Hardner & Gullison

External Independent Evaluation of the Gordon and Betty Moore Foundation's Andes Amazon Initiative (2015)

Final Public Report

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Acronyms

AAI	Andes Amazon Initiative
ARPA	Amazon Region Protected Areas Program
ECP	Environmental Conservation Program (within which AAI sits)
EIE	External Independent Evaluation
GBMF	Gordon and Betty Moore Foundation
HGA	Hardner & Gullison Associates, LLC
IMAZON	Institute of Man and the Environment in the Amazon
IT	Indigenous Territory (also referred to as Indigenous Lands in AAI documents)
LFA	Limiting Factors Analysis
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
PA	Protected Area
RAISG	Amazonian Network of Georeferenced Socio-Environmental Information
RAPPAM	Rapid Assessment of Prioritization of Protected Areas Management
REDD	Reducing Emissions from Deforestation and Forest Degradation
SPDA	Peruvian Society of Environmental Law
WWF	World Wildlife Fund
WCS	Wildlife Conservation Society

Executive Summary

This report presents the findings of the 2015 External Independent Evaluation (EIE) of the Andes Amazon Initiative (AAI). Overall, the EIE finds that AAI's ambitious plan to catalyze the conservation of the Amazon Biome continues to meet with great success.

Since its inception, AAI has supported the legal establishment/recognition of 64.3 million hectares of protected areas (PAs) and indigenous territories (ITs). This compares favorably to AAI's current goal of 80 million hectares. Today, a total of 355 million hectares fall within PAs or ITs, or 56% of the original forest cover of the Amazon Biome.

Legal designation of land use is only the first step towards conserving an area. Conservation is achieved by putting in place the systems and processes for areas to be managed for the protection of forest cover and biodiversity – also known as *consolidation*. AAI's current goal is to assist in the consolidation of 140 million hectares of PAs and ITs. AAI has made meaningful and admirable progress towards achieving this goal. Where most of AAI's consolidation criteria were in poor to fair condition at the outset of AAI's support to specific PAs and ITs, they have all improved to a better state. Significant advances in the development of sustainable finance, threat and biological monitoring programs, and regional and national land use planning initiatives that accommodate PAs and ITs are a powerful complement to the work of grantees at individual sites.

However, only nine sites (3.7 million hectares) of the 137 in the portfolio are expected to fulfill completely AAI's definition of satisfactory consolidation by 2016, and the mosaics in which they are found may not present conditions conducive for sustaining the gains made to date.

Although large-scale deforestation of PAs and ITs is not an imminent threat, existing and widespread pressures such as illegal logging and mining are damaging some sites and may indicate vulnerability to greater future threats if these areas are not better consolidated. Furthermore, there is reason to believe that the legal protections of some sites may be downgraded in the future without further advocacy.

In November of 2015, the Board of Trustees directed AAI to develop a plan to continue its work. Based on the findings of the EIE, we present a set of recommendations for that plan:

1. Continue to invest in the current portfolio of sites;
2. Develop a dedicated theory of change for indigenous territories;
3. Support designation of additional indigenous territories;
4. Implement a blend of system- and site-level interventions to consolidate sites;
5. Continue to promote sustainable finance mechanisms;
6. Expand engagement on regional planning;
7. Continue use of AAI's monitoring and evaluation system; and,
8. Renew investments in science in the Amazon.

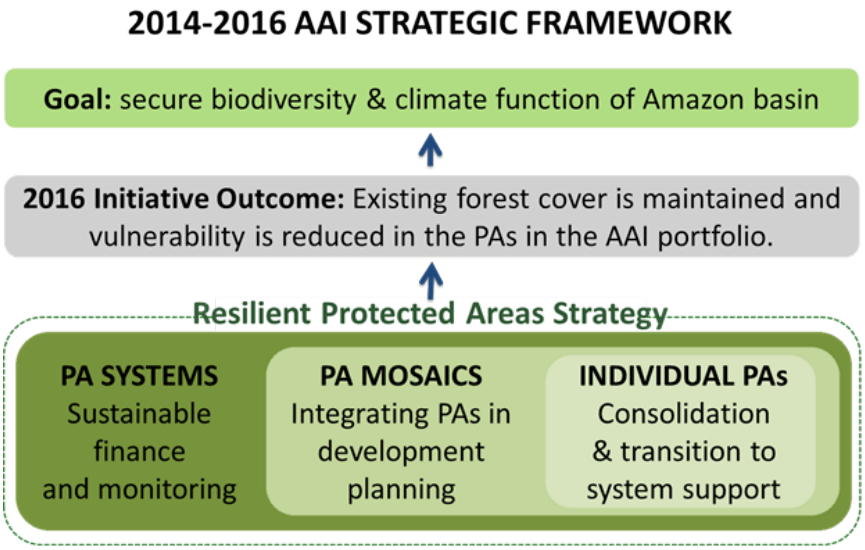
Many lessons have been learned through GBMF's experience with AAI. Committing to a goal (even one that requires a very long time horizon), staying focused on core business, and leveraging the comparative advantage of GBMF's unique funding model have been critically important factors in the foundation's success in the Amazon.

AAI's Strategy

The Andes-Amazon Initiative (AAI) of the Gordon and Betty Moore Foundation (GBMF) launched in 2003 with the goal of conserving the forest cover and biodiversity of the Amazon Biome. Since that time, AAI has awarded more than $355M in grants to an array of grantees across the region. GBMF is the largest private donor for conservation in the Amazon Biome, and the third largest overall (private and public)[1].

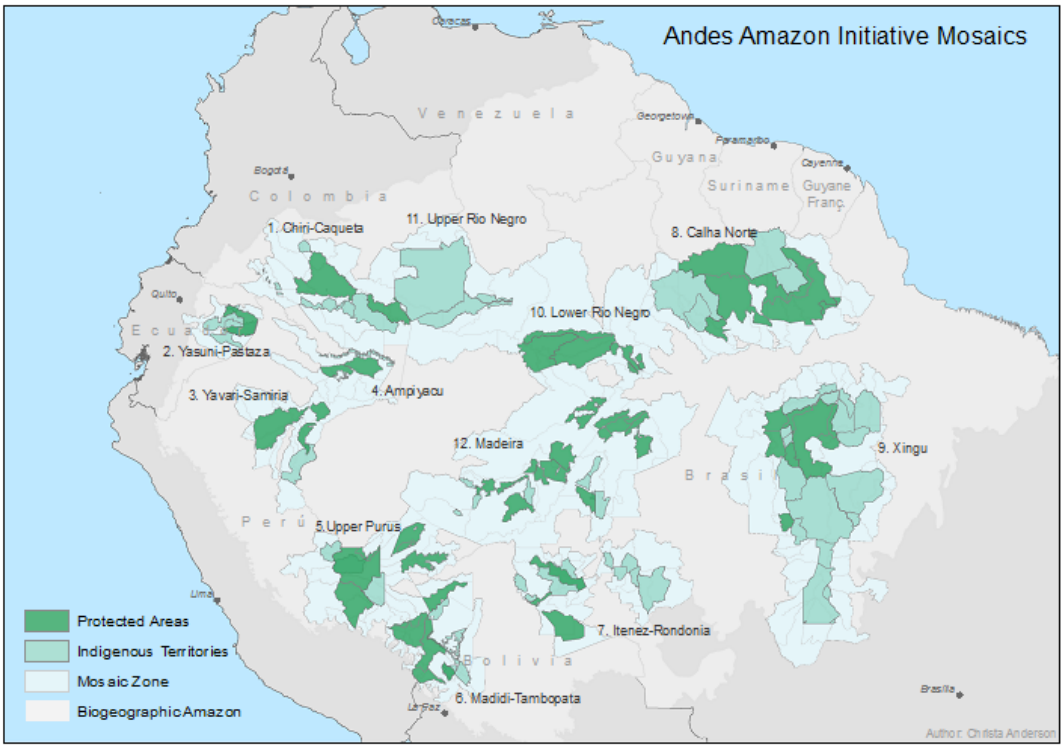
AAI's strategy has evolved over its lifetime, but it has consistently maintained a focus on the establishment of PAs and legal recognition of ITs. In its most recent strategic update in 2013, AAI focused on continuing to advance the consolidation of individual priority PAs and ITs, land use planning within the *mosaics* in which they reside, as well as pursuing higher level strategies for strengthening national protected area system finance and monitoring (Figure 1). AAI focuses on 12 mosaics – contiguous, or near contiguous, sets of PAs and ITs with similar ecological, political, economic, and social contexts (Figure 2). At the national level in Brazil, Peru, and Colombia, AAI's support targeted improvements in system-wide monitoring and sustainable finance.

Figure 1: AAI's 2014 to 2016 strategic framework (source: AAI)



[1] Castro, G., S. Riega-Campos. 2014. An Analysis of International Conservation Funding in the Amazon. Commissioned by the Gordon and Betty Moore Foundation.

