strengthening is enough?

A key question is what level, length, and model of investment is appropriate to reach thresholds of sustainability and effectiveness for a particular region, each with a distinct profile of biological degradation and threat, formal conservation on the ground, and 'strength' of its conservation community. As mentioned previously, a review of available literature suggests that CEPF has never practically defined 'sustainable' and 'effective' conservation, in other words, a vision of success for the functionality of the conservation community. Because of this it is challenging to distinguish acceptable thresholds of functionality of the conservation community as a whole that could signal adequate investment and be used to trigger disengagement. However, the outcomes and indicators set forth in the logical frameworks do represent indirect attempts to develop definitional tools and quantitative benchmarks, but it is challenging to translate numbers and totals into metrics of function and effectiveness (Table 5). A vision of how an effective conservation community should be structured and function, developed at the outset of regional programs, would assist implementation teams in targeting investments to strengthen different aspects of civil society and help them understand when and where to disengage, while leaving sustained capacity.

A Successful Conservation Model?

The CEPF Niche

CEPF aims to mobilize civil society in helping to find an acceptable balance between conservation and development on different scales across complex jurisdictional boundaries. While the CEPF niche focuses on reconciling conservation with sustainable development, in truth, most of a conservation community's energy in Hotspots is devoted to holding ground against waves of unsustainable development and working to change widespread practices with negative impacts on biodiversity. Civil society grantees include individuals, farming cooperatives and community organizations, indigenous groups, national NGOs, research institutions, private sector organizations, and international NGOs. CEPF assumes that providing modest support across a wide range of civil society actors can help create an effective community of advocates and stewards for biodiversity in protected areas, key biological corridors, and production landscapes. Projects are designed to mainstream biodiversity into government and private sector agendas and operations, wherever possible (Box 2).

Grantees engage in a range of activities, such as improved land-use planning and activities that mainstream conservation into production landscapes, including collaboration with the private sector; promoting supportive policy and legislative frameworks; promoting more sustainable resource management linked to livelihoods; and implementing measures to control and manage invasive alien species. CEPF promotes collaboration with governmental partners and sectors such as mining, agriculture, logging and tourism by fostering innovative public-private

partnerships and multi-stakeholder alliances to harmonize conservation with economic development (Table 5, Box 3).

Box 3: Engaging Industry in Conservation

Industry can support conservation efforts and improve its own practices to be more compatible with biodiversity management. In every region, CEPF has engaged industry to help achieve long-term objectives of protection and improved management of habitats and species. Industries engaged are diverse, ranging from ostrich farming, mining, and timber to hydroelectric, tourism, and coffee.

One hundred and thirty pioneering Brazil nut producers in the Amazonian region of Madre de Dios, Peru recently won formal Brazil nut concessions from the Peruvian National Institute for Natural Resources (INRENA). The establishment of these concessions effectively ensures legal protection for 225,000 hectares of primary tropical forest in the path of a planned highway connecting Brazil to the Pacific. Supported by CEPF, the Amazon Conservation Association (ACA) worked with its Peruvian counterpart, the Asociación para la Conservación de la Cuenca Amazónica, and INRENA to establish formal, long-term contracts with the local producers. Under these contracts, Brazil nuts are harvested from mapped areas, according to management plans that incorporate the highest standards of sustainable forest management. Most of the Brazil nut harvesters in this region are small-scale producers, with stands that are seldom larger than 1,000 hectares. Individually, they were ill-equipped to counter the unsustainable logging that can accompany road construction. The project has successfully stabilized land tenure in collaboration with other land titling initiatives in the area, while also providing an economically viable and sustainable alternative to logging. Of the total area, 27,000 hectares of Brazil nut concessions have also been certified - for the first time anywhere - by the Forest Stewardship Council in recognition of producers' adherence to the strictest international standards for forest management. The program is already being replicated and extended throughout Madre de Dios, and there is considerable potential for this to be expanded among small-scale Brazil nut producers in Bolivia and Brazil.

With a grant from CEPF, the South African Brandy and Wine Company established the Biodiversity and Wine Initiative (BWI), drawing together an extensive network of conservationists, wine growers, marketing specialists, and government to help conserve the rare lowland fynbos and renosterveld habitats unique to the hotspot. BWI's key strategy for preventing further habitat loss is to encourage and enable closer cooperation between the technical and marketing arms of the South African wine industry. On the technical side, BWI has encouraged take up of biodiversity guidelines into existing sustainable industry practice while on the marketing side, the scheme has enlisted the help of progressive growers within the Cape Floristic Region, such as the 300-year-old Vergelegen estate (and the Clüver vineyard), to showcase the benefits of biodiversity stewardship to producers and consumers alike. At Vergelegen, 2,000 hectares have been set aside for conservation purposes and the aim is to eventually create a mosaic of different habitats including fynbos, renosterveld, wetland and, on higher ground, Afromontane areas. BWI hopes to encourage smaller scale wine producers to join in the effort by offering them the opportunity to sign up to the regional conservation stewardship program, which provides a combination of tax rebates, help with clearing alien plants on their land and other land management assistance in return for setting aside important habitats for conservation.

Potato farmers in the Cape Floristic Region have been engaged in an initiative that will enable responsible farming practices to help protect natural resources and dwindling water supplies. Focused

on the sand flats, or Sandveld, region of South Africa, the program draws together Cape Nature's Greater Cederberg Biodiversity Corridor Initiative and Potatoes South Africa, an organization representing the industry, as well as other partners and stakeholders. The Sandveld region forms part of the western lowland area of the corridor. However, plowing of the land for production of potatoes and rooibos tea has transformed this important coastal landscape into the second most highly threatened ecosystem in South Africa. A manual, "Biodiversity Best Practice Guidelines for Potato Production in the Sandveld," is the result of a growing understanding that potato production systems in the region were becoming unsustainable. A team tasked with developing guidelines to improve potato production processes was created in 2006, bringing together farmers, retailers, and the conservation sector. The team approached a consortium of scientists to develop scientific agricultural principles that could be implemented in a biodiversity-rich yet agriculturally important area like the Sandveld. Potato farming is just one of the industries that Cape Nature aims to influence with this program; outreach is being made into the rooibos and 4x4 industries to find ways to better protect the corridor.

CEPF's objectives and tactics are not unique among conservation programs, but how they have organized themselves and their emphasis on certain activities are distinct. Six elements of the CEPF model appear to be particularly important for achieving outcomes and making the regional programs cost-effective in terms of what they deliver:

- Comprehensive and participatory creation of a conservation strategy;
- Immediate implementation grants;
- Fostering ongoing dialogue;
- Guidance and interaction;
- Innovation and risk-taking; and
- An emphasis on sustainable funding.

Applied in concert during program implementation, these elements have been suggested by managers and grantees alike as being central to CEPF's marked gains in strengthening civil society's effectiveness as conservation advocates and stewards and in engaging governments and the private sector.

Conservation Strategies

Many conservationists faced with growing threats and loss lament the time and resources expended on planning. However, the past thirty years have shown that ecoregion-scale conservation strategies developed through broadly participatory processes and informed by the best available science, data, and guiding principles, have the capacity to generate enormous conservation gains. Governments pay attention and act, significant funding is leveraged as a credible plan connotes diligence and buy-in, each stakeholder understands how their activity fits into the bigger picture, and the impact of decisions and investments guided by a strategy is maximized. Enough success generated by good strategies over the years has justifiably made robust, ecoregion-scale strategies a best practice and an essential component of effective conservation anywhere in the world. Nevertheless, they can be expensive and require concerted effort, so rather few ecoregions enjoy their benefits. In fact, robust strategy development for a large number of important biodiversity regions contends as one of CEPF's most significant contributions.

Analytical tools, approaches, and data for strategies have improved over the last few decades, but basic questions of representation, viability, ecological processes, resilience, threats, enabling conditions, and optimal interventions are standard themes in most strategies. CEPF uses ecosystem profiles to identify its niche and investment strategy for each region approved for investment. The profile reflects a rapid assessment of the underlying causes of biodiversity loss and couples this with an inventory of investment taking place within the region and other key factors to identify how CEPF can provide the greatest incremental value. CEPF refers to existing strategies, builds on their scholarship and findings, and engages their authors in profile development. However, the process of engagement and participation during profile development functions as a critical conservation tool in itself, and there is ongoing value associated with a comprehensive and standardized approach for profiles among all investment regions.

CEPF's contribution towards the art and application of conservation strategies has been to set new standards for the consultative process expected (CEPF Ecosystem Profiles are notable for their exhaustive consultations) and the integration of species-level data, especially that derived from the IUCN Red List of Threatened Species and syntheses of available data on the fauna and flora of each region. The most recent profile for the Caribbean is particularly thorough and reflects a decade of refinements. The continuing focus on biodiversity and strong species and protected area basis in all the profiles is consistently lauded by biodiversity specialists. Additional advances include a much finer level of resolution for site prioritization than many prior efforts at regional scales and a more thorough development of current investment profiles, programmatic (that is, CEPF's) niche, and investment strategies. Ecosystem Profiles could be strengthened in the future with:

- A more rigorous evaluation of priority areas and corridors (in the biological, not implementation, sense) in regards to landscape ecology and context, in most profiles information on the type, extent, topography, and status of remaining natural vegetation outside of KBAs, or the relationship of KBAs to infrastructure and settlement is lacking or absent;
- Representation of distinct biogeographic assemblages and not just Red List threatened species (especially important for considering plants, fungi, and invertebrates that make up the vast majority of species), facilitated by using habitat types as proxies (explicitly defined representation rules should be included in profiles);
- An assessment of the value of incorporating relative threat and defensibility valuations for different sites and corridors, complementarity analyses for highly fragmented landscapes, and cost-effectiveness (return-on-investment) analyses where costs can accurate costs can be estimated;
- A streamlined and standardized process to update profiles after 5 years, where necessary;
- A prioritization of buffer habitats surrounding KBAs and key biological corridors.

In general, CEPF ably combines a biodiversity priority-setting exercise and a targeted implementation plan into a single strategy, but the tension between a desire to have a comprehensive strategy and the risk of diluting the impact of investment by trying to do too much is real and must be carefully and continuously evaluated as a program unfolds. Indeed, the

pace and scale of biodiversity loss and growing pressures everywhere warrant a more rigorous evaluation of the long-term defensibility of Key Biodiversity Areas, corridors, and adjacent buffer habitats and managed landscapes. Our rapidly changing world makes it imperative that conservationists reevaluate what is achievable and how best to allocate limited time and resources (see Bottrill *et al.* 2008, Parr *et al.* 2008). It is this reality that will drive the evolution, implementation, and utility of regional conservation plans in the future.

Immediate Implementation Grants

A strategy, plan, blueprint, or vision provides a crucial guiding and coordinating tool for the conservation community, yet plans without action remain academic. CEPF demonstrates that marked gains that can be achieved when significant funding is immediately available for implementing priority actions highlighted in a strategy. (While there has been some critique of CEPF for having long gaps between plan development, calls for proposals, and money out the door, CEPF teams do try, wherever possible, to manage expectations and minimize delays, and considerable funding is getting into the field within reasonable timeframes).

What would have been the impact of a plan without immediate investment? Some strategies, such as WWF's East Africa Marine and Congo Basin strategies, have attracted multilateral investments for major projects over time. However, the critical importance of CEPF's post-strategy implementation funding applies to maintaining the momentum of incipient NGOs and solidifying recently formed alliances and relationships among civil society groups and the government and private sector. The degree to which CEPF was able to strengthen civil society as a conservation constituency owes much to this combination of strategy and immediate provision of resources for implementation. The technical assistance and guidance of CEPF's Regional Implementation Teams (RIT; previously, Coordinating Units) have helped maximize the impact of these post-strategy investments, as well. CEPF's strong and competent staff and relatively large program budgets capable of catalyzing a lot of activity all at once have helped make the action phases so successful. CEPF's experience argues for moving away from stand-alone strategy development and the wisdom of some level of immediate implementation funding, whether it be catalytic or sustained.

Opportunities for Ongoing Dialogue

A strong message from the field has been the enduring value of CEPF's support for opportunities for diverse stakeholders to get together, share information and perspectives, and find solutions for a range of conservation issues. The Namaqua Biodiversity Forum in the Succulent Karoo and the stakeholder forum coordinated by FUNDICEPP in Panama are examples of highly effective and enduring mechanisms for communications, exchange, engagement of diverse communities, including indigenous groups, problem-solving, and coordinated action (Box 4). The dialogue and positive synergies arising from these bodies have been critical for resolving many conservation conflicts and for facilitating mainstreaming of biodiversity issues into the agendas of local communities and governments. In Sumatra, the CANOPI project facilitated a process of engagement that helped clarify issues among government and local NGOs and better define their roles and responsibility at a landscape level. This dialogue led to real results of stronger enforcement for wildlife protection inside and outside of protected areas.

CEPFs role in fostering interaction within regions has been strong, but CEPF has been relatively weak on exchanges of experience across regions to identify lessons learned, share successes and failures, build networks, and increase standardization of approach, where it is useful. International meetings are expensive and time-consuming, so a range of cost-effective options that could improve cross-regional learning need to be explored.

Box 4: Conservation Forums/Alliances/Networks

A strong message from the field is that a major impact of CEPF, perhaps the best according to many, has been the establishment of forums for multiple stakeholders to discuss, strategize, and negotiate conservation and natural resource use issues. Many indigenous groups and local communities have felt they offer a rare opportunity to have their voice heard on many issues. New alliances and forums for discussion provide a vehicle for civil society groups to engage government and industry on a regular basis and establish a formal process to share perspectives, achieve consensus, and negotiate solutions. Every CEPF region has established such networks, tailored to the particular features of each society, culture, and conservation community

Nine multi-stakeholder collaborative networks were established or strengthened in Northern Mesoamerica, reversing years of fragmented approaches to conservation. The Mirador–Rio Azul Multi-stakeholder roundtable grew to a high profile network of 35 stakeholders dedicated to reaching consensus on protecting the Selva Maya. In Selva Zoque, the states of Veracruz, Chiapas, and Oaxaca agreed and implemented a regional conservation vision and coordination mechanism. In the Atlantic Forest, highly fragmented forests on private land required close coordination among multiple stakeholders. Both the CEPF-initiated Alliance for the Protection of the Atlantic Forest (CI, SOS Pro Mata Atlantica, TNC) and Atlantic Forest Network of Private Protected Area Owners (RPPN) helped to fulfill that function.

