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Analysis

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A global conservation basic income to safeguard biodiversity

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Biodiversity conservation supporting a global sustainability transformation must be inclusive, equitable, just and embrace plural values. The conservation basic income (CBI), a proposed unconditional cash transfer to individuals residing in important conservation areas, is a potentially powerful mechanism for facilitating this radical shift in conservation. This analysis provides comprehensive projections for potential gross costs of global CBI using spatial analyses of three plausible future conservation scenarios. Gross costs vary widely, depending on the areas and populations included, from US$351 billion to US$6.73 trillion annually. A US$5.50 per day CBI in existing protected areas in low- and middle-income countries would cost US$478 billion annually. These costs are large compared with current government conservation spending (~US$133 billion in 2020) but represent a potentially sensible investment in safeguarding incalculable social and natural values and the estimated US$44 trillion in global economic production dependent on nature.

Achieving internationally agreed targets to halt biodiversity loss, restore degraded land and mitigate climate change requires transformative change in global economies[1]. Key leverage points for transformation have been identified[1], including reducing aggregate consumption[2], unleashing existing pro-environmental values[3,4], embracing diverse visions of a good life[5], reducing inequalities[6] and practising just and inclusive conservation[7,8]. The conservation basic income (CBI) is a potentially powerful tool for biodiversity conservation supporting a just transition to sustainability through these leverage points (Fig. 1)[9].

CBI is an unconditional cash payment to individuals, similar to universal basic income (UBI)[10], targeting residents of important conservation areas[9]. Evidence from other poverty-alleviation cash-transfer programmes that are unconditional with respect to conservation outcomes suggests that a CBI could achieve conservation in many contexts[11–16]. For example, Indonesia's national programme of anti-poverty cash transfers also reduced deforestation across Indonesia[11]. CBI more equitably distributes the costs and benefits of conservation[17] because basic income schemes improve well being, reduce poverty[18–20] and redress inequalities including gender inequity[10]. Inequalities, including gender, are key drivers of biodiversity loss[21,22]. Moreover, through redistribution of wealth from affluent populations and/or harmful industries, CBI can reduce aggregate global consumption and environmental impact[23].

Effective, sustainable and equitable biodiversity conservation requires empowering and supporting Indigenous peoples' and local communities' (IPLCs') connection to and stewardship of nature[7]. CBI can support this stewardship by providing alternative financial opportunities for IPLCs that can reduce dependence on extractive economies such as cash-crop production, poaching and waged labour in extractive industries[9,24]. It can enable individuals to pursue their

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own vision for a good life by contributing to their communities, enabling development of alternative (or supporting existing traditional) institutions and local economies and supporting environmental activism. Politically, CBI can thus strengthen the power of IPLCs to negotiate and demand environmental protections and weaken the sway of populist politics furthering extractive economies[24]. This can enable IPLCs to protect and maintain their bio-cultural heritage, commons and resilient socio-agroecological systems, which cannot and should not be separated from the biophysical facets of conservation[25]. Activities undertaken by IPLCs, such as land clearing and wildlife harvesting, can also contribute to biodiversity loss when not appropriately managed, so complementary and targeted incentive or governance-based conservation programmes will continue to be important.

In some cases, CBI payments may also be seen as reparations for past or ongoing harms, alleviating perceptions of injustice[26]. Together with supportive legal and policy frameworks providing IPLCs with the rights to manage their lands[27], CBI can thus support a shift away from top-down enforcement and purely market-based approaches to conservation[9]. CBI payments may also be used by IPLCs to restore degraded lands; however, we see CBI primarily as a tool to support conservation efforts on lands that maintain high conservation value. Further funding mechanisms will be required to specifically support restoration efforts in the United Nations Decade on Ecosystem Restoration.