Figure 2: The 12 focal mosaics prioritized by AAI as presented in AAI's most recent strategic plan. Source: AAI; PA and IT boundary data, RAISG; map created by Christa Anderson

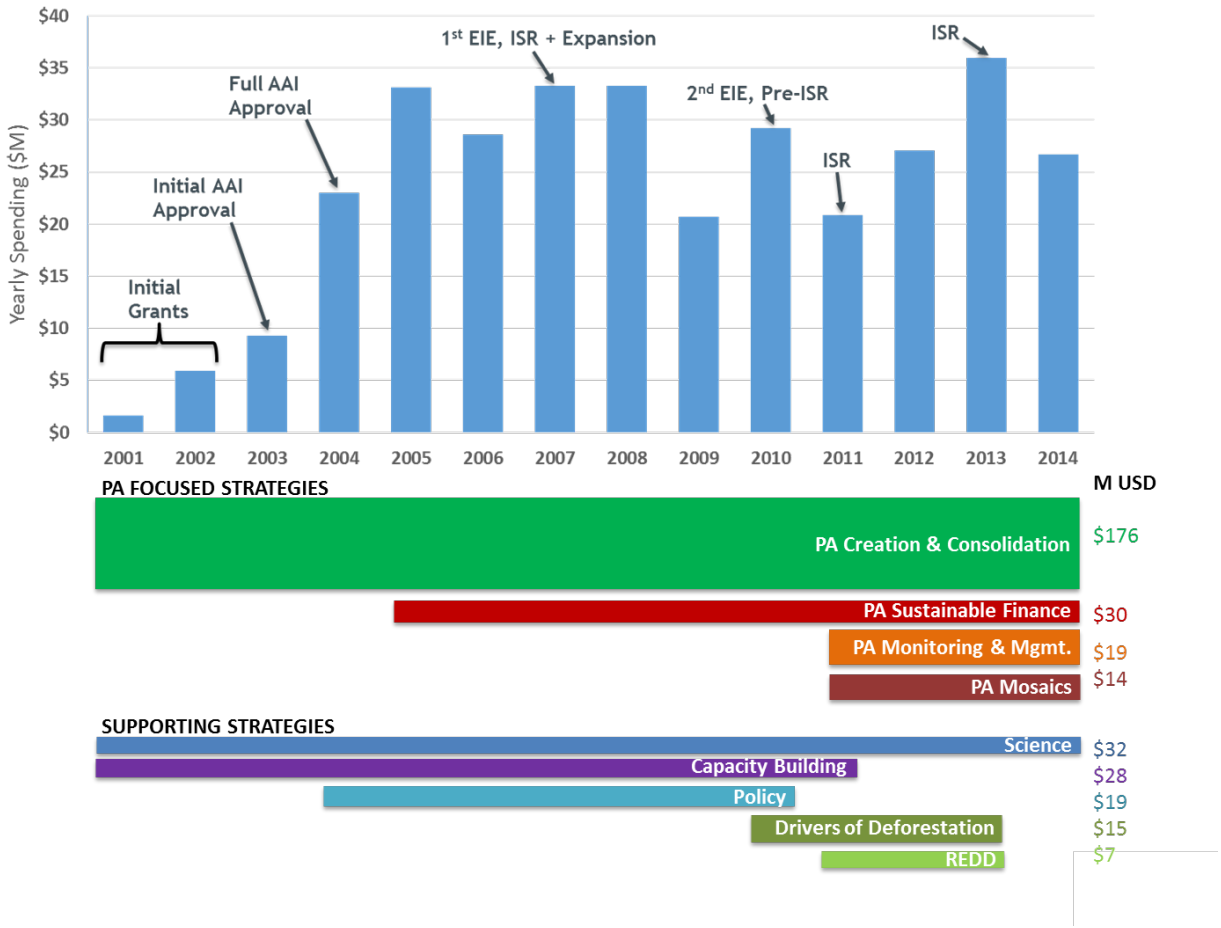


Thematically, PA and IT establishment and consolidation have persisted as the principal category of spending throughout AAI's life (Figure 3). The strategies of science, policy, and capacity building also continue to receive support, although with AAI's 2013 strategic update, all three were eliminated as explicit strategies toward which grants would be made. Capacity building endured, but only as an outcome within some grants. Policy work also evolved either into work on mitigating the drivers of deforestation or on mosaic-level governance. While sustainable finance appears as a strategy almost since AAI's beginning, engagement on finance mechanisms did not gain real momentum until this latest evaluation period.

Throughout its life, AAI has supported more than 80 grantees across seven countries, with well over half being national or local organizations or South America-based programs of international organizations. Nearly half of these received US$ 1 million or less, about 30 were given US$ 1-5 million, 11 received US$ 5-10 million, and just two—Wildlife Conservation Society (WCS) and World Wildlife Fund (WWF)—received more than US$ 20 million. In fact, total grant making to WWF has exceeded US$ 80 million, or about a quarter of AAI's total grant making.

From a geographic standpoint, about 20 percent of AAI's funding has gone to grants covering multiple countries in the Amazon Biome. Forty percent has supported efforts in Brazil specifically, and 20 percent in Peru. Colombia, Bolivia, and Ecuador each received about four percent. Less than one percent of total grant making went to Venezuela and to Suriname, neither of which has received funding in recent years.

Figure 3. AAI spending over time shows a focus on site-level assistance to PAs and ITs. Source: AAI



AAI's Effectiveness and Impact

AAI's present strategic focus is well aligned with PA and IT consolidation requirements. On execution, the work is in large part very effective. The current members of the AAI team are widely respected in their field, building on professional reputations resulting from extensive careers in conservation. AAI's grantees demonstrate a high degree of competence, and AAI's investment in their institutional development has been helpful. Since AAI began in 2003, some grantees have grown to become major actors in sub-national and national conservation.

Establishment of Indigenous Territories and Protected Areas

Key Findings

- AAI supported establishment of 64.3 M ha of new protected areas and indigenous territories.
- Thirty percent of the area in each of 29 of 36 eco-regions in the Amazon Biome is within a protected area or indigenous territory – a degree of protection that may be sufficient to conserve representative biodiversity if the areas are effectively managed.
- The total area currently legally protected in the Amazon Biome is 355 M ha (56% of original forest cover).

Since its inception, AAI has supported the legal designation of 64.3 million hectares to various categories of PAs and ITs – almost twice the size of the entire U.S. National Park System (34 million hectares)[2]. This compares favorably to the constrained outcome for establishment of new areas of 80 million hectares. Grantees typically rate AAI's support as "very important" or "critical" to this achievement.

Today, there are a total of 355 million hectares[3] with protected status – 56% of the original forest cover of the Amazon Biome (Figure 4). ITs comprise just over half of that area. The other half is composed of PAs of various categories including areas of strict protection and national parks, although the largest category is multiple use areas (e.g., national and state forests and extractive reserves).

The current geographic distribution and coverage of PAs and ITs comes close to meeting a scientifically plausible target for conserving representative biodiversity of 30 percent of each ecoregion in the Biome (Figures 5 and 6).

[2] U.S. National Park Service: http://www.nps.gov/aboutus/faqs.htm, viewed January 18, 2016.

[3] RAISG. 2015. Amazonia 2015: Protected Areas, Indigenous Areas. Note that, according to RAISG, the sum of all ITs and PAs is 393 million hectares, but there are 38 million hectares of overlap between the two categories.

Figure 4: PAs and ITs in the Amazon currently cover 355 million hectares, or 56 percent of original forest cover. ITs (shown in red) make up about half of that total (and about half the areas supported by AAI). Source: RAISG

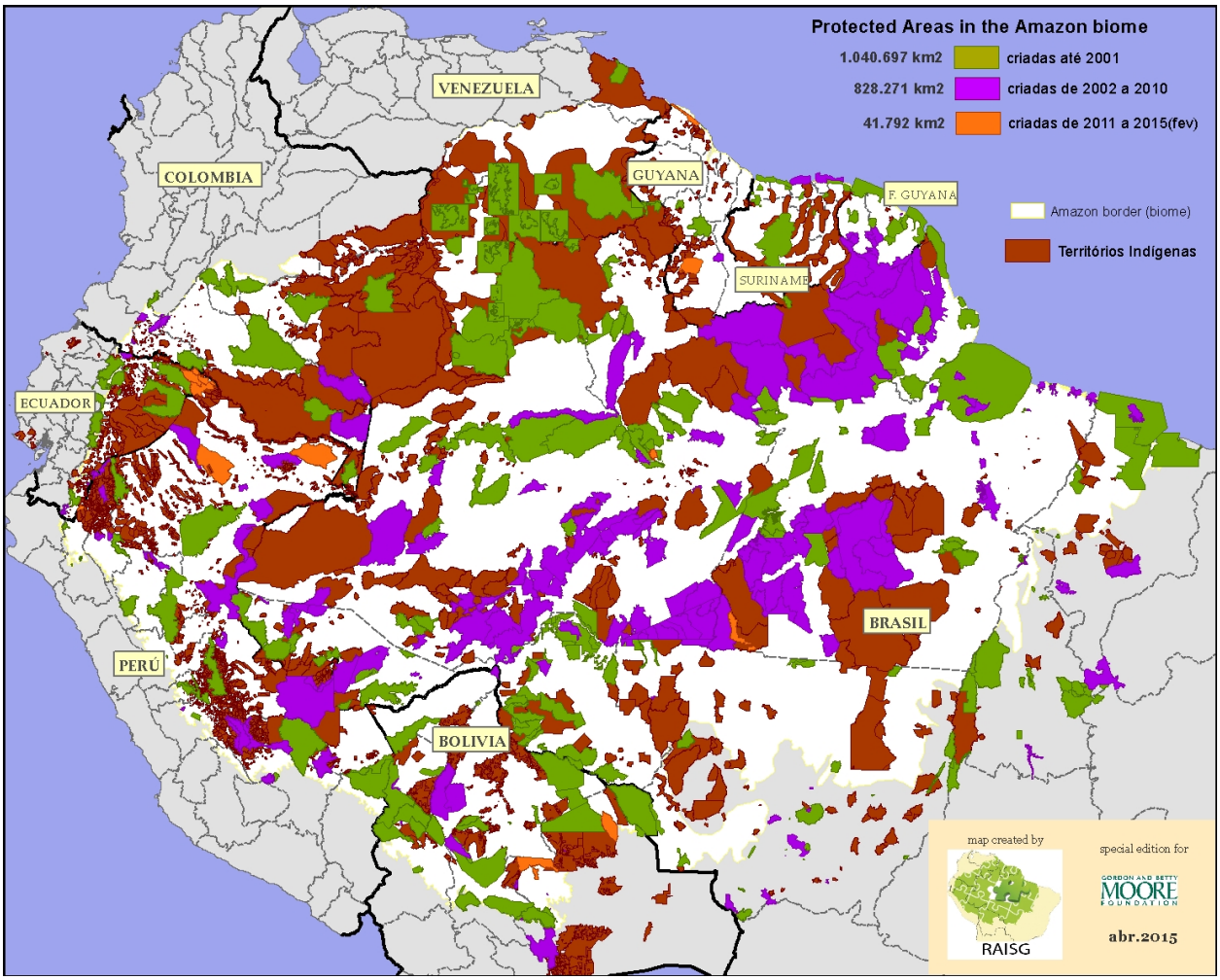


Figure 5: The majority of ecoregions in Amazon Biome are well represented by PAs and ITs. This graphic shows the percentage of each ecoregion that lies within these land use designations. Source: based on PA and IT polygons from World Database on Protected Areas and ecoregion polygons from WWF.