The Caucasus Biodiversity Council (CBC) is a regional body, consisting of officially nominated government representatives and NGO delegates from all countries of the hotspot. The council also invites academics to participate in its meetings, which are organized twice a year. Since its establishment, the Council has proved itself invaluable to conservation in the region, not only by promoting and monitoring the implementation of an Ecoregion Conservation Plan (ECP) for the Caucasus but also by facilitating implementation of regional programs and projects, providing a forum for exchange of opinion and promoting transboundary activities. The CBC has become an important mechanism for promoting conservation in the hotspot, and for building confidence *vis-à-vis* donor agencies and the conservation community.

Many other CEPF-supported examples exist. The Environmental Forum for Action in Sierra Leone (ENFORAC) is now a nationally recognized coordinating body of all environmental/biodiversity conservation actors in the country. The pre-existing Pacific Invasives Learning Network (PILN) is supported by CEPF and the Namaqualand Biodiversity Forum has become a guiding body for natural resource policy in the Succulent Karoo.

Guidance & Interaction

CEPF's use of coordinating teams based within the investment regions consistently is credited with improving the implementation process and quality of projects and facilitating conservation gains. There is simply no substitute for having good people and teams in the 'field' working

closely with partners over long periods of time to move conservation forward. Decades of conservation programs have repeatedly provided evidence that this is the case and the CEPF model should continue this practice.

CEPF's Regional Implementation Teams (RITs, formerly Coordination Units) fulfill this coordination and technical assistance role. In some regions, RITs have been essential since no qualified civil society group was available to strengthen as a coordinating unit. Some groups later contracted as RITs have been particularly useful in helping to coordinate the ecosystem profiling process and assessing the institutional and social situation in the early stages. Potential partners and grantees receive considerable guidance and technical assistance in proposal development, partnership-building, and project implementation. Importantly, the RITs initially facilitated and supported the creation of mechanisms for different groups and stakeholders to gather, share, and discuss salient issues and plans, and build alliances and partnerships beyond the initial ecosystem profile planning stage. Their ongoing support for these activities, whether they are hosted by the RITs themselves or by local bodies, has been cited as one of their most significant contributions. Several other major roles of the RITs have emerged:

- Providing technical assistance and leadership in developing innovative financing mechanisms for entire regions;
- Providing 'big-picture' guidance on project selection and grant portfolios;
- Linking diverse groups and projects to shared objectives and broader initiatives;
- Engaging the private sector and governments on major land use, legislative, and policy issues in partnership with local NGOs, acting to foster relations and sometimes acting as a 'neutral' party;
- Facilitating conservation action through international networks of specialists and relationships that many of the RITs, particularly the international NGO RITs, already have established;
- Helping to coordinate responses to development crises early on the implementation of CEPF programs; and
- Facilitating and supporting the creation of mechanisms for different groups and stakeholders to gather, share, and discuss salient issues and plans, and build alliances and partnerships beyond the initial ecosystem profile planning stage.

Another important role of the RITs has been to help nascent and smaller organizations learn to ramp up to manage larger grants. Despite ongoing efforts to simplify and mainstream applications, reporting, and other required protocols, CEPF grants continue to retain a level of complexity daunting to many local groups. Indeed, some of the sophisticated online application and reporting protocols challenges the first generation technology and skills of many potential grantees. Simply providing an uploadable file you can email in may have significant management savings and bring in a wider range of civil society applicants. A continuing message from the regions is that potentially good grantees are still missing funding opportunities due to the complexity of the grant-making process. CEPF Secretariat is continuing to strive for an optimal balance of a streamlined yet adequate application processes, and rightfully views the process as a capacity-building opportunity for civil society groups.

One of the evolving strengths of the RIT program is that it has moved to a more decentralized management model, with less direct involvement in the CEPF Secretariat in program implementation. The RITs are closer to the action and are better able to conduct meaningful proposal reviews, and technical support and guidance for grantees. The RITs bring with them their local networks of expertise. For example, in Polynesia/Micronesia the RIT appointed a seven member technical advisory group (TAG) to assist with grant review and management. The TAG is made up of a diverse range of members, including SPREP, Birdlife, representatives from Micronesia and French Polynesia and Fiji.

RITs have been under fire for being too expensive to establish and operate relative to the available project budgets and for initially being largely hosted by the Secretariat's home organization, Conservation International. An 'awkward sense of obligation' to fund CI proposals in the past was mentioned by some former CEPF team members. CEPF has responded well to this issue by consciously trying to diversify the organizations that take the coordination lead within new regions, and working to make CEPF more independent within Conservation International, helping with credibility.

Discussions with a wide range of stakeholders and conservation specialists during this evaluation reveal strong agreement for maintaining RITs and their role, but the value of their activities were widely believed to diminish over time. A suggested modification would limit their current levels of funding to two years with substantially lower budgets in subsequent years, and no eligibility for consolidation grants if they continue. Efforts to identify qualified organizations as RITs who are not associated with the host institution should be redoubled, and it has been suggested in several sectors that regional CI offices not be eligible to function as a RIT. Although there may be some growing pains, the opportunity to function as a RIT may greatly strengthen the future role of a local organization. RITs already have a lot on their plate, but increased attention to working with grantees on planning for sustainable funding and towards following grantee progress in the 'field' were commonly mentioned as important responsibilities.

One variation on the configuration of a RIT attempted to spread the coordination role directly into the field. The Succulent Karoo coordinating unit initially established 22 local champions based throughout the region. By all accounts, their presence was valuable in producing and implementing high quality projects and when this structure was disbanded due to cost halfway through the program the loss of momentum was significant. Several of the champions had their own CEPF grants, however, and focused their attention on its success at the expense of other projects, and finding qualified champions throughout the region was a challenge. In some regions with modest staff costs, this 'champion' model may make good sense given the gains in project quality and results, but champions should not be grant recipients themselves.

Innovation & Risk-Taking

Despite our best efforts to emulate business models of decision-making and learning, conservation unfailingly remains more complicated and fraught with uncertainty. Complex interactions among multiple variables in real-world conservation invariably limit our confidence and knowledge about the potential efficacy and success of interventions. Major changes in climate and global economies that are looming over the next few decades create further

unpredictably. This reality and the urgency imposed by the Extinction Crisis require that conservation programs incorporate a certain level of risk-taking in their investment portfolios, especially those programs that are far-reaching in scope and with generous budgets that can buffer failures and afford a few less than successful outcomes (for example, CEPF) (Box 5).

Box 5: Innovation in Bhutan

In a rural farming province of Bhutan, a program is under way to provide an alternative source of energy and protect the environment. Bumthang Province is home to two national parks: Thrumshingla and Jigme Singye Wangchuck. It stands in the middle of a corridor linking the two areas of native forest that serve as a rich biodiversity area, including several globally threatened and unique species. But, for Bhutan, the main source of domestic heating is timber. Due to its high altitude, Bhutan's per capita use of wood in energy consumption is one of the highest in the world. Norden Pines, a CEPF grant recipient in Bhutan, has come up with an alternative. Seeking to protect and maintain this key corridor within the Bhutan Biological Conservation Complex, it has created a factory for the manufacture of briquettes. The material comes from sawdust and other wood by-products accumulated from timber already harvested for other purposes and from agricultural waste. The aim is for the briquettes to mitigate and ultimately replace demand for wood for fuel from the forests. The briquettes offer many advantages over firewood. The briquettes are environmentally friendlier, produce more heat and more efficiently, are cleaner and easier to handle and reduce carbon dioxide emissions, thereby helping to combat global climate change. The factory is producing nearly 2,000 kilograms of briquettes a day. Demand for the product is climbing, up to 500 kilograms a day in just a matter of weeks.

A major premise of the CEPF investment strategy is that conservation will be best catalyzed by seeding resources throughout a region to a wide range of civil society groups and conservation issues. Under this strategy, not every project will be successful and not every NGO will thrive or even survive (although a recent canvassing of CEPF Grant Directors suggested that no NGO funded by any CEPF program—1500+—has folded to date!). CEPF's project portfolios are notably rich in innovation, which often deals with uncertainty as new models are tested, as well as a modest level of risk-taking (donor requirements do screen out high-risk projects and organizations early in the application process). A "best conservation story" competition for journalists in the Atlantic Forest, marketing computer flash drives made out of the wood of invasive bushes in the Karoo, engaging the ostrich farming sector in the Karoo, and surveys for two of the world's rarest and most elusive animals, the Fiji petrel and Fiji flying fox, offer examples of innovative projects with initially uncertain outcomes.

The harsh reality is that despite good effort and remarkable successes, we are losing ground everywhere. Innovation and risk-taking may turn out to be profitable strategies over time. For these reasons, carefully-considered risk-taking and projects with uncertain outcomes must continue to be supported through CEPF grant-making. This philosophy conveys several consequences:

- Donors must be comfortable with some risk-taking and 'learning' projects (those that did not fully reach their objectives);

- Projects that target 'undocumented' biodiversity within a given area should be considered if its importance can be strongly argued on the basis of first principles of biogeography, ecology, and regional patterns of biodiversity.
- Species projects with uncertain outcomes due to the challenges of surveys and protection should be attempted more often than not;
- Monitoring and evaluation of programs and projects must be more flexible, even more relaxed, to accommodate risky and uncertain interventions—there may be greater value in reporting failures than successes.

A review of grant portfolios for some regions did show an unsettling trend of relatively small grants going to local NGOs for *on-the-ground* management of conservation areas (formally protected or otherwise) and rather sizeable grants going to larger, often international, NGOs for planning activities (that is, projects with titles that specifically mention planning activities, but not including management plans for specific protected areas or community reserves) within the same region. While it is true that smaller NGOs may not be able to effectively absorb large grants over short time periods, the perceived risk or low probability of success with nascent local groups may have played a role in the decision-making. Finding ways to support on-the-ground management by local groups, or even government protected area staff (for example, support for anti-poaching patrols in Corcovado National Park, Costa Rica) over longer periods of time may be a solution for this imbalance. CEPF should reevaluate funding large numbers of planning projects, or at least consider carefully the relative importance of their outcomes within the context of CEPF's niche and long-term outcomes. Ecosystem profiles and protected area management plans remain important, but at times it was hard to understand the relevance, conservation impact, and distinction among a number of planning efforts during the review of all CEPF projects.

Sustainable Financing

CEPF strategic directions and grants consistently seek solutions for sustainable funding for protected area establishment and management, addressing threats, and the operational costs of NGOs, etc. Each CEPF region has supported projects focused on establishing sustainable financing for local to regional-scale activities—carbon credits for conservation coffee in Mexico, Debt for Nature Swaps in Guatemala, Costa Rica, and Madagascar, the Awacachi Trust Fund Mache Chindul Trust Fund, and Phoenix Islands and Caucasus Protected Areas Funds are examples. Some of the approaches have been ground-breaking—Debt for Nature Swaps, trust funds, tourism and agricultural sector support—and their gains decisive in their provision of long-term resources for conservation.

A recurring message has been the need to work with grantees much earlier in the project development and implementation phase on preparing for the day when CEPF funding would end. Clearly, some will benefit from regional and local sustainable financing mechanisms that CEPF helped put into place, but such options are not always available. In the future, CEPF should allocate portions of RIT or project budgets to go towards helping grantee organizations gain the skills and confidence required to obtain grants and leverage funding. And working on sustainable funding issues from the start for every project would improve long-term sustainability. Every single grantee interviewed said they would greatly benefit from additional training in how to

identify potential funding and successfully apply for grants. Steps for identifying and pursuing post-CEPF funding opportunities should be built into project design and monitoring, where relevant (that is, if the project is part of a long-term program of work). Sustainable funding specialists from RITs, donor organizations, or other conservation partners should be available to work directly with grantee organizations on building their capacity throughout the life of projects.

Measuring Change in the Effectiveness of a Conservation Community

Tracking improvements in the capacity of individual NGOs (for example, METT, CEPF's civil society capacity tracking tool) provides some insight into the effectiveness of civil society as a constituency, more broadly. NGOs and civil society groups predictably improve their status and effectiveness after receiving CEPF grants, training, and technical assistance. Understanding how their collective efforts move conservation forward across the region is a more salient, but challenging, measure of program impact. It should reflect improvements in inter-group and sector relationships, coordination, and agility in the face of dynamic conservation situations. However, measures for tracking the 'effectiveness' of the conservation community as a whole were not located for this evaluation. A preliminary effort to gauge improvements or declines in the effectiveness of conservation communities within each region is attempted here. More data, time, and elucidation of methods are required to further develop the approach used below.

Assessing the Effectiveness of the Conservation Community

The effectiveness of a region's conservation community could range from few (or none) NGOs with limited capacity to address issues, advocate for conservation, or carry out projects to a highly effective, active, vigilant, versatile, collegial, and collaborative constituency that interacts with and complements government programs. One can qualitatively characterize the relative effectiveness of a conservation community using a continuum of 'states' of effectiveness:

Different "States of Conservation Community Effectiveness"

1. **Functionally Absent** – Few, if any, NGOs focused on conservation issues; little capacity to influence threats, conservation or development related decisions; poor awareness and communication among what civil society groups exist; biodiversity issues not integrated into policy or legislation; civil society involvement in conservation suspicious by governments; no active environmental media; little, if any, biodiversity data, GIS capacity, or biological specialists; local communities not involved in conservation/development decisions or management.

2. **Ineffective** – Some civil society groups active in conservation, but with limited impact due to inadequate skills, organization, and resources; poor communication, coordination, and sharing among NGOs, or even unproductive competition and strife; conservation strategies dated and incomplete; poor or inaccessible biodiversity and spatial data and lack of sharing or coordination; limited opportunities for sharing among NGOs or engagement with government or the private sector; limited breadth of conservation issues capable of being effectively addressed by the community as a whole; incomplete geographic coverage of conservation activity on the part of NGOs; legislation and policy with limited incorporation of biodiversity; available funding often inadequate, unpredictable, and scarce.

3. **Uncoordinated** – A number of active groups but hampered by the lack of a guiding strategy based on comprehensive science-based analyses and consultations; lack of a common vision; few opportunities for sharing or discussing conservation issues among civil society groups or with government and the private sector; counterproductive competition and rancor often derail coordination and partnerships; media coverage of environmental issues patch and uncoordinated with civil society groups; patchy conservation advocacy throughout geography of the region; unbalanced garnering of resources by a few groups; relationship with government and the private sector confrontational or peripheral; variable skills and ability to address a range of conservation issues limited; good data and GIS capacity developing but not widely accessible.

