



HAL
open science

Assessing funding needs for biodiversity: Critical issues

Clément Feger, Romain Pirard

► **To cite this version:**

Clément Feger, Romain Pirard. Assessing funding needs for biodiversity: Critical issues. Policy Brief IDDRI-Sciences Po, 2011, 06 (11), pp.1-4. hal-01930947

HAL Id: hal-01930947

<https://hal.science/hal-01930947>

Submitted on 22 Nov 2019

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Assessing funding needs for biodiversity: Critical issues

Clément Feger, Romain Pirard (IDDRI)

The academic and grey literatures regularly point out the existence of a biodiversity conservation “funding gap”: available financial resources lag well behind the needs. This issue was addressed at the 10th Conference of the Parties (COP-10) to the Convention on Biological Diversity (CBD) that took place in October 2010 in Nagoya, where negotiations resulted in an agreement on a new Strategic Plan to halt the loss of biodiversity by 2020. This is in line with the recent recognition by the CBD Secretariat that the 2010 Biodiversity Targets were missed because of the funding gap. Parties have now collectively decided that concrete initiatives are necessary to implement the “Strategy for Resource Mobilization” (SRM) that was initially adopted in 2008. COP-10 has thus so far agreed on a series of indicators to measure the current national and international trends in biodiversity financing and to monitor progress in the mobilization of resources during 2011-2012.

At the other end of the spectrum, the not less decisive question of *how much needs to be spent* to halt global biodiversity loss also has to be tackled. All figures provided so far have been indicative: they have not been reviewed by governments and no official funding needs estimate has so far been produced by the CBD Secretariat.

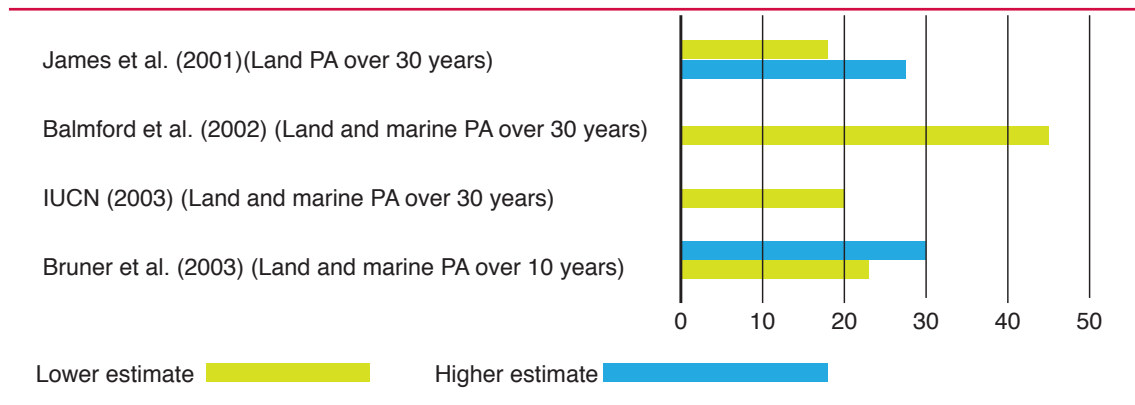
Clearly, three methodological challenges impede any estimate of the funding needs: i) how to concretely define the halt of biodiversity loss?; ii) what are the required actions to achieve this goal?; iii) how to estimate their costs? This article is based on a literature review of 36 studies from academic or non-academic sources. It aims at giving an overview of the various approaches, and at ultimately questioning the feasibility of estimating the required financial resources to halt biodiversity loss by 2020.

AN EMPHASIS ON PROTECTED AREAS

The majority of the studies we have reviewed (17/36) emphasizes the role of Protected Areas (PA), – “clearly defined geographical spaces, recognized, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values”¹ –, as being the cornerstones of conservation efforts worldwide. Yet, while global PA coverage has increased by 60% between 1992 and 2006, this has not gone hand in hand with commensurable financial commitments and most of them suffer from funding shortages. Estimating PA funding needs thus appears as the first step in building a comprehensive funding needs assessment methodology.

1. www.iucn.org

Figure 1. Funding needs for the expansion and management of a global network of Protected Areas over various periods of time (billions of dollars)



Source: Compiled by authors. This figure shows the results from various studies that have estimated the cost of implementing a fully functional and extended global Protected Areas network over various periods of time.

At the global scale, findings show that an extra US\$ 2.3 billion per year is needed to improve and secure the effective management of existing protected areas. Results range from US\$ 18-27.5, to US\$ 45 billion of total cost per year for an effective and expanded global PA programme depending on the assumption chosen by the authors (see Figure 1).