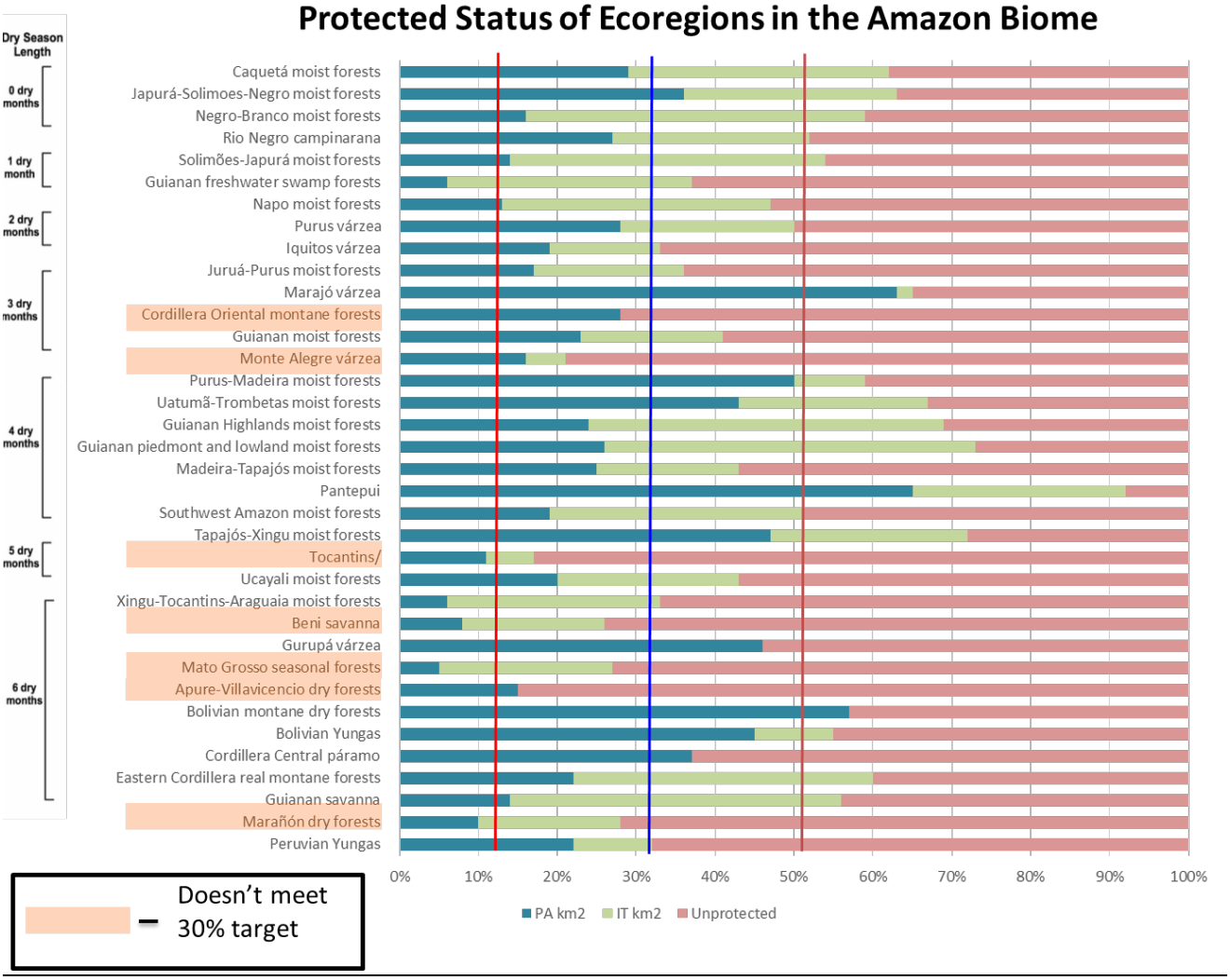
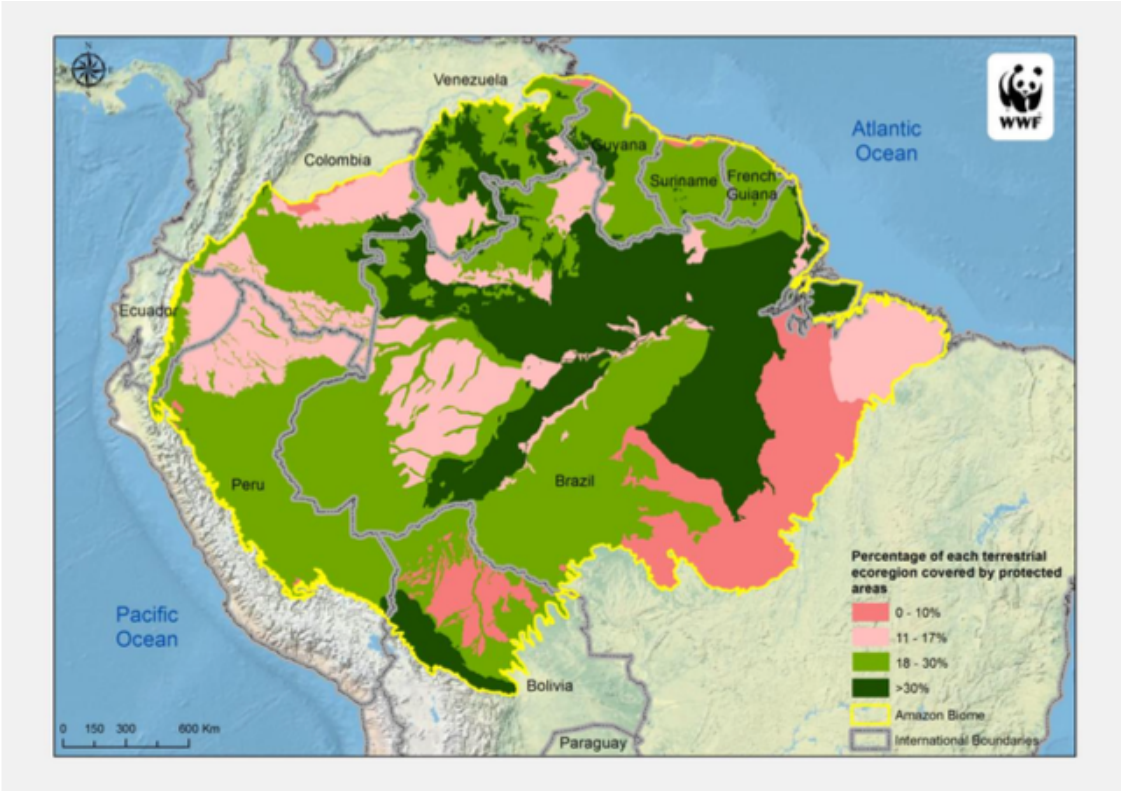


Figure 6: The majority of ecoregions in the Amazon Biome are well represented in the current portfolio of PAs and ITs. This graphic shows the degree of protection for each ecoregion conferred by PAs alone (top), and by PAs and ITs together (bottom). Source: WWF. 2014. *The State of the Amazon*.



Consolidation of Indigenous Areas and Protected Areas

Key Findings

- *Consolidation* is putting in place the systems and processes to manage an area for conservation.
- Since inception, AAI has supported consolidation in 168 million hectares of PAs and ITs.
- AAI currently supports 144 million hectares of PAs and ITs.
- Progress has been made, but consolidation not yet achieved in most areas.

To achieve AAI's goal to assist consolidation in 140 million hectares of PAs and ITs, sites must progress from the initial step of legal designation (a line on a map) to ensuring recognition of the areas in regional planning, developing and implementing management and resource use plans, collaborating with resident and neighboring communities in on-the-ground management, enforcing conservation protections, monitoring, and ensuring that funding will be available for recurrent costs (this may be via inclusion in government budgets, donor funding, revenue generation by the sites, or other innovative financing mechanisms). According to AAI's definition, a site is *consolidated* when these core elements are in place.

Progress towards the 2016 Consolidation Outcome

Over its life, AAI supported activities that led to *partial* consolidation in 168.3 million hectares; and it presently supports 107 million hectares directly and 37 million hectares indirectly via grants targeting individual protected areas and protected area systems.

Among the major advances since AAI's last evaluation in 2010 is the development of a system for AAI to track its own work in an in-house monitoring and evaluation (M&E) system. We find the M&E system to be practical and complete, and consistent with the other approaches utilized in this evaluation (limiting factors and RAPPAM). The theory of limiting factors is embedded in the M&E system, in particular the notion that all consolidation criteria are important and that the weakest performing indicator will likely determine the performance of a site. The system requires a concerted effort on the part of AAI staff to keep it up-to-date, but this can be alleviated with ongoing alignment of grantee reporting against AAI's M&E indicators.