4. **Active** – Multiple organizations able to address a wide range of conservation issues and regions, from local to international levels; sustainable funding still a challenge; coordination good among some groups and stakeholders; opportunities for dialogue, communications, and sharing regular but not always adequately inclusive; multiple communities and organizations taking responsibility for management and stewardship of important biodiversity areas; environmental media increasingly engaged and coordinated with civil society groups; funding and resources increasingly stable as skills for fundraising increase; biodiversity and GIS data readily available; opportunities for training; a broad range of conservation skills from biological surveys to proposal writing and negotiation present within community.

5. **Highly Effective** – A well-coordinated, confident, and collegial conservation constituency; shared goals and strategies based on a modern conservation strategy; complementary and coordinated programs; strong partnerships and alliances; regular opportunities for discussions, sharing, and negotiation among all stakeholders (including government and the private sector); an ability to address a wide range of conservation issues at varying scales; an ability to monitor and act on conservation issues throughout the region; strong legislative and policy conditions for conservation advocacy; a vigilant and effective environmental media; local communities and other stakeholders substantially engaged and responsible for long-term support, management, and stewardship of biodiversity; current and available data on biodiversity, threats, conservation projects, etc.; GIS capacity; a cadre of skilled conservation practitioners for diverse tasks and activities; adequate and sustained funding for conservation work.

CEPF's hypothesis is that to move the state of protection for biodiversity on the ground closer to the zoning and quality of management vision put forth in conservation strategies requires having a strong and effective civil society constituency. In many regions, CEPF activities have improved protection on the ground, but the real value in the global program has been to improve the potential for conservation effectiveness of civil society, and increase the probability that their activities will translate into future gains of protection on the ground over coming decades.

Table 6. The 'state of effectiveness' of the conservation community as a whole estimated using parameters relevant to the ability of the conservation constituency to monitor, communicate, collaborate, and act effectively on a wide range of conservation issues, as well as sustain themselves over time. The levels are estimated from CEPF Ecosystem Profiles, Final Regional Reports, project reports, and various non-CEPF ecoregional and NGO assessments. Any estimated changes to levels at the initiation of a CEPF program and at the end of the program (within 4 years) are represented by 2 numbers connected by an arrow in a cell, respectively. In the last column, unshaded cells for non-CEPF Hotspots also have two numbers with an arrow connecting them to represent the estimated shift over the last ten years. The levels are assessed for the entire conservation community as a whole, rather than highlighting the status within particular sub-regions or groups. Shaded cells represent CEPF investment regions. **A scale of 1 to 3 is used for the first five metrics, and a scale of 1 to 5 for the overall state.**

Hotspot	Groups & Skills	Versatility	Sustained Funding	Conservation Tools	Enabling Conditions	Overall State of Effectiveness (note different scale used)
Atlantic Forest	1→3	2	1→3	3	1→3	2→4
California Floristic Province	3	3	3	3	3	5→5
Cape Floristic Region	3	3	2→3	3	3	4→5
Caribbean Islands	2	2	1	2	2	3→3
Caucasus	2	1	1→3	2→3	1→2	2→4
Cerrado	2	1	1	3	2	3→3
Chilean Winter Rainfall - Valdivian Forests	2	2	1	3	1	2→3
Coastal Forests of Eastern Africa	1→2	1→3	1→2	2→3	1→2	2→4
East Melanesian Islands	1	1	1	2	1	2→2
Eastern Afromontane	2	2	2	2	2	2→2
Guinean Forests of West Africa	1→2	1	1	1→3	1	1→2
Himalaya	2	2	2	2	2	3→3
Horn of Africa	1	1	1	1	1	1→1
Indo - Burma	2	2	2	3	1	3→3
Irano - Anatolian	1	1	1	1	1	1→1
Japan	3	3	3	3	2	4→4
Madagascar/Indian Ocean Islands	1→2	2	2	3	2	2→3

Madrean Pine - Oak Woodlands	1	1	1	2	1	2→2
Maputaland - Pondoland - Albany	3	3	2	3	1	3→4
Mediterranean Basin	3	3	2	3	2	3→3
Mesoamerica	3	3	2	3	2	3→4
Mountains of Central Asia	1	1	1	1	1	2→2
Mountains of Southwest China	1→2	1→2	1	1→2	1→2	2→2
New Caledonia	2	3	2	2	1	4→4
New Zealand	3	3	3	3	3	5→5
Philippines	2→3	2	2	1→3	2→3	3→4
Polynesia - Micronesia	2	2	1	2	1	4→4
Southwest Australia	3	3	3	3	3	5→5
Succulent Karoo	1→3	1→2	1→2	1→3	1→3	2→4
Sundaland	1→2	1→3	1→2	3	1→2	3→4
Tropical Andes	2→3	2→3	1→2	3	1→2	3→4
Tumbes - Choco	2→3	2→3	1→2	2→3	1→2	3→4
Wallacea	1	1	1	2	1	2→2
Western Ghats and Sri Lanka	3	3	1→2	3	2	3→4
Key	1=limited or absent 2=basic 3=adequate or advanced	1=limited or absent 2=basic 3=adequate or advanced	1=limited or absent 2=basic 3=adequate or advanced	1=limited or absent 2=basic 3=adequate or advanced	1=limited or absent 2=basic 3=adequate or advanced	1=functionally absent 2=ineffective 3=uncoordinated 4=active 5=highly effective (see definitions below)

Factors of Conservation Effectiveness of a Conservation Community Considered in Estimations (note: these are not comprehensive and are listed here to illustrate the kinds of features worthwhile to consider; some factors fall under more than one category). Scoring for different conditions for each factor and thresholds of change could be developed further to improve the resolution and accuracy of the assessment.

1. Groups & Skills

- number and proportion of NGOs (local, national, international)
- good dispersion of activity and monitoring throughout region
- vigilant & effective environmental media
- spatial data & analyses
- negotiation
- fundraising
- influencing legislation and policy
- proposal writing
- grant management

2. Versatility (an ability to address a wide range of issues at different scales throughout a region)

Biodiversity Features

- Taxa – Plants, inverts, herps, birds, mammals, fish
- Habitats – major habitats, subhabitats, special elements
- Ecologic Processes – disturbance, regeneration, movement & migration, resilience to change
- Regional Coverage (geographic dispersion)

Conservation Issues

- Species knowledge and management
- Habitat and ecosystems
- Restoration
- Protected area establishment
- Protected area management
- Biodiversity compatible management in matrix
- Natural resource use
- Ecosystem services
- Regional-scale drivers of change
- Addressing Development (ongoing development, environmental impact assessment, major development projects)
- Addressing local threats
- Responding Effectively to Crises
- Climate Change Adaptation
- Awareness & education
- Conservation Capacity and skills
- Alternative livelihoods and 'green' industry
- Policy & legislation

3. Sustainable funding

- Diverse sources of funding
- Regional pool of funding
- Sustainable funding for conservation areas
- 'Hunting & gathering' skills
- Leveraging potential
- Fundraising activity/success sufficient or increasing

4. Conservation tools

- Robust conservation strategy - based on ecoregion-scale analysis as foundation, priority areas identified and ranked, representation analysis complete, thresholds of habitat and population size and condition identified, conceptual model and conservation action plan developed, actions prioritized and results chains elaborated, measures program, participatory-based and enjoys good consensus, revision and updating procedures in place
- Comprehensive, Accurate & Available Data
- GIS capacity
- Field Guides
- Conservation Directories/Networks
- Communications Fora

5. Enabling conditions

- Legislation allows for civil society activity, action, 'freedom to flourish'
- Legislation balances environment w/development
- Policy balances environment w/development, emphasizes sustainability
- Civil society has a 'Seat at the Table'
- Civil society speaks with 'One Voice'
- Substantive & regular dialogue among diverse stakeholders
- Tone and nature of conservation relationships: collegiality, partnerships, alliances, complementarity

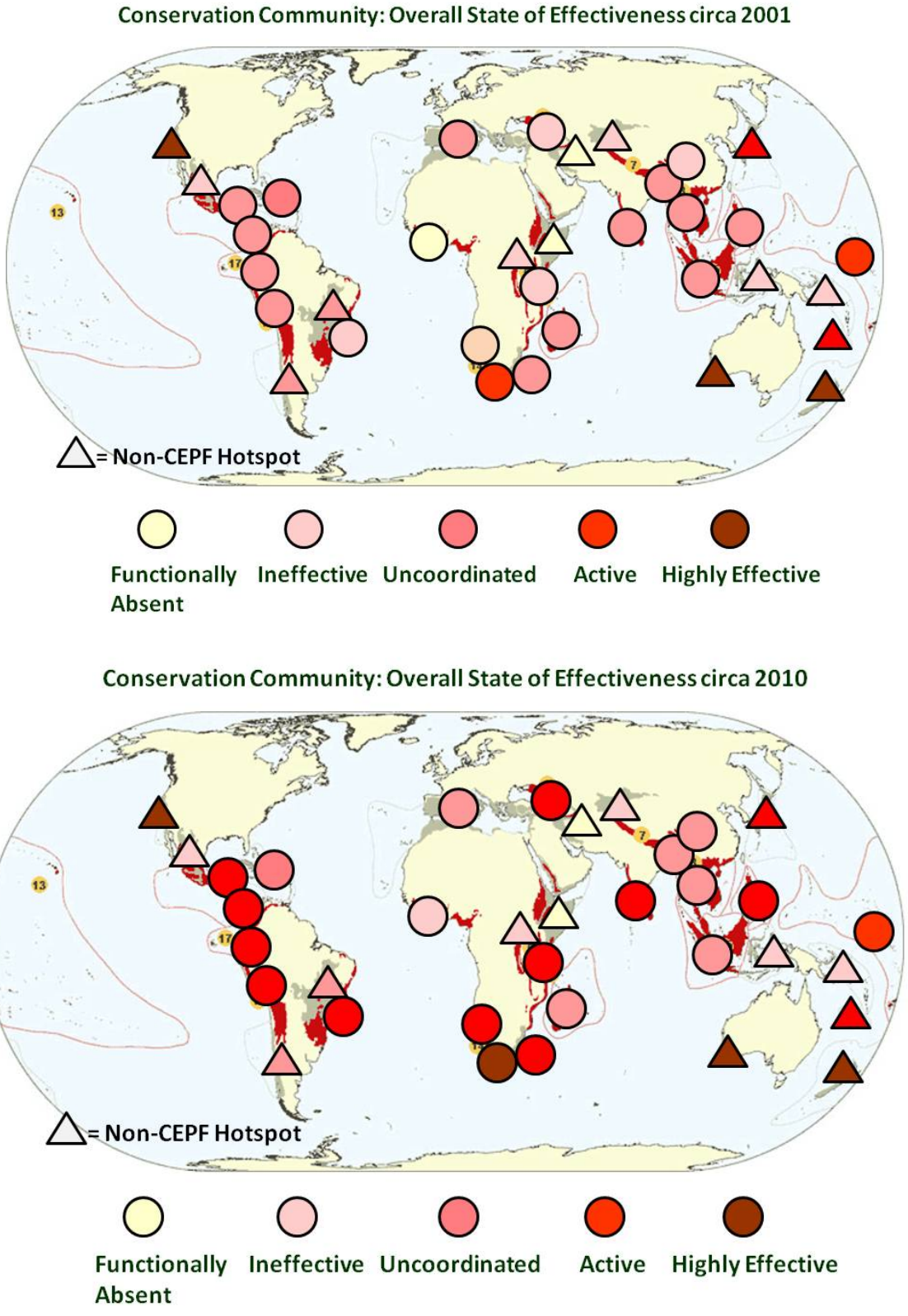


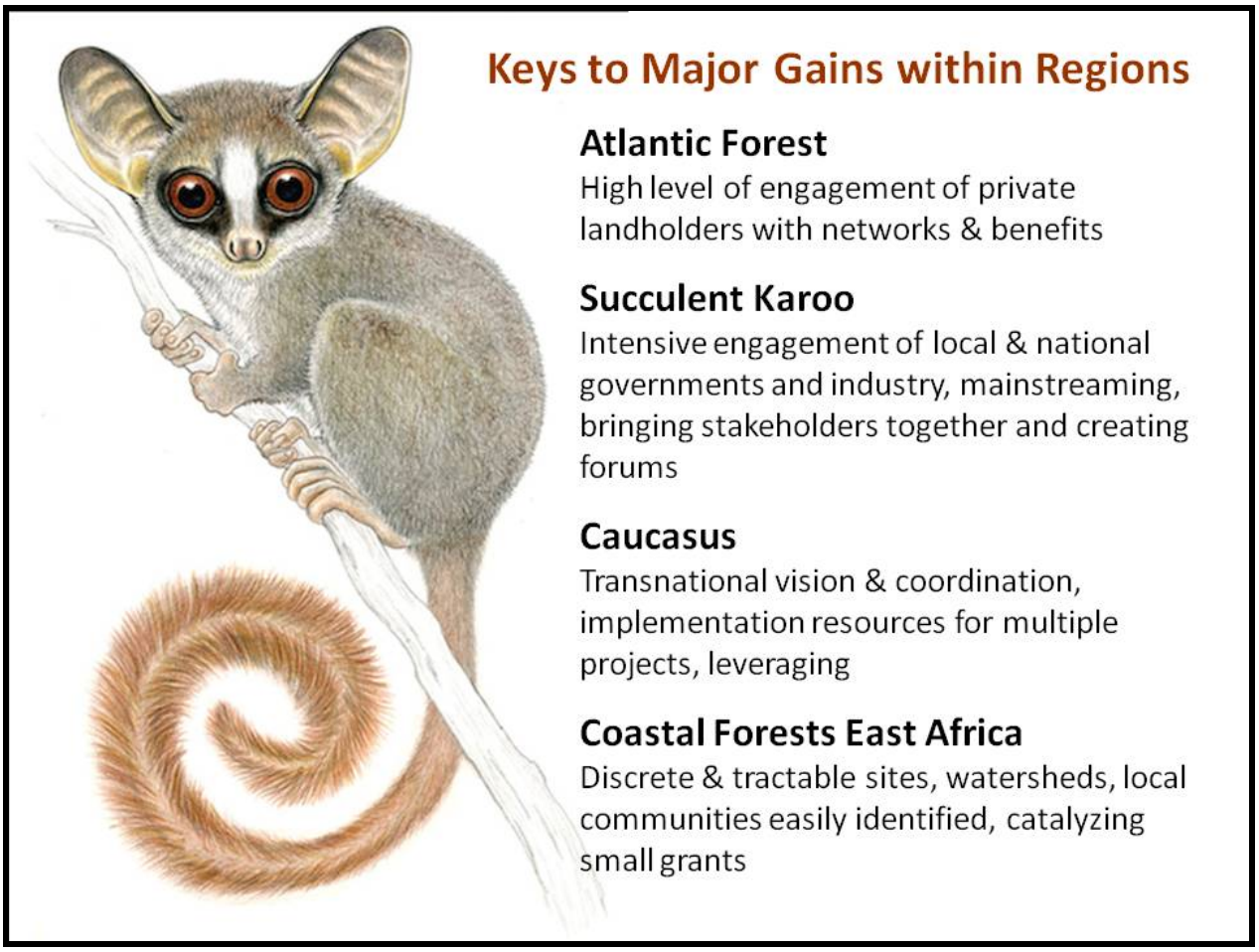
Figure 6. Overall state of effectiveness of the conservation community for each Hotspot 2001 and 2010.