Some studies focus specifically on developing countries, generally to highlight the existence of an important funding gap, and advocate for an increase in the financial transfers from developed to developing countries. Results range from a total cost of US\$ 1.1 billion² to US\$ 1.8 billion³ per year for effectively managing existing PA in developing countries. A PA system expanded to the highest priority sites would raise the annual management needs up to US\$ 4 billion a year and could total as much as US\$ 13 billion over 10 years if land purchase and compensations are necessary⁴.

SPECIFIC METHODOLOGICAL ISSUES FOR PROTECTED AREAS

These contrasted results can be explained by the diversity of methodological choices that have to be made at each step of the estimation. Protected Areas often suffer from difficulties to ensure efficient biodiversity conservation due to inadequate staff, vehicle and other basic management necessities, that in some cases lead to the creation of “paper parks”. Most studies have therefore assessed funding needs by adding up the supplementary management costs necessary to make the existing PA network fully functional and effective.

Besides, the size of the existing network is often regarded as insufficient to halt biodiversity loss. Today, about 12% of the global land surface and 0.5% of the global ocean surface are currently

under PA status, while Target 11 of the 2020 Strategic Plan suggests respectively 17% and 10%. Additional funding is then required to expand into previously unprotected areas, and costs include land purchase, new scientific surveys and new recurrent costs, among others.

The notion of an “ecologically representative PA system” as targeted is also subject to many interpretations and authors diverge in the criteria they use. Some calculate the PA network expansion costs using different percentages. Others look at the expansion costs to the most immediate priority areas for biodiversity conservation at the global scale, based on concentrations of endemic and highly threatened species. Another alternative is to focus on preserving the biogeographical diversity by estimating the cost of effectively managing a reserve network representative of different “ecoregions”.

Last point, authors have also used different techniques and tools to collect the necessary data for cost calculations: on-site surveys and field-based data, PA budgetary studies, compensation costs to local populations and sometimes predicting models.

COSTING CONSERVATION BEYOND PROTECTED AREAS

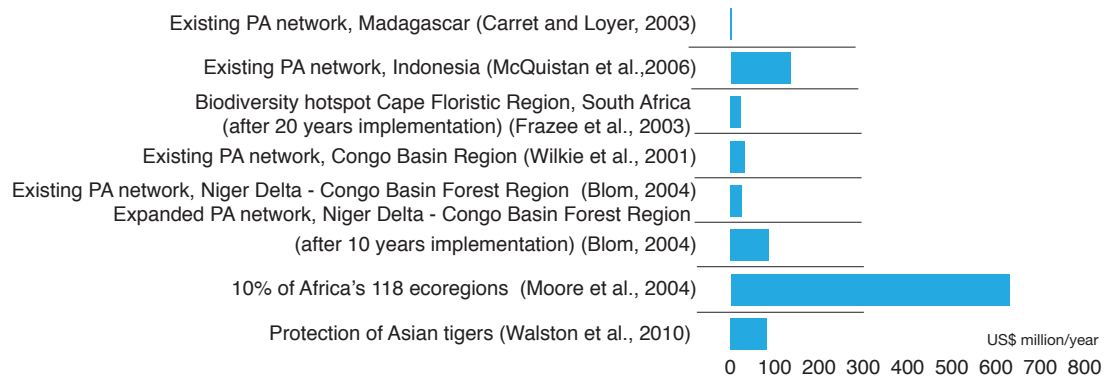
A first alternative is to consider environmental management through the lens of conservation but beyond PAs. For instance, the concept of “biodiversity hotspots” has been used to identify regions characterized by their significant yet threatened reservoir of biodiversity: it was estimated that US\$ 45.6 million per year are needed over 20 years to implement a biodiversity hotspot conservation plan in the Cape Floristic Region in South Africa⁵, using various approaches such as conservation easements that restrict landowners’

2. Vreugdenhil, 2004

3. Bruner *et al.*, 2004

4. Ibid

5. Frazee *et al.*, 2003

Figure 2. Recurrent management costs of various conservation activities at a national or regional scale.

Source: Compiled by authors.

land use rights. In the European Union, the cost of managing the Natura 2000 network was estimated between € 3.4 billion and € 5.7 billion per year between 2002 and 2013⁶.

Some studies also estimate the cost of protecting particular species along with their habitats at a regional scale: e.g. one study adds up the different costs necessary to protect tiger source sites, increase law enforcement, biological and law monitoring, community engagement, informant network and so on, and suggests a funding need of US\$ 82 million per year⁷.