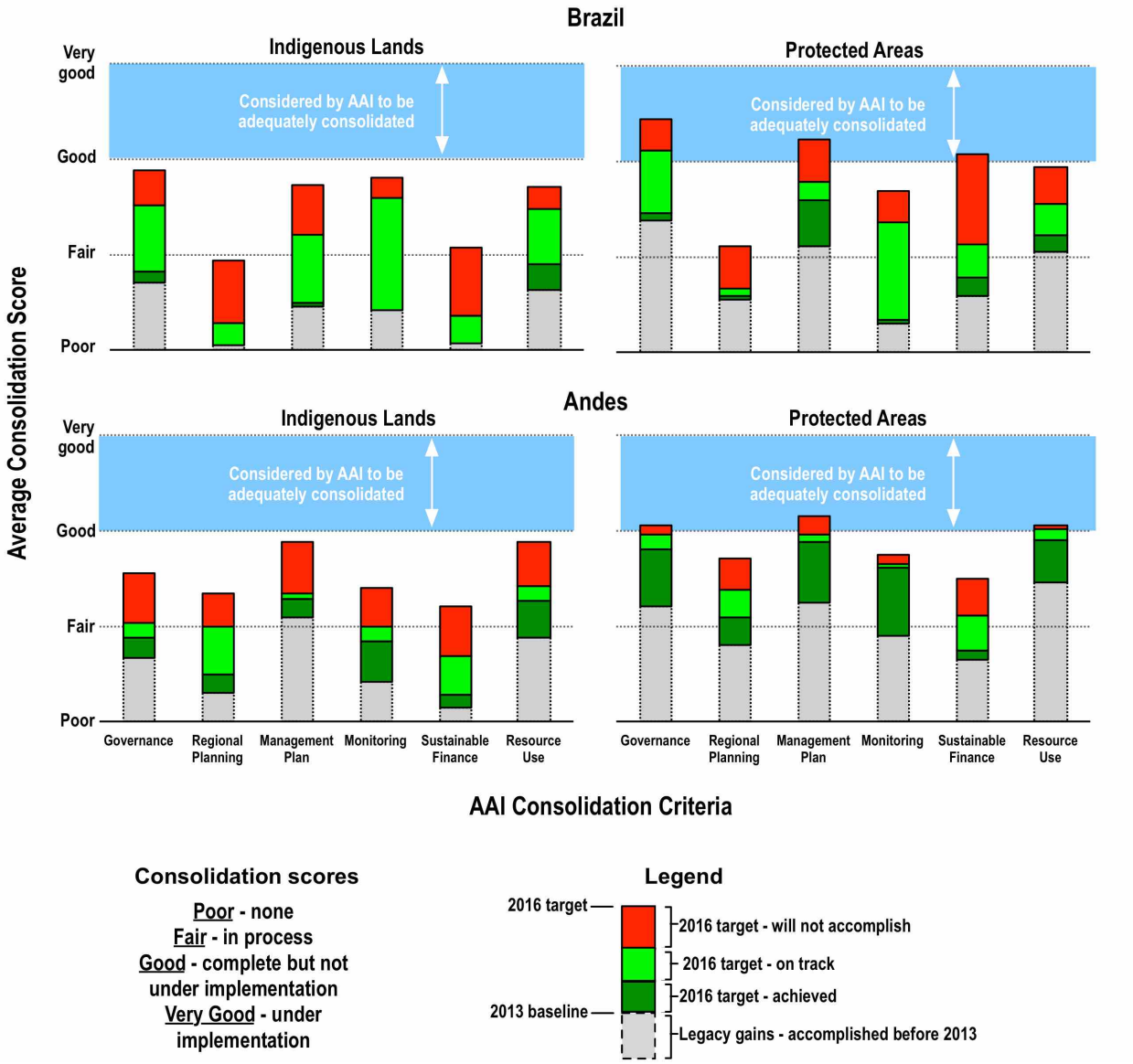
Using this system, AAI tracked its progress at a site level for each of six consolidation criteria: management planning, governance, sustainable resource use planning, monitoring, integration with regional land use planning, and sustainable financing[4]. Each criterion is rated on a scale of: 1-Poor (nothing in place); 2-Fair (in process of design); 3-Good (design complete, but not yet under implementation); and 4-Very Good (under implementation). AAI defines a score of 3 or

[4] It is important to clarify that AAI did not commit to pay for the management of the PAs or ITs, but rather to assist the sites in finding reliable long-term support from a government, a protected areas fund, or other source. Therefore, a score of "3" would indicate that the source of funding is confirmed, and a "4" that the funding is being received in a reliable manner.

better on a criterion to represent adequate consolidation, and a site is considered consolidated if *all* six factors achieve this score.

AAI set targets for each consolidation criterion, on a site-by-site basis, based on what it believed it could achieve by 2016 before its funding authorization expired. *Note that these targets are often below what is required to achieve satisfactory consolidation (which would be a score of 3 or better).* As shown in Figure 7, AAI has recorded gains against almost all criteria, with many factors across numerous sites moving from a poor state to fair or better – a laudable achievement, especially given the massive scale and complexity of this undertaking. However, to varying degrees, AAI will not meet its 2016 targets.

Figure 7: Progress against AAI's consolidation targets is indicated by bars. The top of each bar is the 2016 target, and coloration indicates the status of progress towards reaching that target. Source data: AAI



Beyond the 2016 Commitments: Progress toward Satisfactory Consolidation

The achievement of AAI's pragmatic targets for 2016 is not equivalent to the satisfactory consolidation of the sites. *By AAI's guidelines,* ***all*** *criteria should score 3 or better to achieve satisfactory consolidation*[5]. This is a low threshold, in our opinion, because a score of 3 simply indicates that a consolidation factor has been designed but not yet implemented.

The number of sites expected to achieve a score of 3 or better on all consolidation criteria by 2016 is nine, or 3.7 million hectares. Most sites fail to achieve a satisfactory score on one or more criteria, and nearly 40 sites will fail to achieve a satisfactory score on *any* of the 6 consolidation criteria.

Validation of AAI's Consolidation Gains

We also measured consolidation of AAI's portfolio using the two methods adopted in the 2006 and 2010 EIEs: 1) our "limiting factors" method; and, 2) WWF's *Rapid Assessment of Prioritization of Protected Areas Management* (RAPPAM) method, a common standard for assessment of PA management used in Brazil and elsewhere.

Our first analysis, using the limiting factors method (Figure 8), tells a story similar to AAI's M&E system. It shows a pattern of significant advances in consolidation, demonstrating that AAI is being effective. It also shows that some factors remain problematic and require more work in order to support consolidation. Because there is no established threshold for achieving consolidation using this method, we simply tallied how often sites have one or more limiting factors causing more than a *moderate problem* to conserving the site. We found that more than half of the area in AAI's portfolio currently has one or more such problematic factors. Table 1 summarizes the most common factors that could undermine site performance.

[5] *Andes-Amazon Initiative Rationale and Development for Measures*

Figure 8: Limiting factors have shown marked improvement since AAI began supporting areas. However, some factors remain as significant obstacles to consolidating sites. Scores are weighted by area. Source data provided by grantees.

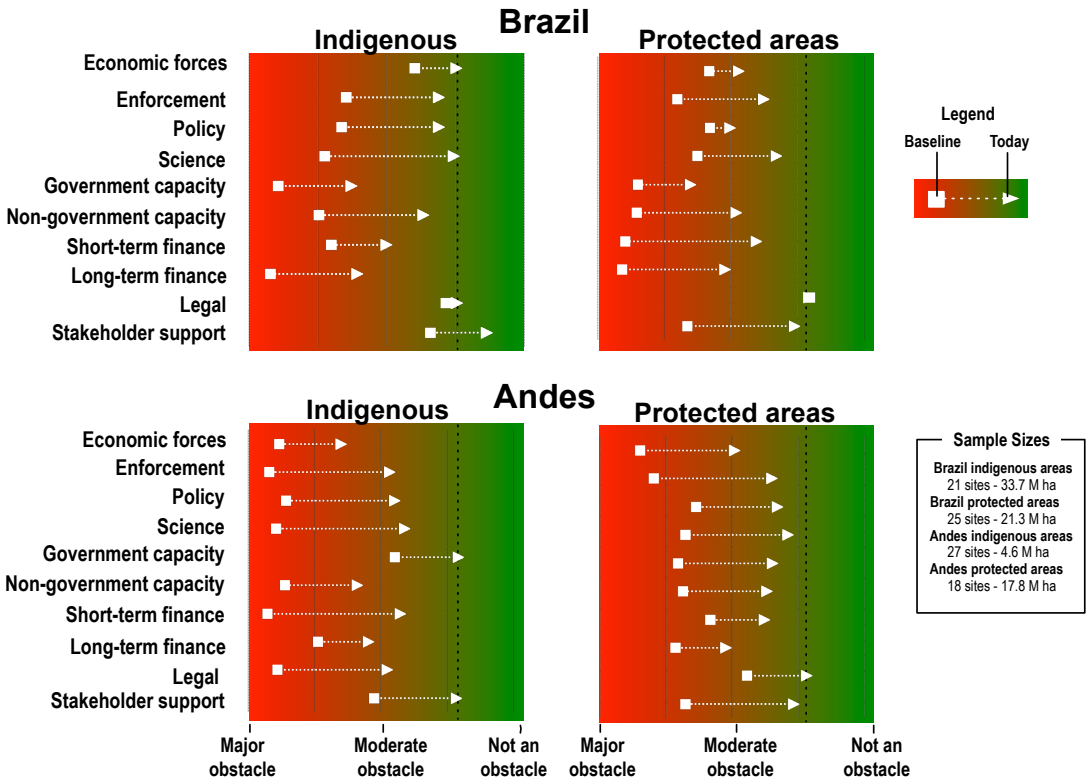


Table 1: The most common *limiting factors* in 2015 causing more than a moderate obstacle to conserving sites (% of area in AAI portfolio affected in each category)

Indigenous Lands	Protected Areas
Brazil	
Gov't Capacity (51%) Long-term Finance (47%) Short-term Finance (7%)	Long-term Finance (38%) Gov't Capacity (35%) Legal (18%)
Andes	
Economic forces (47%) Long-term Finance (42%) NGO Capacity (30%)	Long-term finance (34%) Economic forces (27%) Short-term finance (20%)

In our second analysis, the RAPPAM method measured a detailed set of site-level management elements. It also confirms the general conclusions of AAI's monitoring and evaluation system, by

indicating significant progress on most criteria across PAs in AAI's portfolio[6]. However, many sites continue to experience shortfalls in consolidation (Figure 9), especially on the following criteria:

- No long-term financing in place
- Insufficient staff to perform core management functions
- Staff turnover[7]
- Insufficient capacity to perform enforcement
- Land tenure conflicts within PAs

As a final source of independent validation of AAI's monitoring and evaluation system, Brazil's office of government accountability published an investigation in 2014 on the implementation of PAs in the Brazilian Amazon[8]. Their results corroborated those presented above for the AAI portfolio, finding that, even under difficult circumstances PAs have made headway in consolidation, however, many of the criteria/factors mentioned above are not yet satisfactory and must be improved.

[6] The Evaluation Steering Committee questioned the application of this method for ITs, even though respondents working with ITs were permitted to skip survey sections not relevant to their sites. Nevertheless, to avoid further debate, we present only the results for PAs.

[7] Although staff turnover may appear to be outside the scope of consolidation, it is indicative of a problem faced in the Amazon of not being able to staff remote sites with qualified personnel.

[8] Tribunal de Contas da União, República Federativa do Brasil. 2014. *Amazônia: unidades de conservação: auditoria coordenada*

Figure 9a: RAPPAM scores for AAI-supported PAs in Brazil show major progress, however further work remains, based on data from grantees.