The post-2020 Global Biodiversity Framework (GBF) will increase conservation ambition and area-based conservation targets[28]. Consensus seems to have developed around '30 × 30' (30% of land and water protected by 2030), but ecologists have also called for half of Earth's land area to be protected[29]. This will potentially impact between 1 billion and 1.8 billion people, mostly in low- and middle-income countries (LMICs)[30]. Historically, top-down conservation has excluded IPLCs from decision-making[8,31], imposed costs on them and increased inequalities[6,32]. Conservation in many places is increasingly violent and militarized[33] and has resulted in human rights violations[34]. All this together with the development of market-based strategies has contributed to the erosion of local conservation practices, values and world views[7]. There is thus an urgent need to explore more just and inclusive conservation strategies that support the broader transformation to sustainability, such as the CBI[7].

To advance discussion about potential for CBI in context of the post-2020 GBF, clarity is required about gross costs and distributions of CBI under different scenarios. Our study provides a gross cost estimate for global and national CBIs, based on residence in three global area-based terrestrial conservation scenarios representing varying ambition: (1) existing protected areas (PAs included in the World Database on Protected Areas (WDPA); 14% of land area), (2) key biodiversity areas (KBAs; 8% of land area) and (3) the estimated minimum lands requiring conservation attention to safeguard biodiversity[30] (MinLand; 44% of land area). We calculated scenarios globally and for only LMICs using three different payment regimes: (1) payments of 25% (± 5%) of national per capita gross domestic product (GDP), as suggested in the UBI literature[10]; (2) payments of US$5.50 per day, a recommended minimum income for healthful living[35]; and (3) tiered World Bank poverty lines for countries in different income groups. While recognizing the limitations of area-based analysis relying on spatial mapping[36], our results are intended to initiate discussions about appropriate funding sources, inform analysis of the geographical distribution of global CBI and identify priority areas for piloting CBI schemes.

Results

Overview of gross costs and eligible populations

Using spatially explicit human population data (Methods), we estimated that the populations eligible for CBI (defined here as all populations resident in areas receiving conservation attention) under our three scenarios vary from 232 million (~3% of global population) to 1,638 million (21%). Across all global scenarios, most eligible populations (75–88%) are found in LMICs.

The estimated gross costs of CBI across the scenarios ranged between US$351 billion and US$6.73 trillion depending on the areas covered, the payment rate and the country-eligibility criteria (Table 1 and Fig. 2). Across all global scenarios, the gross costs of a GDP-proportional payment are approximately double the gross costs of a flat US$5.50 payment. A tiered payment results in costs similar to the flat rate, except in the current PA scenario where it is nearly 50% greater.

The proportion of funds allocated to LMICs differed between payment rates, with a flat rate allocating the greatest share to LMICs (75–88%, depending on the conservation scenario). LMICs receive approximately 40–61% of funds under a GDP-proportional rate and the lowest share under a tiered scenario (38–59%). If only LMICs are considered eligible, the difference in gross costs between GDP-proportional and flat US$5.50 payments is smaller, with flat-rate payments at approximately 75–85% of GDP-proportional payments. Conversely, tiered payments result in much lower payments (55–62%) than GDP-proportional rates when only LMICs are eligible.

In almost all geographic regions, the gross costs of GDP-proportional payments are greater than payments at the flat rate, except in South Asia and sub-Saharan Africa, where flat payments are greater (Fig. 2). At a flat US$5.50 rate, the gross costs allocated to each region are proportional to the eligible populations, but when payments are GDP proportional or tiered, relatively wealthier regions such as East Asia and Pacific and Europe are the largest recipients. For example, under the current global PAs scenarios, Europe would receive 35% of funds, while sub-Saharan Africa would receive only 3%. At a national level, China is the largest recipient of funds under all scenarios, except for Japan under the current PAs scenario (Supplementary Data 1). India is the second recipient when payments are at a flat rate. Other large-recipient countries vary widely between scenarios.

Existing PAs

Existing PAs represent locations where governments are currently focusing area-based conservation efforts. We estimate that 318 million people currently live within terrestrial PAs in the countries included in our analysis. Of these, 238 million (77%) are in LMICs. A global GDP-proportional CBI would cost an estimated US$1,420 (± 280) billion gross annually, of which US$574 (± 115) billion (40%) is allocated to LMICs. The gross cost of a payment set at the US$5.50 poverty line would be lower than the GDP-proportional value: US$638 billion globally and US$478 billion for LMICs (75% of global), while tiered payments would cost US$944 billion globally, with US$356 billion for LMICs (38%).