A second alternative is to consider biodiversity in the context of climate change. Some funding needs assessments make suggestions on how to prevent adverse impacts of climate change on biodiversity through adaptation, with associated cost estimates. Beside PAs, essential activities include restoration projects, such as migration corridors, or coastal reforestation. One study estimates that the cost of achieving minimum acceptable viable areas of stable forest habitat for 60 of the 72 Madagascar's endemic plant species under different levels of climate change ranges from US\$ 0.3-0.6 million in 2020 to US\$ 3.5-7.2 million in 2050 and US\$ 36.3 to 120.3 million in 2080⁸.

Adding up the costs of both PA and off-PA activities, a 2007 report to the United Nations Framework Convention on Climate Change (UNFCCC) estimates the adaptation of global natural ecosystems to climate change at US\$ 355 billion per year under a "Business as Usual" scenario (IPCC's A1B or B2) to US\$ 384.5 billion under a "Mitigation" scenario (IPCC's B1)⁹. However, due to the lack of robust information and the uncertainties involved in the calculations, these figures were not included in the UNFCCC's overall climate change adaptation cost

estimates from all sectors¹⁰. In contrast with the PA approach that uses in practice comparable methodologies and produces commensurable results, a consistent cost assessment methodology has yet to be developed for the wider landscape.

THE WAY FORWARD

The corpus and estimates presented here reveal a huge heterogeneity in the approaches to deal with biodiversity conservation and the associated costs.

In order to make sense of these global and regional studies, one has to keep in mind that global figures should be confronted to: 1) the current global conservation budget, estimated at US\$ 7 to 10 billion a year; 2) the vast amount of money spent in environmentally harmful subsidies, estimated at US\$ 1 trillion per year globally; 3) the benefits of conservation and sustainable use of biodiversity and ecosystem services that often far outstrip the cost of proactive conservation action: indeed, the natural capital being lost, every year, was estimated to be between € 1.3 and 3.1 trillion, roughly US\$ 2-4.5 trillion¹¹.

This has to be kept in mind when considering the COP-10 in-session document that lists several suggestions of funding targets to serve as a basis for monitoring the implementation of the SRM. These targets range from fixed figures of US\$ 10 billion by 2012 and US\$ 30 billion annually by 2020, to propositions to double annual financial flows to developing countries by 2020. Another recommends turning subsidies harmful to biodiversity directly into funds financing conservation programs. The rationales that support these various targets remain unclear and none of them was eventually approved in final texts.

Besides, the CBD Secretariat is now expected to suggest reliable methodologies to assess

6. Markland, 2002

7. Walston et al., 2010

8. Busch et al., 2009

9. Berry, 2007

10. Parry et al., 2009

11. Braat and ten Brinks, 2008

biodiversity conservation funding needs. Several paths have been suggested. One is to build on a comprehensive literature and case studies review. Another is to stay within the boundaries of the CBD's 2020 Strategic Plan and estimate the costs of implementing its targets. Further suggestions include focusing on the national level by costing Parties' national action plans, or conducting an in depth study of the funding needs of a "megadiverse" country such as Indonesia and extrapolating the results. In addition to the CBD's effort,

each country is also expected to identify and report their own funding needs, gaps and priorities.

Beyond their mission to support the mobilization of financial resources, these steps, if taken, will be useful to structure the debate on the global and regional strategies and tools to be implemented for its conservation and to ultimately halt biodiversity loss. This would be key in defining the level of ambition of the biodiversity conservation funding targets that Parties expect to be adopted at the CBD's eleventh meeting in 2012. ■