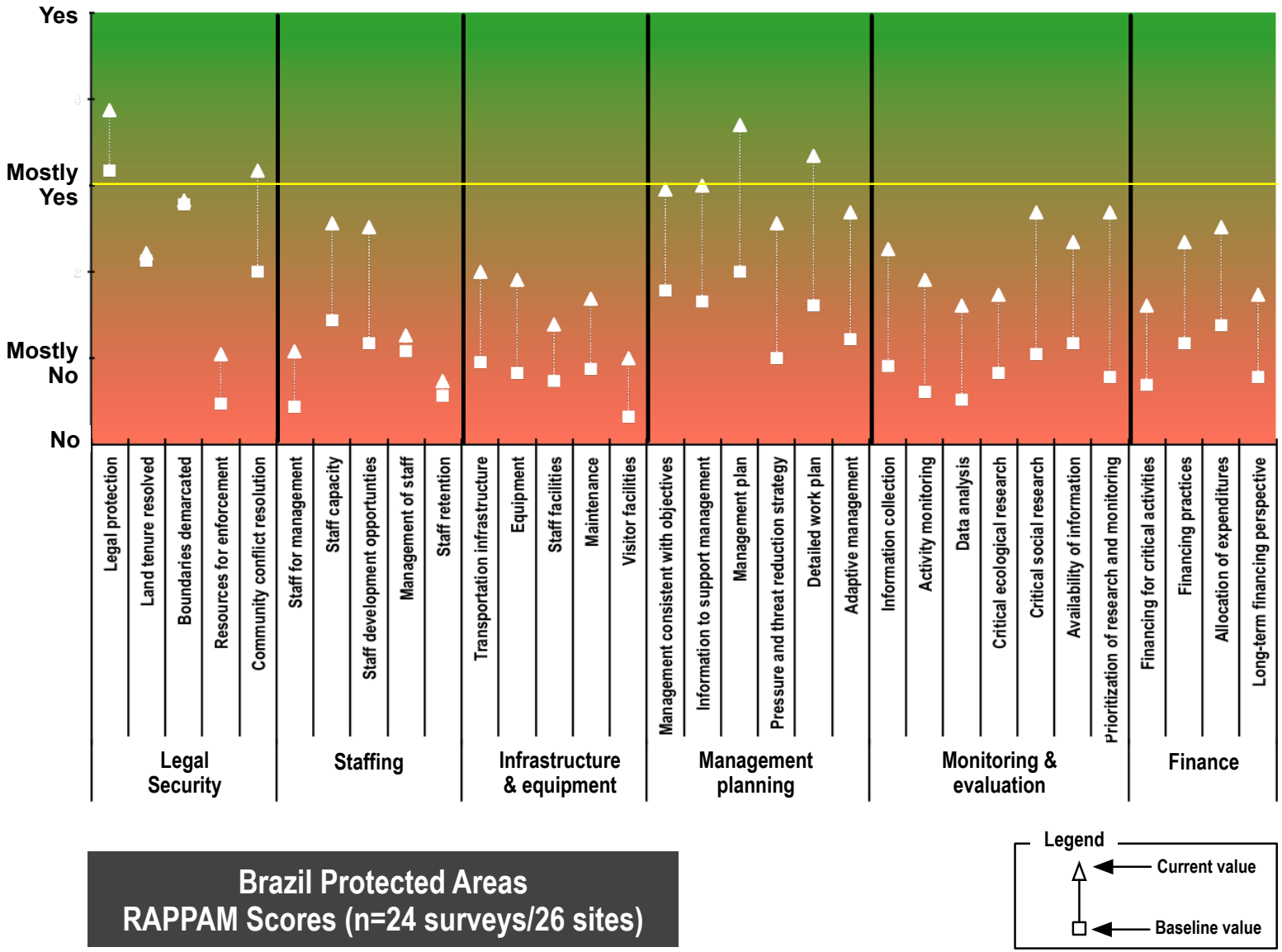
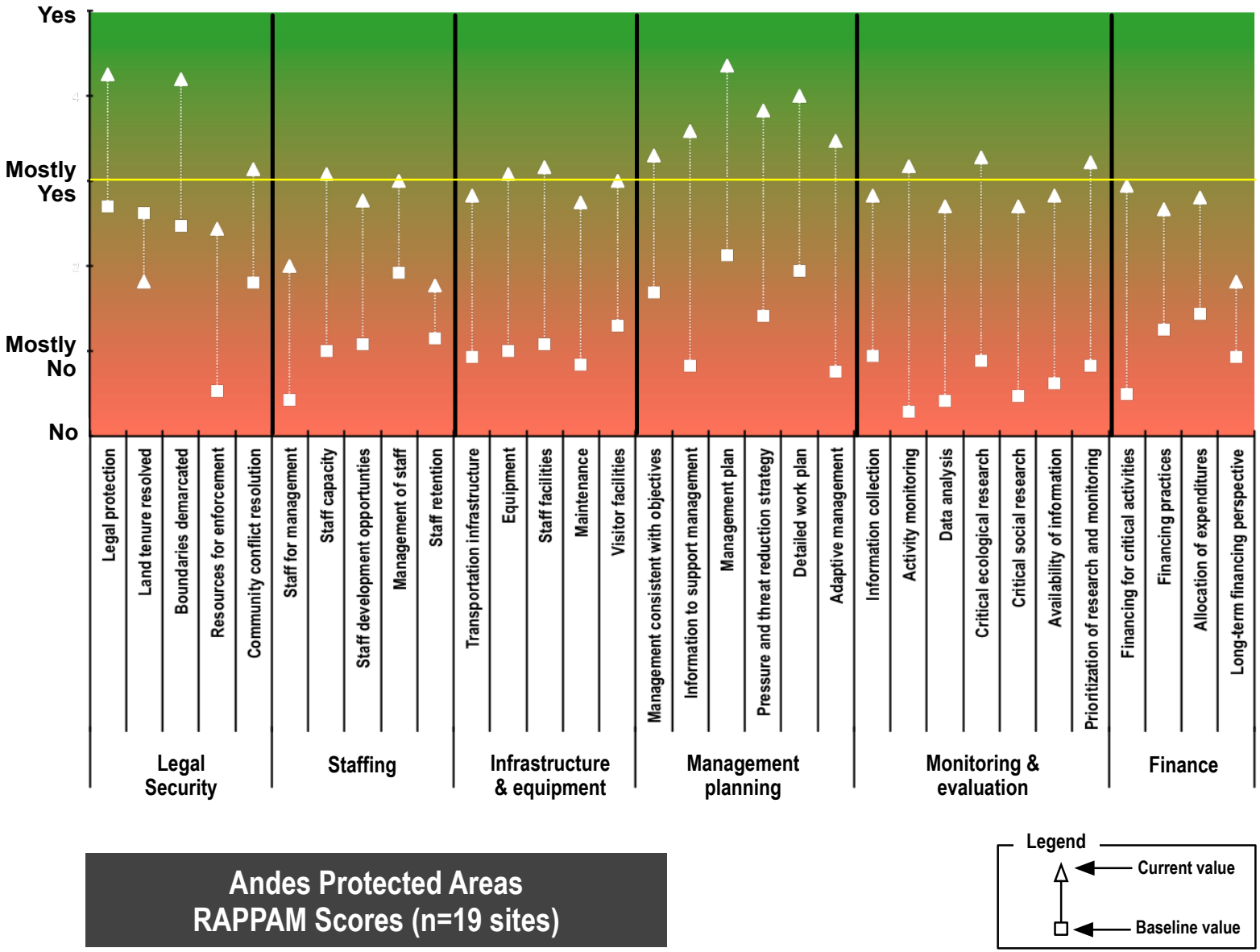


Figure 9b: RAPPAM scores for AAI-supported PAs in Andes show significant progress, but further work remains, based on data from grantees.



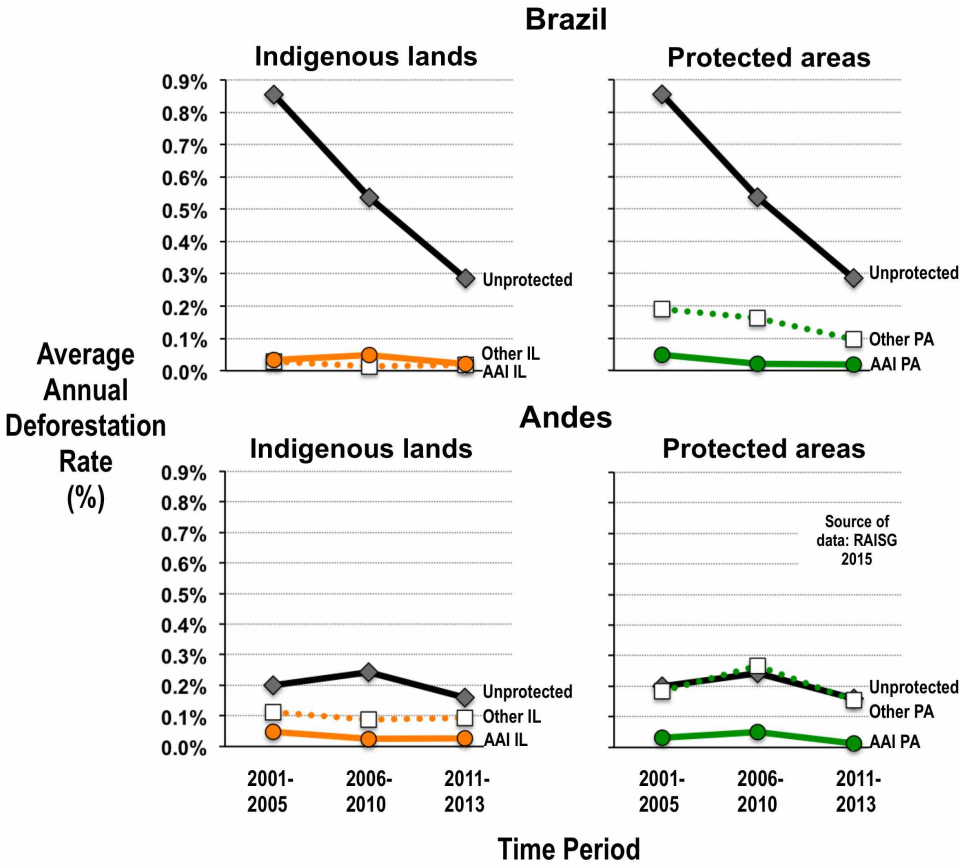
Improved Site Consolidation and Maintaining Forest Cover

Key Findings

- PAs and ITs have been effective in reducing deforestation, and those supported by AAI have experienced less deforestation than areas not benefitting from AAI support.
- Deforestation alone is not an adequate indicator of performance.
- Grantees report pressures and threats at most sites that are precursors to degradation and deforestation.