East Asia and Pacific is the region with the greatest population residing in PAs (106 million, 33% of total; Table 1) and is the largest recipient of CBI payments (33–38% of total). Sub-Saharan Africa has the second-largest population in PAs (60 million, 19%) and is the second-largest recipient of payments when payments are set at a flat US$5.50 rate (US$120 billion, 19%). However, when payments are GDP proportional or tiered, Europe and Central Asia is the second-largest recipient of funds under global CBI scenarios, receiving US$494 (± 99) billion or US$337 billion, respectively, with sub-Saharan Africa receiving just 9–16% of this amount.

KBAs

KBAs are a spatial prioritization for conservation based on ecological criteria[37]. In this scenario, CBI payments are allocated to populations living in the most biodiverse places on Earth. We estimate that 270 million people live in KBAs globally, of which 232 million (86%) are in LMICs. The gross cost of a global CBI at one quarter (± 5%) of national per capita GDP implemented in KBAs is estimated at US$1,040 (± 208) billion annually and US$634 (± 127) billion (61%) in LMICs. Flat US$5.50 payments would result in gross costs of US$542 billion globally or US$466 billion for LMICs (88% of global). Finally, tiered payments

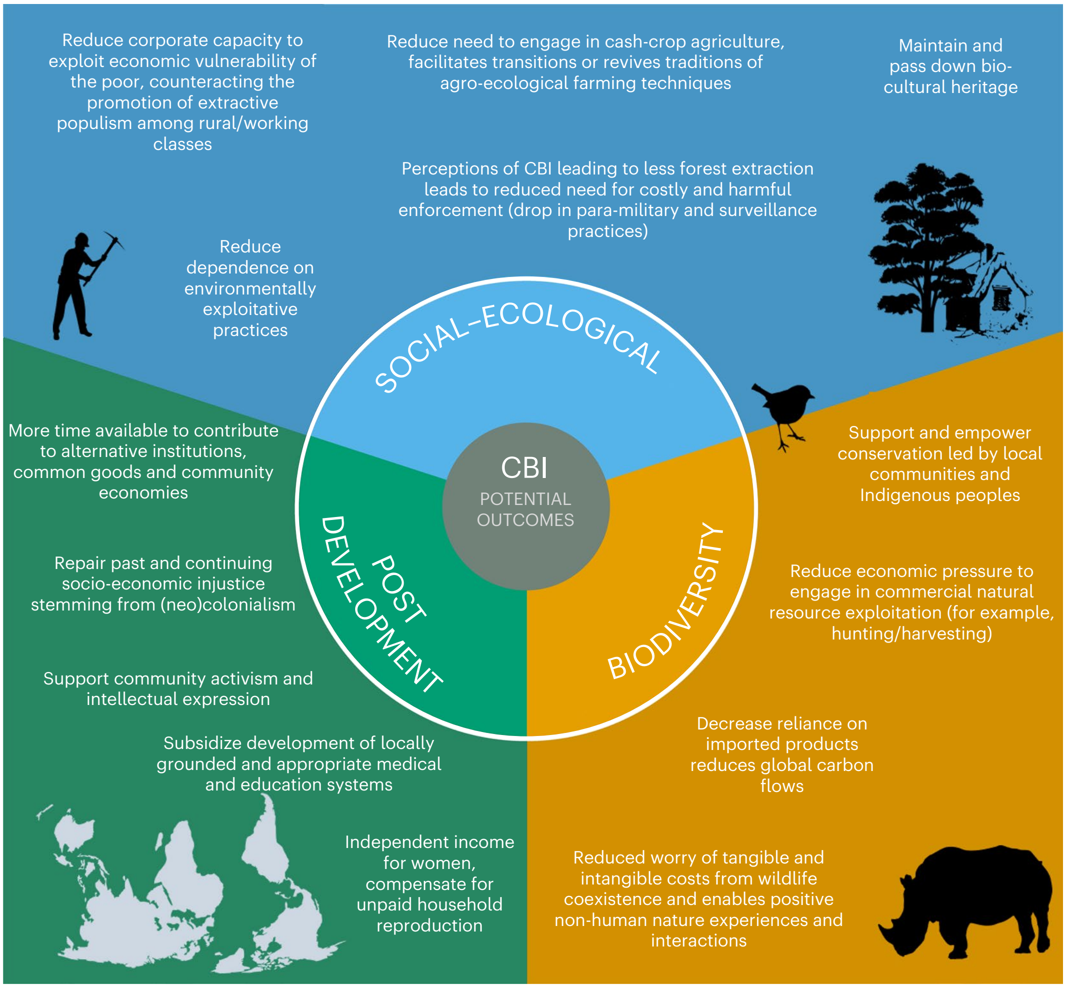

Fig. 1 | A summary of some of the potential outcomes of the CBI identified in the literature. These are grouped into three themes: (1) post development—the impacts on the well being of recipient communities, contributing to their flourishing in ways that are driven locally and not by externally imposed development agendas. (2) Social–ecological—the ways in which CBI can contribute to alternative forms of human–environment relations. (3) Biodiversity—the impacts on biodiversity and wildlife through changed social–ecological relations.

result in US$632 billion, with US$351 billion (56%) for LMICs. This is the smallest cost of the three scenarios we examine.

East Asia and Pacific has the greatest population residing in KBAs (88 million, 33% of total) and would receive 33–35% of CBI payments. Sub-Saharan Africa has the second-greatest eligible population (53 million, 20%) and receives 20% of CBI payments (US$106 billion) when payments are set at US$5.50. With GDP-proportional payments or tiered payments, Europe and Central Asia is, again, the second-greatest recipient, receiving US$315 (± 63) billion or US$193 billion (30%) under global scenarios, respectively.