CEPF Impact on Civil Society Effectiveness

The simple change assessment in Table 6 suggests that 13 of 18 CEPF investment regions show improvements in their conservation community effectiveness. Four of the 13 regions showed an improvement over two categories of effectiveness—Atlantic Forests, Caucasus, Coastal Forests of East Africa, and the Succulent Karoo. Only 2 of the 16 Hotspots that have not yet had CEPF investments improved over the last decade, although 3 of these already had 'highly effective' conservation communities. If these estimations are even close to the real situation, then one can confidently conclude that the application of a CEPF program, or a program modeled on CEPF, does improve the effectiveness of the conservation community, particularly the civil society component (at least when measured close to the end of the program), and sometimes markedly. No CEPF investment regions, or Hotspots for that matter (with the possible exception of the Horn of Africa and Irano-Anatolian regions), appear to have reduced their effectiveness over the last decade (bear in mind that although effectiveness may increase that biodiversity loss can still be still be dramatic and ongoing).

Transformational Progress

For the regions where substantial improvements (that is, upwards across two categories) occurred, it would be useful to know what regional conditions or CEPF actions helped facilitate transformational gains. Again, confident attribution of improvements to CEPF investments presents challenges, but a cursory review of patterns suggests further lines of investigation. At first glance, no dominant patterns emerge except that all the regions had a pre-existing NGO community and a modest level of conservation activity. In three of the regions, the remaining habitat is restricted to highly fragmented remnants scattered across the regions, perhaps facilitating targeted engagement of local communities and governments. Multiple small grants to private landholders and local communities, combined with a range of other salient activities, such as watershed and logging economics in the Eastern Arc Mountains and landowner financial incentives in the Atlantic Forest, may be important in securing gains in such landscapes. The Karoo had few pre-existing NGOs, but extensive botanical data, a few competent NGOs in the Cape region to the south with an interest in the Karoo, careful and comprehensive engagement of local governments, communities, and the private sector, and considerable local interaction through sub-regional 'champions'. Considerable mainstreaming has also already occurred in this region with municipal governments extensively involved in CEPF resource management initiatives and collaborating on best practices for agricultural and pastoral sectors, as well the government of Namibia's interest in replicating the strategy and implementation process for the entire coastline of the country. In short, no shared set of conditions in Hotspots could be correlated to marked improvements in effectiveness. Substantial progress was due to different conditions and perhaps implementations within different regions.



Incremental Progress

No single factor appears to be responsible for allowing rapid progress in any given region. In any case, rapid progress may not be an appropriate indicator for CEPF's impact on civil society. For example, in Southern Mesoamerica, greater coordination, communications, stakeholder participation, and stronger negotiation skills, fundraising capacity, and crises management have made a significant difference in the confidence of the conservation community, as well as the process and progress it is making towards achieving its vision. This is not well-reflected in the crude effectiveness analysis above (Table 6). The CEPF program may indeed have made a substantial contribution towards Mesoamerica's overall evolution given the stage that conservation is at within this region (a shift in emphasis on governance rather than new protection—although eastern Panama still has protection priorities). Similarly, for the Guinean Forests of West Africa and Mountains of Southwest China that both emerged in an 'ineffective' state at the end of their investment periods, CEPF's contribution to get them to the next stage of development, albeit seemingly incremental and hard to measure, may have been an essential step and eventually make an enormous difference for biodiversity conservation in these important areas.

In challenging regions, CEPF progress may be better measured through stabilized or diminished loss and degradation or creating preconditions for major improvements over time. If enabling conditions improve within regions, the strategy development, surveys, dialogue among stakeholders, and other CEPF contributions could very well be setting the stage for rapid progress. CEPF may have undertaken the challenging and outcome-poor task of foundation building in these regions in situations where other donors would have balked. It is too early to tell, but CEPF should not view these programs as failures, or at least as 'less than successful'. Incremental change may be entirely appropriate for some conservation scenarios and it may represent an outstanding contribution as many conservation programs would hesitate to invest in regions of perceived minor gains.

At which stage of protection, degradation, or civil society strength is CEPF best targeted towards? The answer should remain "where there is less than 70% habitat in an ecoregion(s) that contains high concentrations of threatened and unique species", in other words, a Hotspot. The last ten years have shown that CEPF has had multiple impacts under many different regional scenarios, and there is sufficient progress and impact in each to warrant retaining a broad mandate.

Securing Conservation Gains

Sustainability

Will improvements in effectiveness be sustained and continue to improve over time? The catalytic mandate of CEPF typically ends with some organizations and initiatives lacking adequate funding at the end of the investment cycle. The recent consolidation grant phase suggests that insufficient funds were budgeted for some priority activities, new priorities arose during the program's implementation, or that grant execution needed improving for some projects. Some level of failure or inactivity among civil society groups is to be expected, but an acceptable level has not been defined in any available documents. Two indicators of sustainability are of particular interest. First, the number of grantee organizations that still persist and are active in conservation 5 to 10 years after CEPF ended, particularly the ones for which CEPF was their inaugural grant. CEPF reports no organizations that received grants have entirely disappeared to date, an impressive record. It would be useful to see if grant recipient organizations continue on a similar or greater level of activity and financial solvency after CEPF has ended its program. Second, what is the rate and level of success of fundraising for each organization at the same benchmark. Information on each organization's financial constraints, level of activity, and fundraising activity and success post-CEPF were not readily available for this evaluation.

Sustainability is best measured by how well biodiversity is protected and managed into the future, which may be driven in large part by enhanced awareness, mainstreaming, and changing values in society as much as any clearly tracked indicator of NGO capacity. Anecdotes and observations do suggest the CEPF model may be contributing to a sea-change in attitude towards the environment in some regions. One municipal resource office in the Succulent Karoo had independently developed a proposal for a mountains-to-the-sea natural corridor and tourism

route based on similar work CEPF had supported for a nearby area, and plans were being developed for a biodiversity museum for visitors in the provincial capital.

Level & Duration of Investment

Among the conservation practitioners consulted, there seems to be a considerable level of comfort about the relevancy and effectiveness of CEPF's outcomes, strategic directions, guiding strategies, types of activities, and support activities within the regions. However, several factors have repeatedly arisen in discussions about securing conservation gains. The optimal investment profile within regions is hotly debated. How much funding per region, the duration of the investment program, and the allocation profile over several years are considered major determinants of sustainability.

CEPF regional programs have ranged from $4.5 to $10.4 million USD and from 4 to 9 years of investment, with investment periods of 5 years (Table 7). The number of grants varies widely from 24 to over 300+ grants and sub-grants per region. Eight of the 12 Hotspots where the first round of investment has been completed have undergone a consolidation grant-making phase.

Arguments for retaining a similar versus a higher level of investment per region include the limited absorptive capacity of the conservation community in many regions and the need to follow the catalytic philosophy behind the CEPF program. In the Succulent Karoo, limited absorptive capacity was the reason given for only half of the budget being spent after 5 yrs and 46% of the grants not being completed by the end of the project. The high proportion of grants and budgets given to international groups in China, the Philippines, and West Africa was also ascribed to low absorptive capacity. One part of the solution is to provide small- to medium-sized grants over a longer period of time (5+ years) or increase the number of renewal grant opportunities. Previous evaluations found the fit between grant size and grantee capacity and project concepts to be good overall. If having a catalytic niche continues to be emphasized, then a redoubled effort to work with grantees to successfully plan for sustainable funding is warranted and the program must be comfortable with a certain loss of momentum and activity in the transition period after a program ends. There is also great strength in the argument that the application of a CEPF program (as it is currently configured) to as many Hotspots as possible is what is important for stemming losses of biodiversity around the world and that this one goal should be attended to first and foremost (see Chapter 3: The Future for CEPF).

On the other hand, the number of recent requests for CEPF consolidation grants and grantees with limited funding to carry on their work after their grants run out suggests CEPF should seriously consider modifying their investment model. The fact that funds apparently were 'rushed out the door' at the close of the Succulent Karoo project due to low absorptive capacity in the region, and then consolidation funds were requested to help secure gains suggests the pace of funding, in general, warrants program-wide revision.

Presently, consolidation grants make sense to secure gains and respond to evolving priorities, but they should: (i) be targeted towards local groups rather than international groups (the exception being possible international NGO work towards securing large-scale sustainable funding mechanisms or dealing with major crises); (ii) be phased out as part of the investment

mechanism; and (iii) be translated into an equivalent level of funding that should be built into the investment profile from the start and phased in during the investment period. Consolidation grants have caused some consternation within regions due to raised expectations among local groups with small projects that see large consolidation grants going to international NGOs.

Given the scale of the conservation problem in all regions and the lessons learned above from extant and past CEPF programs, it is recommended that CEPF investments be doubled, in the range of $10 to $20 million for each region with a third to a quarter of the funding set aside until the last third of an 8 to 10 year investment period and targeted towards local groups for particularly effective programs and new priorities and crises. (The current consolidation grant phase is effectively producing a decade-long investment period in some regions [Table 7]). Conservation programs are increasingly finding that modest funding each year over a decade is part of the formula for conservation success in developing countries.

Increasing the funding level to each region would entail concomitant increases in management costs. CEPF would need to be vigilant to ensure that technical support remained high and overhead costs as low as possible. Stretching a greater amount of money over a longer investment period would relieve some of the extra demands on the RITs and Secretariat.

Table 7. Investment level, duration, number of grants & subgrants, # grants and budget to international NGOs, and regional coordinators by CEPF Hotspots.

Hotspot	Total Invested $millions USD	# Grants+ Subgrants	Regional Coordination	Investment Period	# Grants to Inter. NGOs	% Budget to Inter. NGOs
Atlantic Forest	10.4	54+250	CI	2002-2011	7	9
Cape Floristic Region	7.65	74	SANBI	2001-2006; 2008-2011	11	25
Caucasus	8.5	42+87	WWF	2003-2008	10	64
Coastal Forests of Eastern Africa	7	103	ICIPE, WWF, BirdLife, TFC	2003-2008	49	60
Guinean Forests of West Africa	7.3	79	none	2001-2005; 2008-2011	37	82
Himalaya	5	27 to date	WWF, ATREE	2005-2010	In progress	In progress
Indo - Burma	9.5	37 to date	BirdLife	2008-2013	In progress	In progress
Madagascar/Indian Ocean Islands	4.25 No consolidation	40	none	2001-2006 No consolidation	29	74
N Mesoamerica	7.2	72	CI	2004-2008	27	55
S Mesoamerica	7.175	78	CI	2002-2006; 2009-2011	17	41
Mountains of Southwest China	6.5	80	CI	2002-2008	32	81
Philippines	7	49	CI	2002-2007	33	41
Polynesia - Micronesia	7	41 to date	CI	2008-2013	In progress	In progress

Succulent Karoo	9.4	94	SANBI	2003-2008; 2010-2012	15	23
Sundaland (Sumatra)	9.99	71	Advisory Council, etc.	2002-2007	38	77
Tropical Andes (Vilcabamba-Amboro)	8.31	37+29	CI	2001-2005; 2009-2011	13	60
Tumbes - Choco	6.9	54	CI	2002-2006; 2010-2012	13	50
Western Ghats and Sri Lanka	4.5	37 to date	ATREE	2008-2013	In progress	In progress

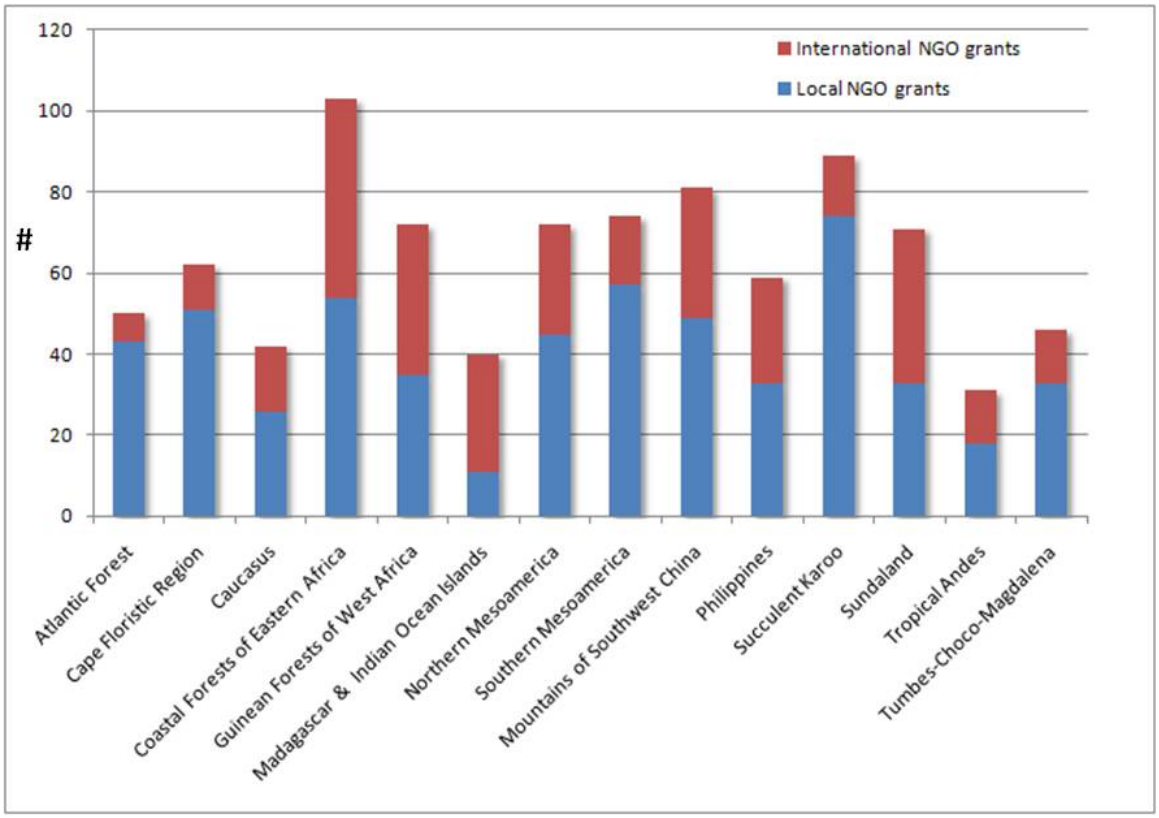
Grant Portfolio Considerations

Investing in International vs Local Groups

Over 1,500 civil society groups around the world received grants and support through CEPF. Local groups received roughly 63% of the grants and 45% of the funding allocated for grants across 14 regional programs over the past ten years (Figs. 7, 8). International groups were awarded 37% of the grants and 55% of the funding. The high proportion of resources going to international groups was mentioned in interviews with conservation specialists as a potential factor hindering CEPF from maximizing its impact on improving local civil society's effectiveness in conservation. The coordination role, efficacy, skills, networks, and sustainable resources offered by international NGOs are well recognized, but supporting their efforts too extensively can limit resources for establishing, strengthening, and sustaining local groups. In some sense, international NGO's long-term goals should be to put themselves out of a job over time by strengthening local capacity, or at least change their role within the community. Institution building, however, appears to be more the norm for most international NGOs. At a minimum, CEPF should continue to strive to minimize investing in international groups, and, when it does invest in them, spread the wealth among a diverse set of international groups as each has unique skills, networks, and relationship that are the currency of strengthening the effectiveness of a region's conservation community.