Good site-level management should generate measurable impacts on the ground. Deforestation can serve as one important indicator. Figure 10 shows that deforestation has remained low within PAs and ITs across the Biome and that areas supported by AAI have experienced less deforestation than those areas not benefitting from AAI support. In cases where deforestation pressure is great in the immediate surroundings of a PA or IT, it may indicate the area is performing well (to perform this analysis accurately, one must also control for differences in the suitability of the area outside and inside the PA or IT for economic use that would drive deforestation, such as slopes, soil type, and other factors).

Figure 10: PAs and ITs appear to be effective in reducing deforestation, and those supported by AAI have experienced less deforestation than areas not benefitting from AAI support. Source: data from RAISG.



As a case example, Figure 11 shows the eastern border of the Xingu Indigenous Park, where large-scale deforestation in southeastern Brazil has been definitively halted. The threat of large-scale deforestation has lessened because of legal enforcement by the government of Brazil, however ITs remain under pressure from loggers, informal miners, and an increase in fire frequency believed to be the result of changing local climate due to regional deforestation. AAI support to indigenous communities has included enforcement, fire control, management planning, economic alternatives, and advocacy. Indigenous communities here and throughout the Xingu mosaic, including the Kayapó, are committed to protecting their lands and forests.

Figure 11: The border of the Xingu Indigenous Park, an IT in southeastern Brazil, is readily visible as the distinct line between agriculture and forest. Photo: J. Hardner (May 2015).

Away from the deforestation frontier, it is more difficult to measure the effects of consolidation using deforestation data. An AAI-funded study attempting to correlate management (using RAPPAM scores) with deforestation rates proved statistically inconclusive[9]. However, IMAZON (an AAI grantee) recently reported that of the 1.5 million hectares that were deforested in the Brazilian Amazon between August 2012 and July 2014, ten percent occurred *within* PAs, and the vast majority of this deforestation was focused in a small number of PAs characterized by an absence of management plans, management councils, insufficient staff and finance, and that were located in the area of influence of major infrastructure projects that catalyzed pressure for settlement and resource exploitation.

IMAZON warns against relying on deforestation as the sole indicator for assessing the effectiveness of consolidation[10] because it is a lagging indicator of on-the-ground processes that take years to develop. Management needs to be in place and effective long before deforestation becomes a measurable impact. A current example is the deforestation affecting PAs on the *western* side of the Xingu mosaic, the result of processes set in motion years prior. Here, unconsolidated PAs of various categories (Jamanxin National Park, Altamira National Forest,

[9] Nolte, C. A. Agrawal and P. Barreto. Setting priorities to avoid deforestation in Amazon protected areas: are we choosing the right indicators? *Environmental Research Letters*, Vol 8 (1).

[10] Personal communication with Adalberto Veríssimo, Senior Researcher, IMAZON.

Nascentes da Serra do Cachimbo Biological Reserve, Jamanxin National Forest) rank among the most deforested in Brazil today[11]. This understanding of deforestation is consistent with the original logic of AAI -- to establish and consolidate conservation areas well in advance of the arrival of severe threats.

In the course of the evaluation, various other experts cautioned that deforestation should not be the sole measure of PA effectiveness. Adrian Forsyth (former Director of Biodiversity Science for Andes/Amazon at GBMF and a member of the Advisory Committee), stated that it was the original intention of AAI to develop additional measures of success, and not to rely on deforestation as the sole measure of effectiveness. On-the-ground management was intended to go beyond stopping large-scale deforestation and would require mitigating other stressors, including overhunting, because "trees alone do not make viable ecosystems." Indeed, a recent review of the scientific literature commissioned by AAI discusses the need for more direct measures of biodiversity in order to understand the performance of conservation areas. For example, remote sensing of deforestation can indicate that a PA has maintained its forest cover; but underneath the forest canopy, populations of game animals may be locally extirpated due to overhunting. The loss of medium- and large-size mammal populations is a matter of concern for species themselves, but also likely to affect important ecological functions such as forest regeneration over the longer term (and its long-term carbon storage potential[12]).

Therefore, we conclude that useful measures of management effectiveness should include the occurrence of pressures that are damaging in their own right, or that have yet to cause deforestation but may be important precursors. These include *illegal* activities such as artisanal mining, logging, or hunting – symptoms of weak management, and *legal* pressures such as roads, hydropower, mining, and oil and gas development – symptoms of poor advocacy for these areas in regional planning processes and policy-making.

According to RAPPAM data collected from grantees, Brazil's ITs are performing best against external pressures, while Andean ITs are experiencing extensive pressures from multiple sources. PAs in both Brazil and the Andes are reported to be experiencing significant pressures from illegal logging and hunting. Our discussion later in this report on *durability* delves into this further.

[11] Martins, H., M. Vedoveto, E. Araújo, P. Barreto, S. Baima, C. Souza Jr., A. Veríssimo. 2012. Critical Protected Areas in the Brazilian Amazon. Imazon: Belem, Pará.

[12] Bello, C., et al. 2015. Defaunation affects carbon storage in tropical forests. *Science Advances*. 1; e1501105.

Effectiveness of Supporting Strategies

Key Findings

- AAI's support on sustainable finance, monitoring, and mosaic governance has shown good results, but significant work remains.
- Prior work on building institutional capacity within governmental and nongovernmental organizations has helped to strengthen the conservation sector overall.
- Significant scientific uncertainty remains concerning Amazon-wide effects of deforestation.

Sustainable Finance

AAI made significant progress on sustainable finance for PAs, a theme that had been flagged as a major weakness in the previous two evaluations of the initiative in 2005 and 2010. Material progress on finance only began in this last evaluation period, and AAI's role as a convener of other major donors and governments has been crucial.

The most notable achievement has been the establishment of the ARPA-for-Life fund in Brazil. This is a multi-donor agreement with the Government of Brazil that will provide financial support to the PAs within the ARPA network. The level of financial participation of the government will rise incrementally each year until it has taken on the full cost of managing the PAs in 25 years.

AAI is in discussions with other donors and governments on the establishment of similar funds in Peru and Colombia. In Peru, initial cost projections have been completed and donors have begun discussions with government. Sources in Peru involved in the fund's creation are generally optimistic about the ability to raise the necessary funding. In Colombia, work is in earlier stages, but signals from government and donors are encouraging. In the case of Colombia, we view institutional capacity to implement such a fund to be strongest.

It is important to highlight that national funds for PAs will not support all areas. They will exclude all ITs and those PAs that are not part of the national protected areas systems (or, in the case of Brazil, not within the ARPA network). The excluded areas may ultimately represent the majority of AAI's portfolio, therefore much more remains to be done to ensure that all sites have sustainable financing.

One example of an effort complementary to national trust funds is in Brazil, where AAI is supporting state governments to set up funds to administer environmental compensation fees paid by developers. Environmental compensation is required under the protected areas law, and requires investment in protected areas by any entity seeking environmental permitting for projects with a significant environmental footprint. Any progress on this front should be considered a win for conservation, since the administration of fees paid under this law have been in limbo for years due to legal challenges and bureaucratic red tape. These funds will be directed to state-level protected areas. They will be most significant in states like Pará where there are large-scale developments (e.g. major hydropower projects) versus states with few such developments, such as Amazonas or Amapá.

Environmental compensation legislation is now in place in Peru, although the guidelines for its implementation have yet to be promulgated. Opportunities may exist to promote the use of this

funding in areas not covered by the proposed national protected areas fund, including regional PAs and possibly ITs.

Public Policy, Governance and Land Use Planning

Since the beginning of AAI, grants have been made to support the development of public policy favorable to conservation. AAI invested US$ 19 million over its lifetime in grants tagged to the Public Policy strategy, and has supported very influential work at the national level by grantees such as IMAZON in Brazil, Sociedad Peruana de Derechos Ambientales (SPDA) in Peru, and Conservation Strategy Fund. Today, government officials name AAI grantees directly as being influential in formulating public policy. For example, IMAZON has had a significant impact by publishing information on illegal deforestation in Brazil. In Peru, SPDA has been instrumental in the development of new legislation related to conservation and has facilitated the expansion of private protected areas.

In 2013, AAI began to support strategic land use planning. This has taken different forms, and advanced at different rates in the various mosaics. Probably the most complete realization of mosaic-scale planning thus far has occurred in the Chiribiquete-Caquetá mosaic in Colombia. As the peace process in Colombia advances, areas that were previously too dangerous to settle are now opening to new land uses. Unfortunately, government institutions are very weak and the ability to plan and manage land use change is limited. AAI grantees have supported local governments in developing plans and capacity to address this issue. In Peru, AAI supported a significant increase in government capacity in Loreto via the creation of a regional protected areas agency (PROCREL), and in Amazonas, after initially supporting the creation of a state protected areas agency, AAI now supports NGOs that assist the state and serve as public advocates for regional planning. In Bolivia, AAI has funded grantees to work with municipalities, who now view PAs and ITs favorably, and recognize their role in generating social, environmental and economic benefits.

Monitoring & Management

AAI has made substantial progress in supporting the monitoring of PAs and ITs. In theory and increasingly in practice, this monitoring will inform management decisions. Countries where notable progress is occurring include Colombia, Bolivia, Peru and Brazil.

In Colombia, an AAI-supported national forest cover monitoring system, managed by Instituto de Hidrologia, Meterorologia y Estudios Ambientales (IDEAM), is now fully functional and appears to be informing management decisions at the national level. Additionally, AAI has supported the expansion of biodiversity monitoring capacity within the national protected areas agency.