Minimum lands requiring conservation attention

In a scenario wherein area-based conservation efforts have been expanded to the minimum lands considered necessary to safeguard global biodiversity (44% of the terrestrial earth; that is, the lands that would most efficiently protect all species ranges and ecoregions, with existing protected areas)[30], we estimated that 1,638 million people would be impacted, of which 1,448 million (88%) are in LMICs. Our projection is potentially conservative because the authors of this spatial prioritization estimated a population of ~1,800 million affected people using a different spatial human population dataset[30]. Nevertheless, this is the most ambitious CBI scenario in our analysis and results in gross costs nearly an order of magnitude greater than under the previous scenarios.

The estimated gross cost of global payments for this scenario at one quarter (± 5%) of national GDP is US$5,609 (± 1,112) billion annually and US$3,438 (± 685) billion (61%) in LMICs. The flat US$5.50 poverty-line payments would have a global gross cost of US$3,289 billion or US$2,906 billion in LMICs (88% of global). East Asia and Pacific has the greatest eligible population (578 million, 35%) and receives the greatest share of CBI payments (35–39%). South Asia has the second-greatest eligible population (347 million, 21%) and receives US$696 billion (21%) of CBI payments when set at a flat US$5.50. However, when payments are GDP proportional or tiered, Europe and Central Asia receives a greater share (18%) of CBI payments (US$992 ± 198 billion or US$632 billion, respectively), while South Asia receives US$506 ± 101 billion or US$401 billion, respectively (9–11% of total).

Discussion

Using spatial analyses of human populations within three plausible global conservation scenarios, we provided estimates for gross costs of a global CBI at three defensible payment rates. We found that gross costs vary widely, from US$351 billion to US$6.73 trillion—or between 0.41% and 8.00% of gross world product in 2020 (ref. 38). The results indicate that there are important choices to be made, including in prioritization of conservation areas, determination of eligibility criteria and in setting payment rates[9], which will result in widely

Table 1 | Estimated populations eligible for the CBI and estimated costs of a CBI under various scenarios