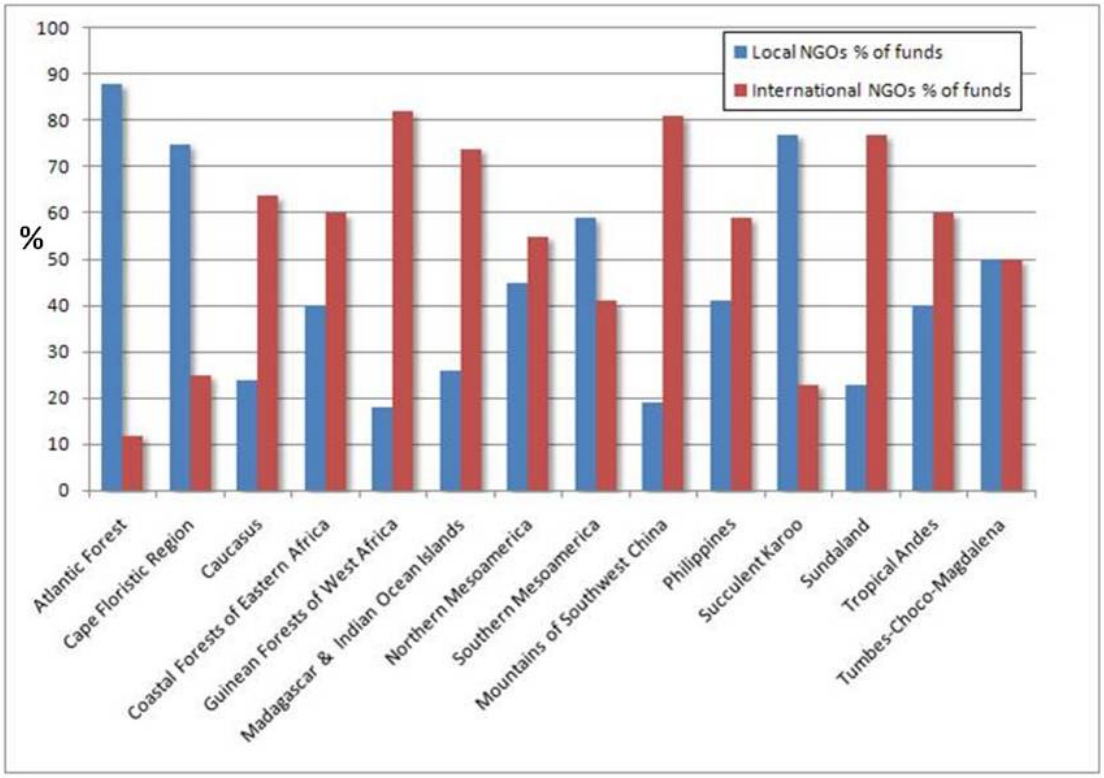
Optimal distribution of Civil Society throughout a Hotspot

In theory, an 'effective' conservation community would have active civil society groups well distributed throughout a region, both geographically and ecologically (that is, associated with key habitat types and KBAs), to act as local stewards and watchdogs, and for them to have a broad range of skills and capacities to be able to handle diverse issues. CEPF would benefit from a discussion regarding an optimal spatial or ecological distribution of local groups throughout a region for maximizing effective and sustainable conservation stewardship. A desired 'distribution' of civil society groups throughout a Hotspot would be part of a 'vision' of effectiveness for the conservation community. Two national NGOs based in a capital city may not be able to effectively address and respond to background levels of conservation engagement nor respond to multiple crises, but two NGOs in a capital working in partnership with 30 local groups strategically located throughout the region may well be able to.



Local vs. International NGOs # Grants

Figure 7. The relative proportion of CEPF grants (number of grants) awarded to local versus international NGOs. International NGOs were defined as any organization that was based, or part of a network based elsewhere than the region. Local groups received 60% of the global grants, while international groups were awarded 40%.



Local vs. International NGOs % Funding

Figure 8. The relative proportion of CEPF grant funding awarded to local versus international NGOs. International NGOs were defined as any organization that was based, or part of a network based elsewhere than the region. International NGOs were awarded 60% of the global funding, while local groups received 40% of the available funding.

"Site" versus "Non-Site" Projects

In 12 out of 14 investment regions over the last decade, the proportion of "non-site" projects was greater than that for "site or field-based" projects (Fig. 9). 'Site' projects are those defined as being able to be directly linked to a particular site on the ground or a species. Management plan projects for specific protected areas were considered "site or field-based" projects. While this pattern of allocation of grants may be appropriate for a program focused on strengthening the capacity and effectiveness of civil society in conservation, and is in line with many of the kinds of activities that have contributed to CEPF's considerable gains, it does seem that this balance should be revisited over the coming decade to see if more support could go directly to the field. The salient question, again, is whether there are marked, longer-term gains associated with dispersing' resources broadly throughout a region and directly to groups 'on the ground' to build a foundation for long-term effectiveness of the region's conservation community. If attaining some major strategic objectives outlined in Ecosystem Profiles is a dominant goal for 5-year CEPF programs then the balance might lean more towards policy-level, non-site based projects, but fewer non-site projects may be called for if 'seeding' activity broadly on the ground and

well-dispersed throughout a region is viewed as the optimal approach for long-term and sustained improvements in effectiveness.

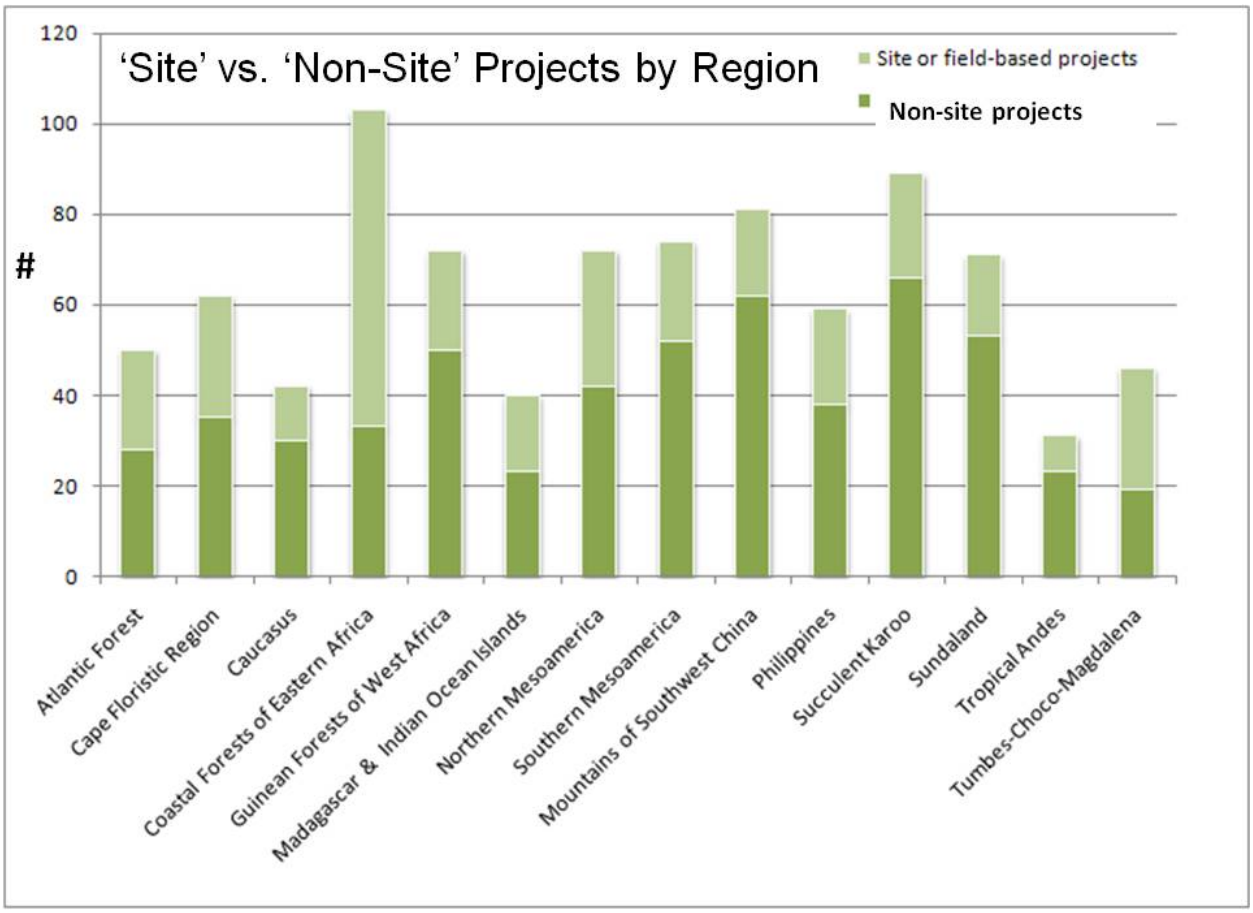


Figure 9. The relative proportion of "non-site" versus "site or field-based" projects awarded grants across 14 CEPF Hotspots over the last ten years. "Non-site" projects are defined as those that had no significant components directly interacting with species, natural habitats, protected area staff, or local communities on site. Management plans for protected areas qualify as "site or field-based " projects.

Types of Activities Supported

The strategic directions of each CEPF program have great value in tailoring grant portfolios to the particular needs of a region. Strategic directions and their indicative budget windows established by the Donor Council remain important tools for maximizing investment impacts. Each region has a unique set of strategic directions. In order to look at patterns of activities supported within different Hotspots, all projects from the last ten years were categorized under one of nine 'types' of conservation activity: protected area support (protected area establishment, PA management [for specific sites] and strengthening); strategy and planning projects, program management, strategy development, planning; research/surveys; compatible resource use;

policy/legislation; education/awareness; training/capacity-building; addressing threatened species; and addressing direct threats (Fig. 10).

What one takes away from this analysis is that the relative allocations of grants among different type of conservation activities are relatively similar across regions, with some variation due to distinct sets of strategic directions and fine-tuning by grant-making teams to match local priorities and potential projects. The category 'portfolio management, strategy development, planning projects' garners the most grants (and a larger proportion of budgets) almost everywhere, except in Guinean Forests and the Tropical Andes where capacity-building and training are a bit more numerous, and the Tumbes-Choco where protected area management and strengthening projects are more common, and Southwest China where education/awareness grants predominate. CEPF teams should be vigilant about excessive and unproductive allocation towards planning and strategy development activities. Targeting the majority of funds to build capacity 'on the ground' and 'in the field' may reduce the ability of a CEPF program (within a Hotspot) to achieve multiple strategic objectives and benchmarks identified in Ecosystem Profiles (which may require decades rather than 5 years to be realized), yet is may be the best strategy for building sustained and widespread effectiveness of the local conservation community over the long-term—the CEPF niche. CEPF would benefit from a thorough evaluation of what constitutes an optimal balance under different conservation scenarios (for example, different Hotspots at different stages of conservation effectiveness and state of biodiversity protection). Guidelines for balancing site versus non-site and planning/strategy development/portfolio management grants would help to maximize the impact of investments.