In Bolivia and Peru, AAI is supporting efforts to implement site-level monitoring of threats and key species at pilot PAs and ITs, and is working with government agencies in both countries to roll out this experience to more sites and/or to the system level. Grantees are experimenting with the SMART[13] tablet-based monitoring software which shows promise for standardizing data input

[13] http://www.smartconservationsoftware.org

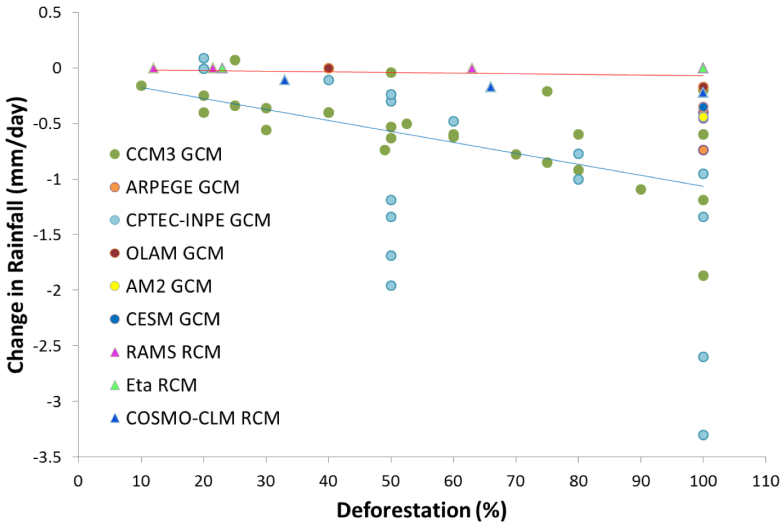
and rapidly compiling and analyzing the results of monitoring, providing an almost real-time feedback for management.

In Brazil, AAI has supported several types of monitoring, including technical support by WWF in the implementation of periodic protected areas monitoring using the RAPPAM framework, and in the development of standardized site-level biodiversity monitoring protocols that can be implemented by locals and uploaded into a national database. This approach addresses two important issues: keeping costs reasonable, and supporting a sense of local participation and ownership in PAs. Pilot areas have concluded initial trials of these protocols, and the plan is to expand the number of areas participating in the system.

Science

Key areas of scientific uncertainty related to AAI's strategy in the region include: the forest cover threshold required to maintain hydrologic function of the Amazon Basin (Figure 13); the response of tropical forests to elevated $C0_2$, temperature and fire regimes; and the relationship between the level of investment in protected area consolidation and the resulting retention of biodiversity and forest cover at different levels of threat.

Figure 12: Model predictions of the impact of different deforestation levels on basin-wide precipitation in the Amazon show large variation. The red line is the trend for regional climate models, and the blue line is the trend for global climate models. There is still tremendous variation in model predictions and this variation prevents the identification of a forest cover threshold required to maintain hydrologic function. Some critical model parameters, such as the photosynthetic response of tropical forests to elevated temperatures and $C0_2$ levels, are currently unknown. (Source: Lawrence, D. 2015. Summary assessment: deforestation and climate in the Andes-Amazon region. Unpublished report for GBMF.)



GBMF has recognized the importance of addressing these types of scientific uncertainty since AAI's inception, and AAI has made some excellent science grants[14]. These include:

- The inter-model comparison of climate model/vegetation model predictions for the Amazon (Harvard Climate Modeling Consortium);
- Development of remotely-sensed LIDAR-based approaches to map forest carbon stocks (Carnegie);
- Development of methodology for the IUCN Redlist of Ecosystems and its application to the Amazon (IUCN); and
- Impacts of fire on dry forest ecosystems (Woods Hole).

However, science grants really only received the attention they deserved between 2010-2012, when AAI had a science lead. During this period grant making proactively sought to address some of the key uncertainties that would ultimately influence the success of AAI's efforts across the basin. These grants generated promising results, but require follow-up studies. AAI eliminated new science grants for the 2013-2016 ISR in the expectation that the initiative would be closing. A renewed AAI commitment should include a strong science portfolio.

Capacity Building

From 2001 through 2012, AAI provided targeted support to scientific, academic, technical and institutional capacity building across the region. Approximately 40 grants were awarded totaling c. US$ 27 million, with c. US$ 10 million each directed towards professional training and academic programs, and the remainder to institutional strengthening of government agencies and NGOs. In 2013, capacity building was eliminated as an explicit strategy, but was retained as an integral outcome of many grants. AAI recognizes that ensuring the durability of gains it has made ultimately depends on the existence of strong local NGOs and government agencies.

AAI's support to academic programs has yielded good results, with high graduation rates and graduates returning to the Amazon to work on biodiversity conservation, often for AAI partners. Similarly, investments in institutional strengthening of NGOs have had good return and retention within civil society. Efforts to strengthen government agencies and staff also have made important strides (e.g., PROCREL in Loreto), however these gains tend to be less durable due to the frequent changes that occur in relevant government agencies.

The need for capacity building is very great, and government and NGO capacity remain among the most important limiting factors across the AAI portfolio.

[14] Note that some grants were transferred to the Environmental Conservation Program.

Potential Durability of AAI's Gains to Date

Key Findings

- The gains made to date across various consolidation criteria are projected to be durable for most PAs, but not for Brazilian ITs.
- Future threats to AAI's legacy protected areas are projected to be widespread which may result in significant impacts given the lack of full consolidation of most sites and therefore high vulnerability.

We evaluated the durability of gains made by AAI's grantees in two ways. First, we analyzed the likelihood of sustaining gains in various consolidation criteria. Second, we evaluated how vulnerable sites are to future threats, which is especially important given the current gaps in consolidation.

Durability of Consolidation Gains

We assessed durability by asking grantees directly how robust the gains in PA and IT consolidation achieved to date will be over the next five years if no further AAI support is provided. Figure 13 shows that gains in consolidation are expected to be relatively durable for most limiting factors, with the notable exception of Brazil's ITs which fall back dramatically. Figure 14 shows stability in RAPPAM scores for Brazilian PAs, while scores are expected to recede in the Andean PAs without further AAI support.

Figure 13: Durability of consolidation gains, as measured by expected changes in limiting factors over the next five years assuming no further support from AAI, based on data provided by grantees

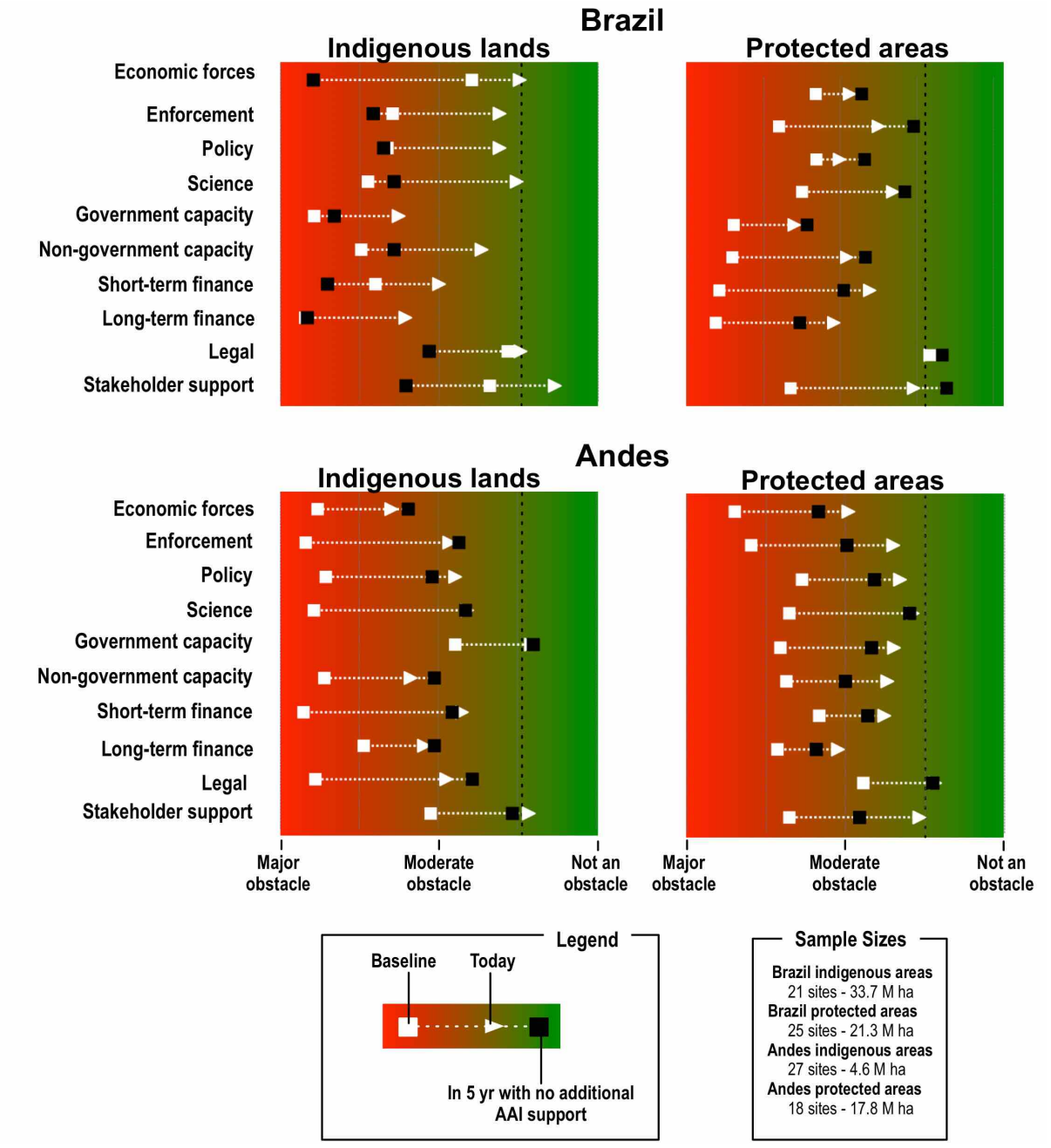


Figure 14a: Durability of Brazil's consolidation gains, as measured by expected changes in RAPPAM scores over the next five years assuming no further support from AAI, based on data provided by grantees