	Global	LMICs	East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	North America	South Asia	Sub-Saharan Africa
1. WDPA									
Estimated human population	318 million	238 million	106 million	51 million	41 million	14 million	6 million	41 million	60 million
Estimated total annual CBI based on 25% (±5%) national GDP per capita	US$1,420 (±280) billion	US$574 (±115) billion	US$537 (±107) billion	US$494 (±99) billion	US$145 (±29) billion	US$59 (±12) billion	US$82 (±16) billion	US$59 (±12) billion	US$45 (±9) billion
Estimated total annual CBI based on minimum US$5.50 per day	US$638 billion	US$478 billion	US$214 billion	US$102 billion	US$81 billion	US$28 billion	US$11 billion	US$82 billion	US$120 billion
Estimated total annual CBI based on World Bank tiered poverty rates	US$944 billion	US$356 billion	US$350 billion	US$337 billion	US$77 billion	US$35 billion	US$43 billion	US$48 billion	US$55 billion
2. KBAs									
Estimated human population	270 million	232 million	88 million	37 million	37 million	20 million	3 million	33 million	53 million
Estimated total annual CBI based on 25% (±5%) national GDP per capita	US$1,040 (±208) billion	US$634 (±127) billion	US$371 (±74) billion	US$315 (±63) billion	US$146 (±29) billion	US$65 (±13) billion	US$43 (±8) billion	US$48 (±10) billion	US$53 (±10) billion
Estimated total annual CBI based on minimum US$5.50 per day	US$542 billion	US$466 billion	US$178 billion	US$74 billion	US$74 billion	US$39 billion	US$6 billion	US$67 billion	US$106 billion
Estimated total annual CBI based on World Bank tiered poverty rates	US$632 billion	US$351 billion	US$211 billion	US$193 billion	US$78 billion	US$36 billion	US$24 billion	US$38 billion	US$52 billion
3. MinLand									
Estimated human population	1,638 million	1,448 million	578 million	118 million	183 million	80 million	44 million	347 million	289 million
Estimated total annual CBI based on 25% (±5%) national GDP per capita	US$5,609 (±1,112) billion	US$3,438 (±685) billion	US$2,186 (±438) billion	US$992 (±198) billion	US$693 (±139) billion	US$322 (±65) billion	US$653 (±130) billion	US$506 (±101) billion	US$257 (±51) billion
Estimated total annual CBI based on minimum US$5.50 per day	US$3,289 billion	US$2,906 billion	US$1,161 billion	US$237 billion	US$367 billion	US$160 billion	US$88 billion	US$696 billion	US$580 billion
Estimated total annual CBI based on World Bank tiered poverty rates	US$3,489 billion	US$2,071 billion	US$1,269 billion	US$621 billion	US$392 billion	US$180 billion	US$347 billion	US$401 billion	US$280 billion

differing distributive impacts on global and regional economies. Specifically, LMICs received a smaller proportion of payments under the current protected-area scenario, while hosting the vast majority of eligible people (86–88%) under other scenarios. Moreover, LMICs received 75–89% of payments at a flat rate but only 40–61% when payments are GDP proportional and even less (38–59%) when payments are tiered by country income groups. Therefore, while scaling payment rates to nationally relevant poverty lines might achieve parity by reflecting different costs of living in each nation, they may also reinforce unequal political–economic global hierarchies and reduce the CBI's ability to reduce inequality and alleviate injustice[39]. While our results provide indicative estimates, we suggest that implementation of CBI should prioritize LMICs, and appropriate payment rates should be negotiated with recipient communities and governments.

Gross costs for the most modest CBI scenario, US$351 billion, are large compared with current state spending on conservation, estimated at US$133 billion annually[40]. However, the post-2020 GBF rightfully recognizes that increased spending on conservation is required to safeguard human prosperity[28]. One estimate of financing needs for biodiversity, premised on expanding existing conservation models, including current protected-area models and conservation agriculture, is US$722–967 billion annually[41]. Yet even the most ambitious CBI scenario (US$5.6 trillion) is far smaller than the US$44 trillion of economic production, over half of global GDP, which is estimated to be moderately or highly dependent on nature[42]. This suggests that these CBI scenarios should be seriously considered as plausible investments for safeguarding nature's contribution to human prosperity. Moreover, these analyses do not account for the incommensurable cultural, spiritual and intangible values provided