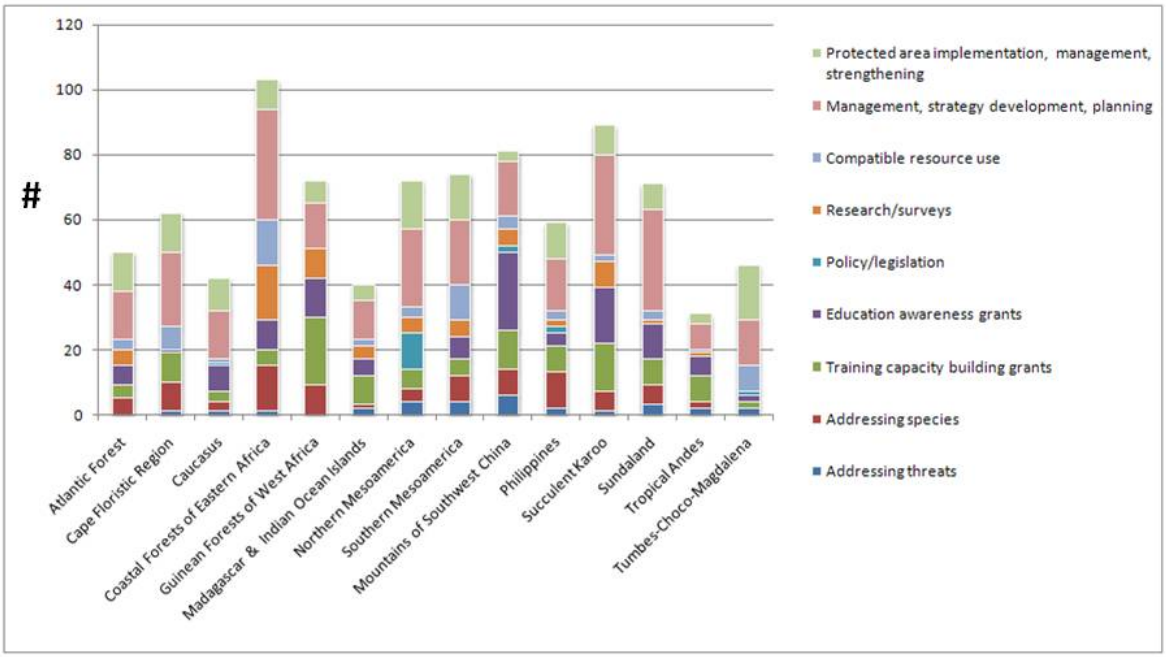


Figure 10. The relative proportion of different conservation activities within grant portfolios of 14 CEPF Hotspots over the past 10 years. The second category should read 'portfolio management, strategy development, planning'.

Monitoring
Would improved monitoring contribute to better sustainability? Certainly. Understanding what works well under what conditions will help programs focus attention on activities that will have lasting conservation impacts. The challenge is to find a balance between the real costs of effective monitoring with the benefits that it provides for different aspects of a conservation program. Although some progress has been made, CEPF programs are still deficient in rigorous portfolio-level performance reporting and inter-regional analytics (Wells *et al.* 2007). And there still remains a reluctance to acknowledge or document problems and difficulties, a common tendency with any conservation program. Ongoing efforts to standardize and increase reporting at the field level and to develop program-level metrics bode well for improved learning over the next decade. Geo-referencing and mapping all project 'sites' should be mandated immediately as this is a key tool for any monitoring. Grantees and Secretariat staff should be motivated to report challenges and failures in a way that will lead to improving future programs.

CEPF should carefully consider the real costs in time and resources (for the Secretariat, RIT, grantee, and partners) associated with conducting and reporting 'state-of-the-art' monitoring programs, whether they be for individual projects, regions, or the global program, that are a growing trend for large conservation program. CEPF should continue to focus on identifying simple metrics for assessing biological impact and 'state of effectiveness' metrics for whole regions. While justified in many ways, comprehensive monitoring programs do have the potential to divert time and resources away from activities well-known to produce on-the-ground conservation results. CEPF should seek a *minimum-set* of effective, and cost-effective, indicators for different scales, sectors, and purposes of the global programs. These can be tailored to different biomes, states of biological degradation, degree of development of the conservation community, and other distinctive features of different Hotspots or project portfolios.

Donor Coordination Works

CEPF's success derives heavily from the weight of the financial, technical, and logistical resources and far-reaching influence six major donors can bring to a single global conservation program. Few, if any, other global programs benefit from such an involved and high profile consortium. CEPF gains are made possible, in part, by the flexibility and room for innovation imparted by sizeable budgets and cadre of prominent donors with long-standing experience in conservation investments. CEPF provides a good example for signatories to the Paris Declaration and Accra Accord that promotes greater donor coordination. For example, the Cape Floristic Region program helped align related programs of UNDP, the GEF, and the World Bank, with local initiatives through interim support for the Cape Action Plan. The Caucasus profile has been picked up by other agencies, such as GTZ and the EU, as an investment strategy, facilitating shared goals and complementary actions. Indeed, CEPF's leadership in conservation plans and investments has leveraged over $222 million for additional conservation action within the Hotspots.

Challenges for the future include reaching greater consistency among donor requirements and emphasis, standardizing monitoring and evaluation that satisfies multiple needs and minimizes burden to the Secretariat and grantees, and working to increase mainstreaming of the biodiversity

goals espoused by CEPF and the conservation community into donor agendas and actions. Despite a dynamic mix of donor conditions on investments, the achievements of the CEPF experiment resoundingly support the utility and efficacy of multi-donor conservation initiatives in addressing the biodiversity crisis.

Findings

Investing in Civil Society works

- CEPF's substantial achievements make the case that conservation investment through civil society delivers gains often as great as or greater than those into governments.

A vision for the effectiveness of the conservation community is critical

- CEPF programs across the board lack an explicitly defined "vision" for the effectiveness of the conservation community within a given Hotspot, similar in nature and function as are the biological vision' that are presently developed in Ecosystem Profiles.

An effective model

- Basic actions like bringing people together to discuss a common conservation vision and establishing opportunities for ongoing dialogue and new partnerships among diverse stakeholders are standard CEPF practices and have helped secure conservation gains (84 conservation forums or alliances were initiated by CEPF). The model of developing participatory conservation strategies, immediate implementation grants, consistent guidance and interaction, a focus on sustainable financing (14 sustainable financing mechanisms were put in place globally), marked innovation, and calculated risk-taking is working well. CEPF's flexibility in approach and relationship requirements allows it to tailor regional programs effectively to local conditions and balance grant portfolios among long-term priorities, crises, and innovation. Fifty indigenous groups have been engaged, 22 industries, and hundreds of local communities over the past decade to find the balance between conservation, livelihoods, quality of life, and development.

- Strategy development for a large number of important biodiversity regions contends as one of CEPF's most significant contributions.

- CEPF's experience argues for moving away from stand-alone strategy development and the wisdom of some level of immediate implementation funding, whether it be catalytic or sustained.

- Discussions with a wide range of stakeholders and conservation specialists during this evaluation reveal strong agreement for maintaining RITs and their role, but the value of their activities were widely believed to diminish over time.

CEPF has improved the effectiveness of conservation communities

- Early indicators—respectable additions of protected areas and managed landscapes, leaving behind a credible and confident NGO community responsible for leveraging funding well beyond initial investments, science-based strategies guiding conservation actions in multiple sectors, and continuing fora for dialogue among stakeholders and interactions with government—suggests that CEPF has facilitated civil society in reaching a point of independently sustained growth and activity in many regions.

- In many regions, CEPF activities have improved protection on the ground, but the real value in the global program has been to improve the potential for conservation effectiveness of civil society, and increase the probability that their activities will translate into future gains of protection on the ground over coming decades.

- A simple change assessment suggests that 13 of 18 CEPF investment regions show improvements in their conservation community effectiveness. Four of the 13 regions showed an improvement over two categories of effectiveness—Atlantic Forests, Caucasus, Coastal Forests of East Africa, and the Succulent Karoo. Only 2 of the 16 Hotspots that have not yet had CEPF investments improved over the last decade, although 3 of these already had 'highly effective' conservation communities. If these estimations are even close to the real situation, then one can confidently conclude that the application of a CEPF program, or a program modeled on CEPF, does improve the effectiveness of the conservation community, particularly the civil society component, and sometimes markedly.

- Incremental change may be entirely appropriate for some conservation scenarios and it may represent an outstanding contribution as many conservation programs would hesitate to invest in regions of perceived minor gains.

- No single factor appears to be responsible for allowing rapid progress in any given region.

- The last ten years have shown that CEPF has had multiple impacts under many different regional scenarios, and there is sufficient progress and impact in each to warrant retaining a broad mandate.

CEPF has demonstrated that donor coordination works well

- CEPF has shown that marked gains can be achieved when donors implement conservation through partnerships and close coordination. CEPF provides a good model for signatories to the Paris Declaration and Accra Accord that promote greater donor coordination.

Recommendations

Improving Ecosystem Profiles

- Ecosystem Profiles could be strengthened in the future with:
    1. A vision for a desired configuration of the broader conservation community and civil society component predicted to enable sustainable and effective conservation stewardship and action.
    2. A more rigorous evaluation of priority areas and corridors (in the biological, not implementation, sense) in regards to landscape ecology and context, in most profiles information on the type, extent, topography, and status of remaining natural vegetation outside of KBAs, or the relationship of KBAs to infrastructure and settlement is absent;
    3. Representation of distinct biogeographic assemblages and not just Red List threatened species (especially a consideration of plants, fungi, and invertebrates that make up the vast majority of species), facilitated by using habitat types as proxies;
    4. An assessment of the value of incorporating relative threat and defensibility valuations for different sites and corridors, complementarity analyses for highly fragmented landscapes, and cost-effectiveness (return-on-investment) analyses where costs can accurate costs can be estimated;
    5. A streamlined and standardized process to update profiles after 5 years, where necessary; and
    6. A prioritization of buffer habitats surrounding KBAs and key biological corridors.

Investment strategy

- CEPF should develop a vision for the structure, function, and capacity of an effective conservation community in Ecosystem Profiles, particularly the civil society component, and, more broadly, for the global program, and use this to guide its investment strategy and grant portfolio within regions.

- A suggested modification for RITs would limit their current levels of funding to two years with lower budgets in subsequent years, and no eligibility for consolidation grants if they continue.

- Innovation and risk-taking may turn out to be profitable strategies over time. For these reasons, carefully-considered risk-taking and projects with uncertain outcomes must continue to be supported through CEPF grant-making.

- Consolidation grants make sense to secure gains and respond to evolving priorities, but, if they are retained as part of the investment model, they should: (i) be targeted towards local groups rather than international groups (the exception being possible international NGO work towards securing large-scale sustainable funding mechanisms or dealing with major crises); (ii) be phased out as part of the investment mechanism; and (iii) be

translated into an equivalent level of funding that should be built into the investment profile from the start and phased in during the investment period.

- Targeting the majority of funds to build capacity "on the ground" and "in the field" may reduce the ability of a CEPF program (within a Hotspot) to achieve multiple strategic objectives and benchmarks identified in Ecosystem Profiles (which may require decades rather than 5 years to be realized), yet is may be the best strategy for building sustained and widespread effectiveness of the local conservation community over the long-term—the CEPF niche.

- Given the scale of the conservation problem in all regions and the lessons learned above from extant and past CEPF programs, it is recommended that CEPF investments be doubled, in the range of $10 to $20 million for each region with a third to a quarter of the funding set aside until the last third of an 8 to 10 year investment period and targeted towards local groups for particularly effective programs and new priorities and crises.

Monitoring

- Geo-referencing and mapping all project sites should be mandated immediately as this is a key tool for any monitoring.

- CEPF should continue to focus on identifying simple metrics for assessing biological impact and "state of effectiveness" metrics for whole regions. CEPF should seek a *minimum-set* of effective, and cost-effective, indicators for different scales, sectors, and purposes of the global programs. These can be tailored to different biomes, states of biological degradation, degree of development of the conservation community, and other distinctive features of different Hotspots or project portfolios.

Chapter 3
The Future for CEPF

"The worst thing that can happen during the 1980s is not energy depletion, economic collapse, limited nuclear war, or conquest by a totalitarian government. As terrible as these catastrophes would be for us, they can be repaired within a few generations. The one process ongoing in the 1980s that will take millions of years to correct is the loss of genetic and species diversity by the destruction of natural habitats. This is the folly that our descendents are least likely to forgive us."

E.O. Wilson, 1985

CEPF's Evolving Niche

"Reconciling ecosystem conservation with sustainable development on different scales across complex jurisdictional boundaries, often in situations of weak governance, is perhaps the major challenge facing the conservation and development communities. Mobilizing civil society to play a more effective role in this process is the CEPF niche."

CEPF Strategic Framework 2007

CEPF should continue to be supported into the future

CEPF has grown into a well-targeted and effective program that is saving thousands of species and their habitats around the world. People are deriving substantial benefit from its many projects balancing livelihoods with sustaining environments. More action like what CEPF has delivered over the last decade is needed to begin to slow the juggernaut of biodiversity loss. CEPF is now a tested and efficient vehicle to translate funding at scale into meaningful conservation on the ground. The world cannot easily afford to reinvent another program like it given the urgency of the Extinction Crisis. The next two to three decades offer a narrow window for action.

Strengthening local Civil Society should remain a primary goal

The core tenets of CEPF's niche should be maintained as CEPF evolves over the coming decade. The hypothesis that civil society has a key role as advocates and stewards in biodiversity conservation continues to gain validity. Maintaining an emphasis on the civil society sectors of local groups and NGOs, community groups, including indigenous communities, academia, the media, and 'business' is encouraged, with support to international groups provided on an 'as needed' basis until local capacity has reached targeted levels of effectiveness. The majority of resources should be dedicated towards local civil society sectors even if it means some conservation goals elucidated in Ecosystem Profiles are not attained within a given investment period, the justification being that a strengthened local civil society sector will eventually achieve greater and lasting gains. This guiding philosophy will exert a major influence on the configuration of projects and investments within a region. CEPF needs to fully develop a 'vision' for the conservation community to guide implementation teams in determining a project portfolio in line with this approach.

Biodiversity must continue to be the primary focus of CEPF

Biodiversity must continue to be *the* primary focus of CEPF. Many other conservation programs with generous budgets are currently addressing important issues like climate change, ecosystem services, and poverty alleviation. Very few are directly engaged in species and habitat conservation. (CEPF is active in mainstreaming and integration of conservation with other societal concerns, such as climate change). The Global Conservation Fund (GCF) does provide critical support to governments for improved management of protected areas, creating a complementary global program to CEPF's focus on civil society. Relative to the GCF and GEF Small Grants Program, CEPF funding can be more rapidly and flexibly mobilized and tailored to specific conservation scenarios. Several international NGOs, such as WWF, Conservation International, the Wildlife Conservation Society, The Nature Conservancy, Fauna & Flora International, and BirdLife International, also run multiple regional- and ecoregional-focused programs, addressing a wide range of conservation issues including species work and civil society and government capacity-building. However, none have a guiding mandate to help Red List threatened species in global hotspots, and most have looked towards CEPF funding at one time or another to help them realize species and habitat objectives. All of these international NGO programs have real strengths and are contributing well, but oftentimes limited budgets and different modalities and philosophies prevent them, at times, from undertaking a process of robust strategy development with regional conservation communities *immediately* followed by grants for implementation.