REFERENCES

- Balmford, A., Bruner A., Cooper, P., Costanza, R., Farber S., Green, R.E., Jenkins, M., Jefferiss, P., Jessamy, V., Madden, J., Munro, K., Myers, N., Naeem, S., Paavola, J., Rayment, M., Rosendo, S., Roughgarden, J., Trumper, K., and Turner, R.K. (2002), "Economic reasons for conserving wild nature", *Science* 297(5583 August): 950-953.
- Berry, P. (2007), *Adaptation Options on Natural Ecosystems*. A Report to the UNFCCC Secretariat Financial and Technical Support Division (available from: http://unfccc.int/files/cooperation_and_support/financial_mechanism/application/pdf/berry.pdf).
- Blom, A. (2004), "An estimate of the costs of an effective system of protected areas in the Niger Delta - Congo Basin Forest Region". *Biodiversity and Conservation* 13(14 - December): 2661-2678.
- Braat, L., ten Brink, P. et al. (eds). (2008), *The Cost of Policy Inaction (COPI): The case of not meeting the 2010 biodiversity target*. Report for the European Commission: Wageningen/Brussels.
- Bruner, A., Hanks, J., Hannah, L. (2003), *How much will effective protected area systems cost?* Presentation to the Vth World Parks Congress, 8-17 September: Durban.
- Bruner, A., Raymond E. Gullison, R.E. and Balmford, A. (2004), "Financial Costs and Shortfalls of Managing and Expanding Protected-Area Systems in Developing Countries". *BioScience* 54(12): 1119-1126.
- Busch, J., Dave, R., Hannah, L., Ashkenazi, E., Cameron, A., Fischman, D., Rasolohery, A., Schatz, G. (2009), *Climate change and the cost of conserving biodiversity in Madagascar*, Paper presented at the 11th BIOECON Conference: Venice.
- Carret, JC. and Loyer, D. (2003), *Comment financer durablement le réseau d'aires protégées terrestres à Madagascar ? Apport de l'analyse économique*. Paper presented to the Vth World Parks Congress, Workshop "Building comprehensive protected areas systems", 8-17 September: Durban.
- CBD. (2010b), *COP 10 Agenda item 4.4*, Co-chair's non-paper, "Strategy for Resource Mobilization in Support of the Achievement of the Convention's Three Objectives".
- Frazer, S.R., Cowling, R.M., Pressey, R.L., Turpie, J.K., Lindenbergh, N. (2003), "Estimating the costs of conserving a biodiversity hotspot: a case-study of the Cape Floristic Region, South Africa". *Biological Conservation* 112 (1-2 August): 275-290.
- IUCN. (2003), *Building a secure financial future*. Finance & Resources Workshop Stream Vth IUCN World Parks Congress, 8-17 September 2003: Durban.
- James, A., Gaston, K.J. and Balmford, A. (2001), "Can We Afford to Conserve Biodiversity?", *BioScience* 51(1): 43.
- Markland, J. (2002), *Final Report on Financing Natura 2000*. Working Group on Article 8 of the Habitats Directive: Brussels.
- Moore, J., Balmford, A., Allnutt, T., Burges, N. (2004), "Integrating costs into conservation planning across Africa", *Biological Conservation* 117(3-May): 343-350.
- McQuistan, C.I., Fahmi, Z., Leisher, C., Halim, A., Adi, S.W. (2006), *Protected Area Funding in Indonesia*. A Study implemented under the Programme of Work on Protected Areas of the Seventh Meeting of the Conference of Parties on the Convention on Biological Diversity, State Ministry of Environment of Republic of Indonesia (available from: <http://bk.menlh.go.id/files/FundingPADoc.pdf>).
- Pearce, D.W. 2005. "Paradoxes in biodiversity Conservation". *World Economics* 6(3): 57-69.
- Parry, M., Arnell, N., Berry, P., Dodman, D., Fankhauser, S., Hope, C., Kovats, S., Nicholls, R., Satterthwaite, D., Tiffin, R., Wheeler, T. (2009), *Assessing the Costs of Adaptation to climate Change: A Review of the UNFCCC and Other Recent Estimates*. London: International Institute for Environment and Development and Grantham Institute for Climate Change.
- TEEB. (2010), *The Economics of Ecosystems and Biodiversity for Local and Regional Policy Makers* (available from www.teebweb.org/forpolicymakers)
- Vreugdenhil, D. (2004), "World wide financing needs of protected areas systems of developing and transition countries", *Conservação e Natureza* 1(2).
- Walston, J., Robinson J.G., Bennett, E.L., Breitenmoser, U., da Fonseca, G.B., Goodrich, J., Gumal, M., Hunter, L., Johnson, A., Karanth, K.U., Leader-Williams, N., MacKinnon, K., Miquelle, D., Pattanavibool, A., Poole, C., Rabinowitz, A., Smith, J.L.D., Stokes, E.J., Stuart, S.N., Vongkhamheng, C., Wibisono, H. (2010), "Bringing the Tiger Back from the Brink—The Six Percent Solution. Ed. GM Mace", *PLoS Biology* 8(9-September): 1-4.
- Wilkie, D.S., Carpenter, J.F. and Zhang, Q. (2001), "The under-financing of protected areas in the Congo Basin: so many parks and so little willingness-to-pay", *Biodiversity and Conservation* 10(5): 691-709.