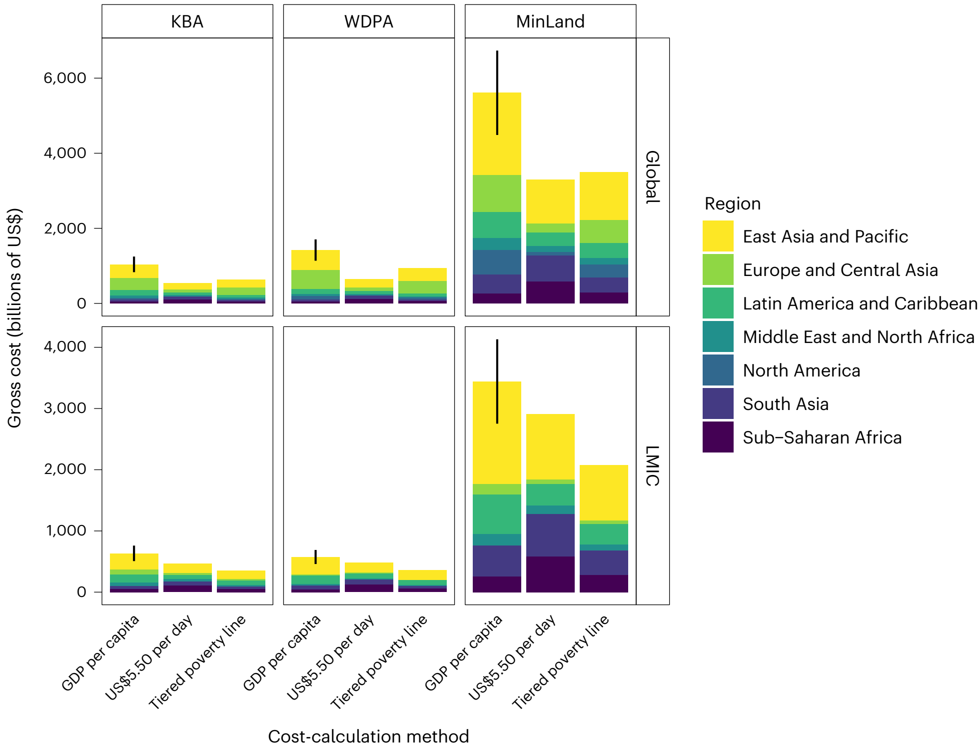

Fig. 2 | Total gross costs for the CBI under different conservation scenarios. Total gross costs in billions of US$ for the CBI under three different conservation scenarios: (1) KBA, (2) WDPA and (3) MinLand. For each scenario, results are shown globally (top) and in LMICs (bottom), according to geographical regions. Costs are calculated using three methods: (1) 25% (± 5%, represented by the vertical lines) of mean national GDP per capita; (2) using a flat rate of US$5.50 per capita and (3) using tiered poverty rates for countries at different income levels.

by nature and the expected positive impacts a CBI could directly have on human well-being.

To fund a CBI, various mechanisms and sources have been proposed that have varying implications for equity, nature and global production and consumption[10]. Notably, funds raised through taxation on environmentally harmful consumption and production have been suggested as a way for UBI to support a transition to sustainability[43], which aligns with the objectives of CBI. For example, subsidies for environmentally harmful energy and agricultural production have been estimated at US$280–500 billion per year[44], enough to fund a US$5.50 per day CBI for PAs in LMICs if redirected. Moreover, global tax reforms and debt justice will be needed to reform global financial flows and unlock the public financing needed for biodiversity conservation[45], including the CBI.

Our analysis raises several questions that should be addressed in CBI implementation. First, future analyses should also consider the eligibility of other populations not included in our analysis, especially coastal communities and fishers living in or around marine conservation areas. Others not living inside delineated conservation areas but reliant on resources within these, such as pastoralists and others making seasonal use of conservation areas, have also been omitted. Implementation of the CBI should ensure diverse ways of relating to ecosystems, land and waters are considered when determining eligibility. Furthermore, geographically uneven population growth in the future will also impact the distribution of CBI payments under each scenario and will need to be considered in planning, which should be adaptive.