The Mohamed bin Zayed Species Conservation Fund provides much needed small grants for species-level action. Similarly, the planned Save Our Species program offers small to medium-sized grants, as well as rapid action grants, specifically for threatened species work. Both of these programs will complement CEPF's ongoing efforts to strengthen civil society's role in biodiversity conservation. *While it may appear that considerable species-focused conservation investment exists around the world—there is—the overwhelming scale of the Extinction Crisis argues for species and protected area investments at several orders of magnitude greater than what is currently being targeted towards the problem, either directly or indirectly.* CEPF represents one of the biggest, most efficient, and targeted global programs addressing the Extinction Crisis. CEPF's focus on biodiversity, and the program as a whole, should be maintained over these next few crucial decades.

Some have suggested that CEPF's substantial funding base might be better spent on proven activities for conservation at scale—buying land, establishing protected areas, capitalizing trust funds, and engaging in voluntary resettlement. Yet funding for such initiatives is increasingly available from multiple sources such as the GEF, World Bank, Global Conservation Fund, and other foundation, private sector, unilateral, and multilateral donor programs. One of the strengths of CEPF is that is has offered a mechanism for flexible and rapid investment outside of bureaucracy. However, the issue of how best to maximize the impact of scarce conservation funds should be regularly revisited during the life of all conservation programs. At a minimum, indirectly supporting government efforts through strong and innovative partnerships should continue to be emphasized in future CEPF programs.

CEPF has been called the "donor of last resort for dying species". Although more options are becoming available—the Mohamed bin Zayed Species Conservation Fund, the planned Save Our Species program, BirdLife Champions, Alliance for Zero Extinction and EDGE programs—CEPF should remain a prominent champion of species and their habitats into the future, while simultaneously building a constituency of advocates for them in local communities and governments.

Expanding to New Hotspots

The nature of Hotspots—small areas packed with endemic and endangered species—drives the global investment strategy for CEPF. The CEPF approach, with some recommended modifications of 8 to 10 year phased investments and doubling the funding, should be used to jump-start conservation in all 34 Hotspots *as soon as possible, despite all of the challenges of expanded management requirements and budgets*. This "spreading the wealth" approach will yield the greatest returns in reducing biodiversity loss globally.

Many of the most significant and sustained gains of the CEPF program occur as a result of engaging the conservation community during the Ecosystem Profiling process and subsequent implementation grants. Indeed, transformational changes to conservation relationships (e.g., new alliances/forums/networks), conservation strategies (e.g., Ecosystem Profiles), and the confidence and credibility of local groups within 2-3 years of the initiation of a CEPF program. This pattern of strong early impact argues for CEPF to jump-start conservation in as many Hotspots as possible, as soon as possible. There are still a number of very high priority hotspots that have not yet received CEPF investment (for example, Eastern Afromontane, East Melanesian Islands, Wallacea, Mountains of Central Asia, New Caledonia [presently ineligible], Horn of Africa) so it is essential that CEPF maintain this model into the future, even if the average level of investment remains the same or even decreases for individual Hotspots.

The strength of this approach is that it will 'get things going' in as many Hotspots, as possible, in the shortest amount of time. The next 10 to 20 years are crucial for stabilizing loss in most parts of the world and delaying may lead to lost opportunity and, ultimately, lost biodiversity. The consequences of this approach are that CEPF regional programs and donors will have to alter their aspirations in regards to attaining sets of major conservation actions put forth in Ecosystem Profiles, and focus more attention and resources on building the capacity of the local conservation community throughout the region (as argued in Chapter 2). Clearly, there is likely to be a lower threshold of investment to achieve adequate gains, perhaps in the range of $5 million USD, but greater investment will certainly help secure outcomes.

This approach contrasts markedly with the common conservation philosophy of "doing a few things [Hotspot, in this case] really well". Conservationists are constantly struggling with urgency of issues and often spread themselves too thin to affect meaningful change. While this is a real concern for an individual as well as a global program, global patterns of biodiversity concentration and loss, and the well-tested efficacy of the CEPF model, make the rapidly moving approach recommended here the optimal one for reducing global biodiversity loss. The important achievements of CEPF—empowering the local civil society component of a region's

conservation community and facilitating a common vision—will also likely cost less, due to lower absorptive capacity of local civil society groups, than trying to have CEPF programs attain several major conservation outcomes identified in Ecosystem Profiles within 5 years (again, 8 to 10 years is recommended in the future) through larger grants provided to international NGOs which typically have immediate capacity to deal with large-scale issues. The dynamic tension between spreading the wealth among multiple local, often nascent, groups across the region, in the hopes that over time a 'neighborhood' of conservation champions will arise throughout the region, and the desire to achieve major conservation outcomes espoused in Ecosystem Profiles during the life of a CEPF program, is one that requires careful guidance by the Donor Council, Technical Working Group, and CEPF Secretariat. The common tendency of most conservation program managers for any global conservation program is to 'try to save the world', but the CEPF niche and hypothesis (strengthening local civil society) requires a slower and more patient investment—in as many Hotspots as possible, as rapidly as possible.

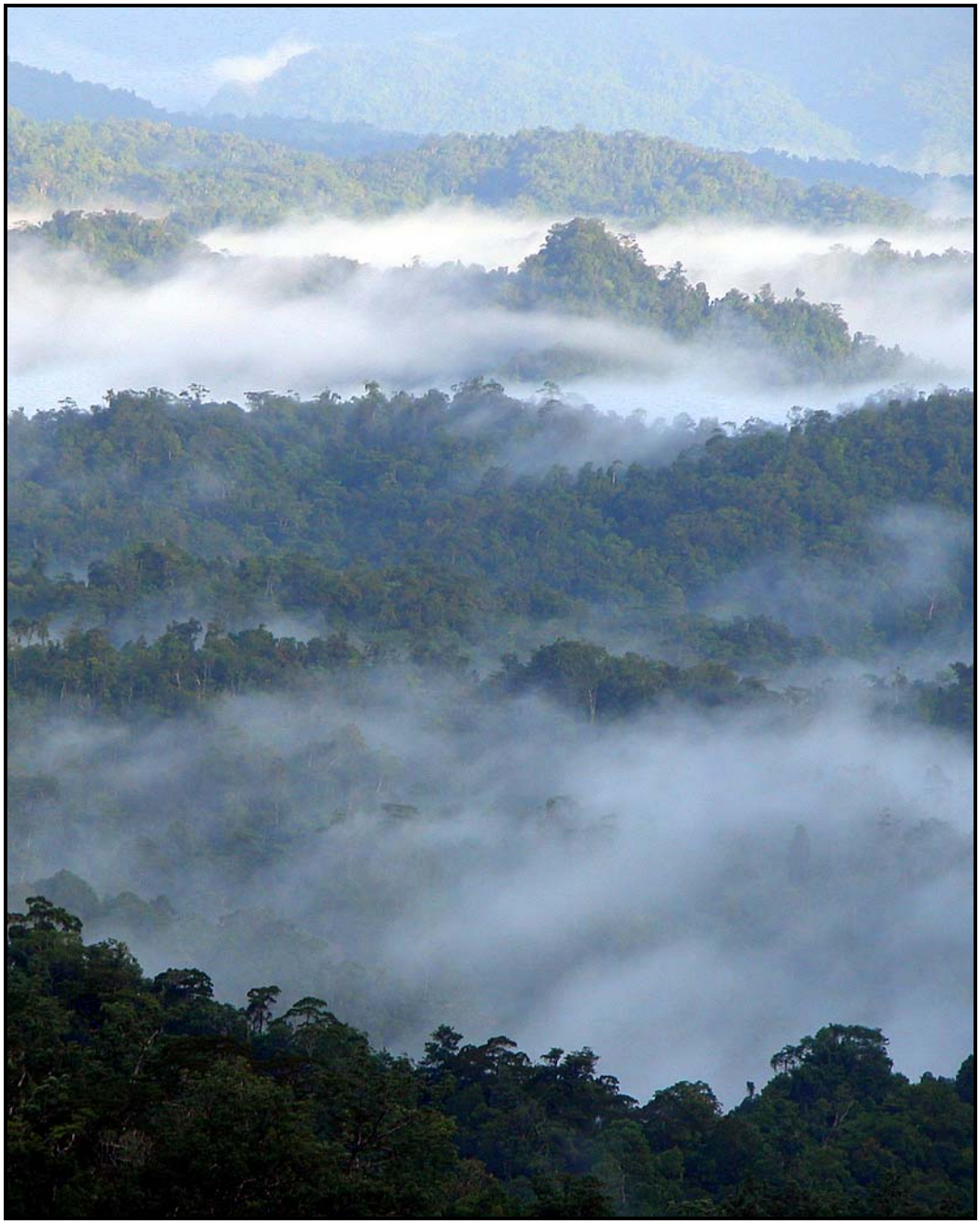
Revisiting Hotspots

Some Hotspots have already been revisited through consolidation grants. The Secretariat and Donor Council should evaluate the benefits and drawbacks of reinvesting in all of the completed programs, especially in light of the suggestions here that budgets and length of investments be modestly increased. In the same vein as the arguments for rapidly spreading the wealth among all the Hotspots is the outstanding issue of major sub-regions within CEPF-Hotspots that did not receive any attention: Northern Mesoamerica, Sundaland (Sulawesi and Borneo, for example), Indo-Burma, Sri Lanka, and much of the Tropical Andes. Given the premise that strengthening civil society even a little can have big impacts, it seems it would have been better to invest hotspot-wide, using the Ecosystem Profile process to highlight targets and priorities across the region. Clearly, crisis issues of major road developments and diluting resources and impacts are real considerations, but CEPF should stick to the underlying CEPF philosophy and not try to solve all the problems or be too reactive.

Beyond Hotspots

Hotspots are important, but protecting the full diversity of the Earth's biomes, ecoregions, habitats, species, and ecologic and evolutionary phenomena is integral to the global conservation strategy. CEPF is a rare program intently focused on biodiversity conservation and providing effective investments and actions at scale. The magnitude of the biodiversity problem compels us to magnify our response considerably. CEPF-like programs could make a significant difference to protecting ecoregions and species around the world. The Donor Council should consider how to expand CEPF or related programs (one does not want to build from scratch a new program due to the start-up costs and hard lessons learned along the way) for application to other types of ecosystems around the planet. Some priority candidate ecosystems include those in transition areas that are predicted to be highly sensitive to climate change, such as polar and boreal ecoregions (but the relevant countries here are ineligible) and those in the Sahel. Action now in these areas may help buffer some representative habitats from impending change. Other priority ecosystems include globally-threatened temperate grasslands (the Caucasus and Mountains of Central Asia capture some of these) and tropical dry forests and thornscrubs, almost all

freshwater biomes and ecoregions, and coral reefs, which are predicted by credible coral specialists to be heading towards extinction as a habitat type within 40 years. CEPF should also discuss targeting phenomena that operate across ecoregion and regional boundaries, such as migrations. Strengthening civil society's role in conservation could make a real difference to these biomes, regions, and phenomena. Such expansion should not detract from the primary focus of CEPF, extinction Hotspots, but, again, the enormity of the biodiversity crisis compels investment at several orders of magnitude greater than current levels and CEPF is an exceptionally effective, and ready to use, tool for stemming biodiversity loss.



Waimanu Range, Viti Levu, Fiji Photo: L Farley

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Acronyms

CBD	Convention on Biological Diversity
CEPF	Critical Ecosystem Partnership Fund
CI	Conservation International
CU	Coordination Unit (CEPF)
GEF	Global Environment Facility
GIS	Geographic Information Systems
IUCN	World Conservation Union
METT	Management Effectiveness Tracking Tool
NBSAP	National Biodiversity Strategy and Action Plan
NGO	Non-governmental organization
RIT	Regional Implementation Team (CEPF)
SSC	IUCN Species Survival Commission
TNC	The Nature Conservancy
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNESCO	United Nations Educational, Scientific and Cultural Organization
WB	World Bank
WWF	World Wildlife Fund

Glossary

Buffer zones
Protected Area management zoning systems frequently include a highly protected core area surrounded by a buffer zone. The core area — such as strict reserve or no-take area — protects critical habitat and species. The buffer zone may allow a broader range of uses, but is intended to insulate the core from threats to its conservation status.

Devolution or disengagement strategy
A proactive strategy to change the design of a program, to devolve some of its implementation responsibilities, to reduce dependency on external funding, or to phase out the program on the grounds that it has achieved its objectives or that its current design in no longer the best way to sustain the results which the program has achieved.

Donor
Any organization or entity that makes a financial or in-kind contribution to a program that is reflected in the audited financial statements of the program. Therefore, this includes not only "official donors" but also developing countries that contribute annual membership dues, seconded staff, or office space, provided that these are formally recognized in the financial statements of the program.

Efficacy
The extent to which the program has achieved, or is expected to achieve, its objectives, taking into account their relative importance.

Efficiency
The extent to which the program has converted or is expected to convert its resources/inputs (such as funds, expertise, time, etc.) economically into results in order to achieve the maximum possible outputs, outcomes, and impacts with the minimum possible inputs.

Endemism
In biology and ecology, endemism describes species that are native and unique to their own geographic place or region. Such species are not found naturally anywhere else. The place is a discrete geographical unit, often an island or island group, but sometimes also a country, habitat type, or other defined area or zone.

Evaluation
The systematic and objective assessment of an ongoing to completed policy, program, or project, its design, implementation, and results. The aim is to determine the relevance and achievement of its objectives, and its developmental effectiveness, efficiency, impact, and sustainability.

Governance
The structures, functions, processes, and organizational traditions that have been put in place within the context of a program's authorizing environment to ensure that the program is run in such a way that it achieves its objectives in an effective and transparent manner. It is the framework of accountability and responsibility to users, stakeholders and the wider community, within which organizations take decisions, and lead and control their functions, to achieve their objectives.

Habitat loss
In biology and ecology, habitat loss is the process of land-use change in which one habitat-type is removed and replaced with another habitat-type. In this process, plants and animals which previously used the site are displaced or destroyed, thereby reducing biodiversity. Habitat loss is one of the most important cause of species extinction worldwide.

Hotspot
In biology and ecology, these are the richest and most threatened reservoirs of plant and animal life on Earth. They are characterized both by exceptional levels of plant endemism and by serious levels of habitat loss.

Impacts
Positive and negative, primary and secondary long-term effects produced by a development intervention, directly or indirectly, intended or unintended.

Independent evaluation
An evaluation that is carried out by entities and persons free from the control of those involved in policy making, management, or implementation of program activities. This entails organizational and behavioral independence, protection from interference, and avoidance of conflicts of interest.

Indicator
A quantitative or qualitative factor or variable that provides a simple and reliable means to measure achievement, to reflect the changes connected to an intervention, or to help assess the performance of a development actor.

Logical framework or logframe
A management technique that is used to develop the overall design of a program or project, to improve implementation monitoring, and to strengthen evaluation, by presenting the essential elements of the program or project clearly and succinctly throughout its cycle. It is a "cause and effect" model which aims to establish clear objectives and strategies based on a results chain, to build commitment and ownership among the stakeholders during the preparation of the program or project, and to relate the program's or project's interventions to their intended outcomes and impacts for beneficiaries.

Management
The day-to-day operation of the program within the context of the strategies, policies, processes, and procedures that have been established by the governing body.

Monitoring
The continuous assessment of progress achieved during program implementation in order to track compliance with a plan, to identify reasons for noncompliance, and to take necessary actions to improve performance. Monitoring is usually the responsibility of program management and operational staff.

Outcomes
The achieved or likely short-term and medium-term effects of the outputs of a development intervention.

Oversight
One of the core functions of the governing body of a program: Monitoring the performance of the program management unit, appointing key personnel, approving annual budgets and business plans, and overseeing major capital expenditures.

Partners
Stakeholders who are involved in the governance or financing of the program (including the members of the governing, executive, and advisory bodies).

Protected Area
A geographically defined area which is designated or regulated and managed to achieve specific conservation objectives.

Stakeholders
The parties who are interested in or affected, either positively or negatively, by the program. Stakeholders are often referred to as "principal" and "other", or "direct" and "indirect". While other or indirect stakeholders — such as taxpayers in both donor and beneficiary countries, visitors to a beneficiary country, and other indirect beneficiaries — may have interests as well, these are not ordinarily considered in evaluations unless a principal stakeholder acts as their proxy.

Sustainability

When the term is applied to the activities of a program, the extent to which the benefits arising from these activities are likely to continue after the activities have been completed. When the term is applied to organizations or programs themselves, the extent to which the organization or program is likely to continue its operational activities over time.

Source: Sourcebook for Evaluating Global and Regional Partnership Programs: Indicative Principles and Standards. Independent Evaluation Group – World Bank, 2007.

Appendix 1: How many threatened species have benefitted from CEPF?

If invertebrates, plants, fungi, and other non-vertebrate phyla are considered, one can venture that the survival prospects of at least several hundreds of thousands, if not millions, of species have been significantly improved around the world through CEPF's actions.

Empirical evidence for this statement is presently unavailable for several reasons. First, our knowledge of the Earth's species and their status is grossly incomplete for most taxa (Stuart *et al.* 2010), particularly for plants, invertebrates, fungi, algae, lichens, bacteria, and other major non-vertebrate taxa. The Red List for Threatened Species presently has 47,663 assessed species (Vie *et al.* 2009) out of 1,899,587 described species (Stuart *et al.* 2010) and a conservatively estimated 11,000,000 total species (Chapman 2009). Even within KBAs with known Red Listed threatened species present, there may be hundreds more species that have not been inventoried, been tracked, or are entirely unknown or undescribed. Second, direct attribution of CEPF projects towards quantifiable and measurable improvements in the status of a species is challenged by: (1) the time required for improvements in a species status (for example, demography, range, viability, etc.) to be realized and verified relative to project periods, often a decade plus versus 5 years, respectively; and (2) incomplete knowledge of how threatened species are distributed across KBAs and the relative importance of different KBAs towards a given species' long-term persistence and functional role within ecosystems. (Clearly, CEPF projects that help protect KBAs that encompass the entire range of a species will have a major contribution towards improving its prospects).

Estimating the Number of Species

Given these challenges, what can we say about the number of species whose conservation status has been improved through CEPF projects? An 'improved' status is defined as a situation where a species' (or, in some cases, major population of a species) downward trajectory along the Red List continuum of endangerment is significantly slowed, the status has been stabilized, or it is improving to a better state. (Simply gathering better information on the status of species or developing species strategies helps but is not a direct, on-the-ground improvement of a species). At a minimum, if CEPF reporting was more standardized in regards to Red List species within target KBAs (the quality of reporting across regions is highly variable), one could hypothetically count the number of Red List species that occur within KBAs that have been specifically addressed by CEPF projects and assume that the project's activities have helped improve the condition of the species' sub-population, or entire population if it is a KBA-endemic. However, such an approach would *greatly* underestimate the actual number of threatened species (that is, species that would be categorized as Critically Endangered, Endangered, or Vulnerable if they were assessed using Red List criteria) that have benefitted from CEPF activities, because few taxa other than vertebrates have been assessed, plants and invertebrates make up the large majority of species, and where Red List vertebrates occur there are likely to be other non-vertebrate species that should also be considered as threatened due to shared threats. However, plants and invertebrates typically have higher population numbers per a given area than do most vertebrates and may therefore be less sensitive to wide-ranging threats and ecoregion-scale habitat loss, but the fact that many species in these groups have markedly smaller ranges than many vertebrates may make then considerably more sensitive to habitat loss. Plants and

invertebrates may also have more reliance on intra-specific symbioses (for example, taxon-specific pollinators and parasitoids) with other species than vertebrates making them more prone to cascading extinctions from local extirpations or extinctions. Thus, it is likely that non-vertebrate taxa, on average, have a similar level of endangerment as vertebrate taxa, a level that presently ranges from roughly 1/8 to 1/3 of all known species in each taxon (Vie *et al.* 2009). The richness and conservation status of the floras of the California Floristic Province Hotspot and the Cape Floristic Region Hotspot are relatively well-documented and both have 16% of their plant species considered as threatened, a proportion that lies within the 1/8 to 1/3 average range of threatened species estimated for non-vertebrate taxa.

Ratios of Vertebrate to Non-Vertebrate Taxa

Given that any measure of Red List threatened species whose improved status can be attributed to CEPF projects is likely a gross underestimate, can we confidently close in on an order of magnitude for the underestimate? One approach for arriving at a conservative estimate for the range of species directly benefitting (that is, improved conditions for their populations and habitat) from CEPF projects uses the relative abundance of different taxa in terrestrial ecosystems and the average degree of endangerment for different taxa to estimate how many threatened species there actually may be within a given tropical forest ecosystem. For forest ecosystems, ratios of the number of *terrestrial* species within different taxa at any given site can be roughly approximated from several all taxa inventories (specifically: Super *et al.* 2009 [Great Smokies National Park, USA]; Alonso et al. 2001 [Urubamba, Peru]; http://www.ots.ac.cr [La Selva Biological Station, Costa Rica]:

Reptiles	1 unit
Amphibians	1
Mammals	1.5-2 (2 used in calculations below)
Birds	6-8
Vascular plants	27-41(although the proportion is 90 for the hyper-diverse Cape Floristic Region & 30 used in calculations below)
Fungi	68 (temperate only)
Algae	21(temperate only)
Lichens	40 (temperate only)
Bacteria	11 (temperate only)
Invertebrates	150-510 (350 used in calculations below)

The higher ratio of 510 invertebrate ‘units’ to 1 reptile ‘unit’ comes from Erwin’s (1994) study on canopy invertebrates where 41,000 species was estimated for a Neotropical wet forest site. This number does not take into account the mid-canopy, tree trunk, forest floor, or epigeic (underground) species that may equal or surpass canopy species in number (see Stork & Grimbacher 2006). The lower 150:1 ratio comes from total diversity estimates for the Great Smokies National Park, a rich temperate forest ecosystem. Given that tropical forest biotas are richer (that is, higher alpha, beta, and gamma diversity) than temperate forest biotas, and most Hotspots contain tropical forests (Mediterranean-climate and Xeric biome Hotspots, as well as the Caucasus, are exceptions), then a conservatively estimated ratio of terrestrial vertebrate species (mammals, birds, amphibians only as reptiles have been poorly assessed globally for the

Red List) to the number of species in all other taxa is roughly 1:44. (Note, the ratios for fungi, algae, lichens, and bacteria used above are for temperate forests and tropical forests are likely much richer in these groups, thus this ratio is likely conservative. We have little information on the level of restricted ranges for these taxa anywhere). Importantly, as one considers taxon ratios for biotas occurring over broader geographic areas than 'sites', the ratio will increase as 'unique' species will be picked up for non-vertebrate taxa much faster than for vertebrate taxa with expanding area due to the relatively smaller ranges of invertebrates. Therefore, one can assume that forty times the number of the documented Red List vertebrate species added to the Red List vertebrate number is a very conservative approximation of the total number of threatened species in any given KBA or Hotspot. In order to account for the finer spatial resolution of invertebrates, the ration used in this estimation will be increased to 1:50, which is still likely to be conservative especially within ecoregions noted for high beta-diversity and local endemism.

Influential Factors

Guess-estimating how many threatened species have been 'helped' by CEPF projects depends upon how many unique threatened species occur within the KBAs targeted by CEPF projects. Thus, one cannot necessarily assume that the total number of species whose status has been improved by CEPF projects is forty times the number of Red Listed vertebrates that occur within the entire region. The degree of beta-diversity (turnover of species assemblages over distance and along environmental gradients) and local endemism (species with small ranges) in a region will greatly influence the final number. Some studies suggest very high levels of beta-diversity in tropical forest canopy invertebrate assemblages (Erwin 1994), while others support lower levels of turnover and broader distribution of herbivorous canopy insects throughout lowland tropical forests (Novotny, Stork, Basset). (Estimates of high levels of beta-diversity and local endemism in tropical canopy arthropods have led to global estimates of 30–100 million species [Erwin 1982, Tangley 1997], while lower beta-diversity and local endemism levels better support the 11 million species estimates that are largely based upon extrapolations of the description rates for new species [Stuart *et al.* 2010, Campbell 2009, Fagan et al. 2006, Stork & Grimbacher 2006, Novotny & Weiblen 2005, Ødegaard 2000]). Although some CEPF region assessments do report the number of Red List species by CEPF-targeted KBAs, it is difficult to know if their collective activities are leading to significant impacts for a species globally (for example, the population within a particular KBA may be transient or peripheral relative to the core population of the species, or, conversely, a single KBA may contain the global population of a localized or highly threatened species that is threatened by not yet assessed or on the Red List). Each of these factors will influence the total number of species benefitting from CEPF. For the purposes of this estimation, the correspondence of 1:50 of documented Red List vertebrate species to non-vertebrate taxa that have not yet been assessed but would qualify as threatened.

An Approximation of Species Benefitted

One can estimate the number of threatened species directly benefitting from CEPF interventions as follows:

*The total number of threatened species whose conservation status has been improved directly by CEPF projects = Σ [(# Red List Mammal, Bird, Amphibian Species within a CEPF Hotspot * 50)(0.4)]*

or

*= Σ [(# Red List Mammal, Bird, Amphibian Species within a CEPF Hotspot)*20]*

The value 50 in the formula reflects the estimated 1:50 ratio of terrestrial vertebrate (that is, mammal, bird, amphibian total as reptile Red List data was so incomplete it could not be used) to non-vertebrate terrestrial species plus the number of 'vertebrate' Red List species. Multiplying the sum of the estimated threatened species by 0.4 in the formula is intended to account for the fact that CEPF directly targeted only a subset of KBAs within any given region. The remaining natural habitat accounted for by these target KBAs ranges from about 20% to 75% in different regions (based on review of priority KBA maps in Ecosystem Profiles and targeted KBAs from the Region Assessments). Given that large areas of remaining habitat were not directly targeted by CEPF projects, there are likely to be many threatened species with smaller ranges that occur in non-target areas and did not directly from CEPF interventions. In addition, the small ranges of many tropical amphibians, a vertebrate taxon, suggests that ranges for smaller-bodied invertebrates in the tropics are similarly small and therefore the relationship for the addition of 'unique' threatened non-vertebrate species with expanding area is closer to exponential than linear. For these reasons, two-fifths (40%) of the estimated total of Red List threatened species for an entire Hotspot was used to estimate the total number of species benefitting from CEPF interventions globally. Again, the proportion of threatened species is assumed to be similar for every taxon (see Table 1).

The estimated total of threatened species *directly* benefitting from CEPF projects over the last decade is conservatively estimated at 55,000 threatened species (that is, 53,000 from the formula plus 2,000 to account for incomplete assessments for Red List terrestrial vertebrates in some Hotspots, particularly reptiles). This, again, is likely an underestimate as the Red List vertebrate numbers for the Succulent Karoo and Cape Floristic Region are very low and do not reflect even the known levels of threatened plant species (for example, the Cape Floristic Region has 1,435 threatened plants, alone). A test of this formula using relatively comprehensive Red List data for the Japan (estimated 3380, current 2013), California (estimated 680, current 629), New Zealand (estimated 1100, current 1132), and New Caledonia (estimated 280, current 706) regions (note, even for these regions invertebrate assessments are still incomplete) suggests that the estimations are within a reasonable range. Biogeographic patterns on islands, Mediterranean-climate ecosystems, and temperate forests may be sufficiently different than those in tropical forests, warranting tailoring the estimation formula to different biomes. Overall, even some modest variation in the taxon ratios, habitat coverage in target KBAs, and patterns of beta-diversity and local endemism within regions would still result in thousands of species being positively impacted globally.

Threatened species with relatively large distributions across multiple KBAs will, on average, experience less benefit, unless their core populations are encompassed within target KBAs or key

linkage habitats are secured, than will species whose entire range occurs within a single KBA. Clearly, some projects that aim at diminishing widespread threats or helping to put in place better policies and land use may greatly contribute to the long-term prospects for multiple species (for example, GEF 2004), so the estimate here is, again, conservative.

These rough calculations, using conservative figures and relationships at each step, support the contention that CEPF has directly provided significant benefit to thousands, if not hundreds of thousands (if beta diversity and local endemism is exceptionally high for invertebrates, fungi, or other taxa in tropical forests), of threatened species. They also support the finding that CEPF's contribution towards the CBD goal of reducing the loss of biodiversity has been highly significant. Substantial indirect benefits to threatened species, many whose populations occur partially or entirely outside of target KBAs, have also occurred over the last ten years through a range of CEPF-supported efforts aimed at ameliorating threats, strengthening policy and legislation, improving land use practices, and strengthening the long-term effectiveness of civil society groups. Accurate numbers of benefitted species will only be possible after several decades when, and if, the collective efforts of the conservation community have stabilized the 'zoning' for conservation and land use across regions, species populations have equilibrated to changing conditions, and more comprehensive data on species numbers, ranges, and status are available.