Second, to ensure fairness and avoid perverse incentives for migration into conservation areas[9], it may be necessary to consider restrictions on eligibility in other ways, such as instituting length-of-residency requirements. These should be developed with the affected communities and designed carefully to avoid further marginalizing disadvantaged populations. Third, while CBI can provide autonomy by enabling communities to reduce their dependence on waged labour or development programmes, implementation of CBI with Indigenous peoples must also avoid disrupting traditional institutions and creating dependence on state bureaucracies. This can be addressed by understanding the CBI as a 'rightful share' of economic production rather than a grant and ensuring payments are accepted and administered with the consent and involvement of the population and governed through jointly developed mechanisms[46]. This needs to take place within a broader effort to support and recognize Indigenous-led governance[47] and acknowledging claims for reparative justice[48].

Our analysis is intended to promote discussion about CBI as a tool for global conservation policy in the context of a broader sustainability transformation. Further research could examine the scope for synergies between the biodiversity, climate change and land-restoration agendas, potentially identifying mechanisms for a 'nature basic income' addressing all three issues. CBI schemes should be developed at multiple levels with the participation and consent of recipient communities. Locally implemented pilot schemes, such as those being considered in Zimbabwe[49] and Indonesian New Guinea[50], could generate evidence and facilitate learning to support future regional-scale CBIs. In the future, our analysis shows, implementing CBI at multiple scales represents a feasible yet radical approach to pursuing a more equitable and sustainable world.

Methods

We estimated the gross cost of CBI for three plausible terrestrial area-based conservation scenarios as a potential prioritization of future conservation effort: (1) existing PA estate[51]; (2) KBAs[37]; and (3) the estimated minimum land requiring conservation attention globally[30]. There are many other proposed global scenarios, which also take into account other values such as carbon and water (for example, refs. 29,52). However, our intention was not to analyse an exhaustive set of possible conservation futures. Instead, we chose three scenarios that represent a range of conservation scenarios at low, medium and high ambition, based on biodiversity and efficiency criteria only, and for which spatial layers were readily available. For each scenario, we first estimated the human population in each country eligible to receive a CBI (that is, those residing in the allocated conservation areas) by overlaying these scenario areas with human population data from LandScan[53]. We explore coverage of only terrestrial areas because these are the areas that overlap with human settlements. This does include marine and coastal protected areas that have a terrestrial component but do not include populations living near or adjacent to marine protected areas without terrestrial components. We included all people living within the areas of conservation attention because these are the people who most depend on biodiversity and will most likely be impacted by conservation policies. We included people of all ages, including children.

To calculate gross costs of CBI, we used three different payment rates. First, a rate of 25% of national GDP per capita (at purchasing power parity), which has been proposed as a reasonable baseline in the UBI literature[10]. To estimate this rate, we used GDP data from the World Bank[38] and conducted a sensitivity analysis with ± 5% from 25% of the national GDP per capita. Second, we explored a flat (that is, constant) rate of US$5.50 per person per day. This is the poverty line in middle-income countries and is often considered the minimum necessary income for healthful living globally[35]. Third, we used the World Bank's tiered poverty line for countries classified at different income groups[35]. This is US$1.90 per day for low-income countries, US$3.20 for lower-middle-income, US$5.50 for upper-middle-income and US$21.70 for high-income countries.

We conducted these analyses for all countries where World Bank data are available, presenting the results for all countries and separately for countries or territories defined as low or middle income and eligible for receiving official development assistance according to the Development Assistance Committee of the Organisation for Economic Cooperation and Development[54]. This includes all low- and middle-income countries, excluding members of the European Union, Canada, Japan, Russia, United States, United Kingdom, Antigua and Barbuda, Nauru and Palau. Additionally, we disaggregated our results by region.

Data

WDPA. To map existing protected areas, we used the February 2020 version of the World Database of Protected Areas[51]. As this version does not contain data on PAs in China, we combined the February 2020 data with the January 2017 version of WDPA for China only. We followed best-practice guidelines for processing WDPA data, including point data where areal information is available by adding a geodesic buffer around the point equivalent to the reported areal attribute. We included all PA-management categories and PAs that were reported as inscribed, designated or established. We excluded United Nations Educational, Scientific and Cultural Organization Man and Biosphere Reserves and non-terrestrial areas of PAs, resulting in a total of 253,797 PAs in the analysis.

KBAs. To map KBAs, we used the September 2019 version of the World Database of Key Biodiversity Areas[37]. Point data were treated the same as with PAs, giving us a total of 14,192 KBAs in the analysis.

Minimum land required. Spatial data[55] on the minimum land area requiring conservation action identifies spatial priorities for meeting global species conservation targets while accounting for existing protection (WDPA) or assuming that both KBAs and ecologically intact areas are de facto protected areas, thus efficiently minimizing the additional area needed for conservation action[30]. Targets were used to determine percentage of species distribution that should be effectively conserved as a function of the species' range size for terrestrial mammals, amphibians, freshwater crabs, shrimp, crayfish, birds and reptiles and for ecoregion-protection target (that is, 17% representation per ecoregion as per Aichi Biodiversity Target 11).

Human population. We obtained the Oak Ridge National Laboratory LandScan 2019 data[53] for global human population count. This represents an 'ambient population' averaged over 24 hours at 30 arc second resolution, including all ages.

GDP per capita. We obtained World Bank data[56] on GDP per capita at Purchasing Power Parity (constant 2017 international dollars) for the years 2015 to 2019. For countries where there were missing data for any of these years, we extrapolated or interpolated values using linear modelling. Twenty-four countries/territories had no GDP data available for all five years and were not included in our analysis. For GDP, we calculated the mean GDP per capita from 2015 to 2019 for each country and used values of 20%, 25% and 30% for a CBI.

Analysis

To harmonize the data layers and increase computational tractability, we re-projected the three-scenario vector layers from Mollweide projection to a geographic coordinate system (WGS84) and rasterized them at 1 km resolution. We then overlaid each of the scenario layers with the LandScan human population count data and summed the number of humans within conservation areas for each country using GADM data (version 3.6) for country boundaries[57]. We calculated the gross cost of a CBI by multiplying each country's conservation-area human population with its respective CBI rate that is based on the national GDP per capita[58]. We also calculated a second CBI using a flat rate of US$5.50 per person per day. This is an internationally comparable poverty line expressed in 2011 US dollars at purchasing power parity[35].

Reporting summary

Further information on research design is available in the Nature Portfolio Reporting Summary linked to this article.

Data availability

All data generated during this study are included in Supplementary Data 1 and are available online (https://doi.org/10.17605/OSF.IO/N3YSZ). All other data used are open access and available online: WDPA (https://www.protectedplanet.net/en/resources); KBAs (http://www.keybiodiversityareas.org); minimum lands requiring conservation attention (https://doi.org/10.5061/dryad.qfttdz0k3), GDP data (http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx), LandScan human population layers (https://landscan.ornl.gov/) and country administrative boundaries (www.gadm.org).

Code availability

All code used to generate results and figures is publicly available online (https://doi.org/10.17605/OSF.IO/N3YSZ).

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Author contributions

E.d.L. conceived the study. E.d.L., J.S.S., O.S., H.B., M.K. and R.F. designed the analyses and wrote the paper. J.S.S. conducted the spatial analyses. J.S.S. and E.d.L. analysed the data. J.A. and S.A. contributed data used in the analyses. All authors contributed to revising the drafts.

Competing interests

The authors declare no competing interests.

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Software and code

Policy information about availability of computer code

Data collection	No software used
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Study description	We calculated gross costs of a conservation basic income by estimating human populations (from LANDSCAN) living in three spatial conservation scenarios, and multiplying these by specific payment rates.
Research sample	We used several existing spatial datasets: Landscan human population data, available online from Landscan Key Biodiversity area maps, available online from Birdlife International Protected area maps, available online from the World Database on Protected Areas A Minimum Lands for safeguarding biodiversity map, available from Allan et al and soon available online.
Sampling strategy	No sampling performed
Data collection	No data collection performed
Timing and spatial scale	All data is at global scale for a particular year.
Data exclusions	Geographical data was excluded from the study when no GDP data was available for the territory from the World Bank.
Reproducibility	All datasets are publicly available. We have made our code publicly available.
Randomization	No randomisation
Blinding	Not relevant to our study

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