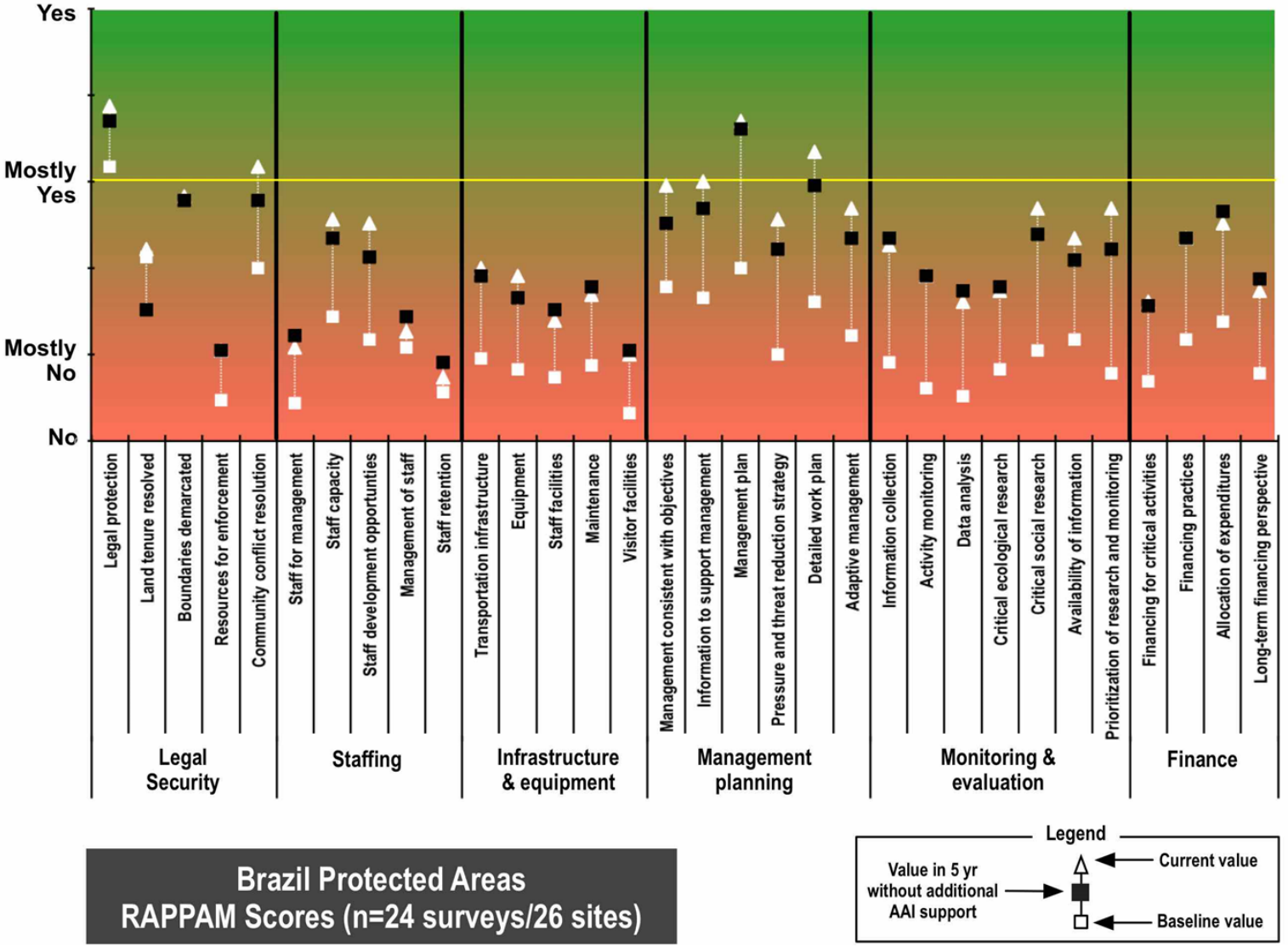
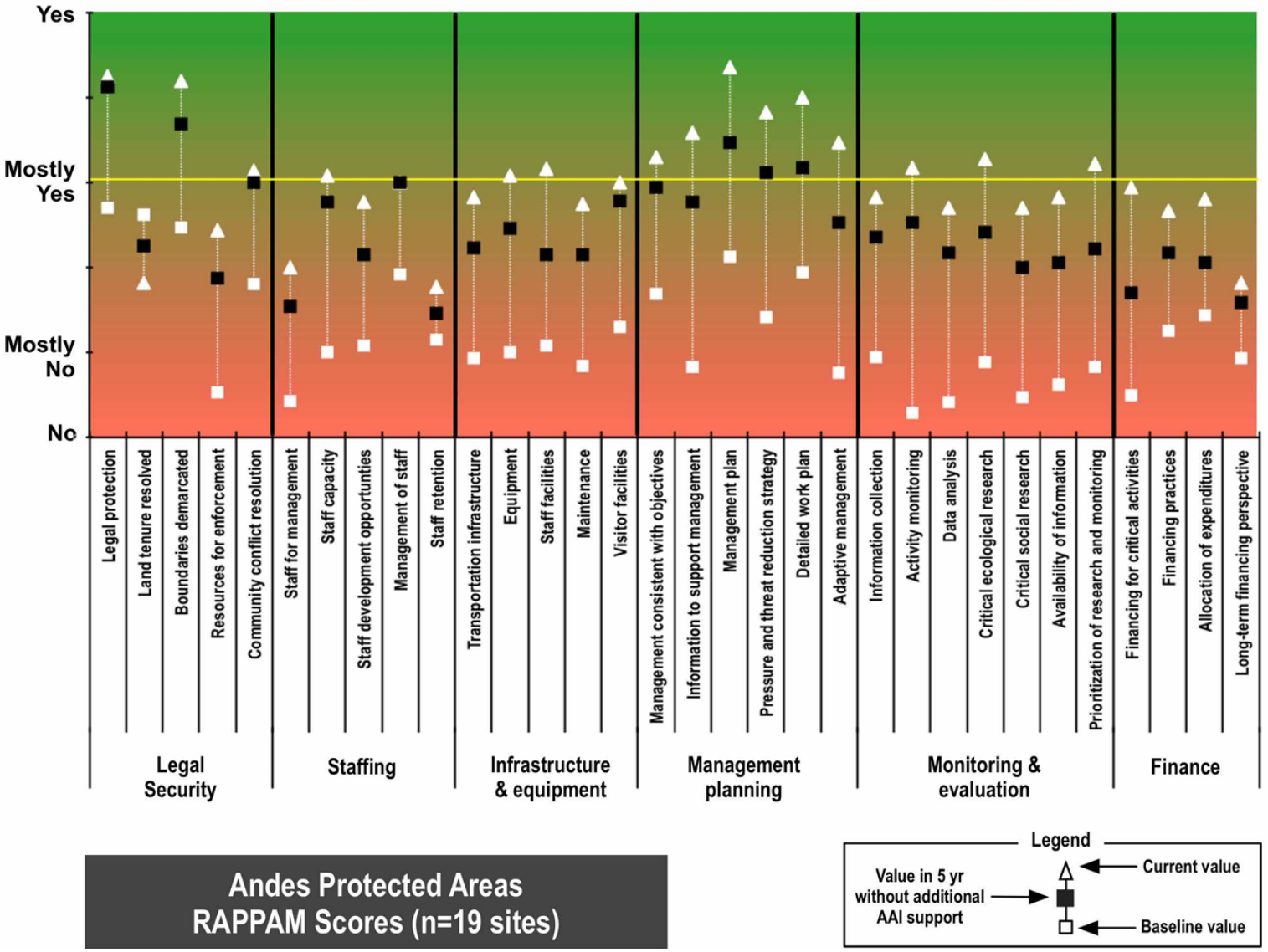


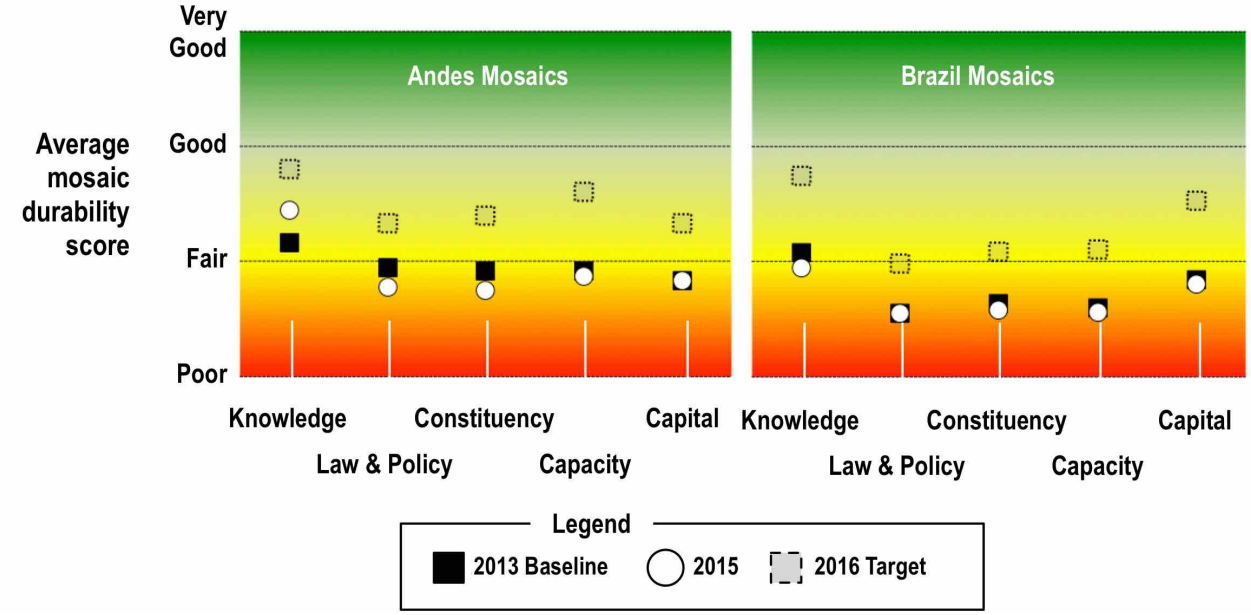
Figure 14b: Durability of consolidation gains in the Andes, as measured by expected changes in RAPPAM scores over the next five years assuming no further support from AAI, based on data provided by grantees



Durability of Protected Areas Given Potential Future Threats

AAI's M&E system measures the "durability" of mosaics using a series of factors that complement site consolidation criteria and include: supportive law and policy; constituency for conservation; institutional capacity; conservation funding; and, knowledge required for management. Figure 15 shows that durability scores are generally low, in the range of 2, a status which the AAI monitoring and evaluation system describes as "compatibility with conservation is limited; state of factor may impede conservation and requires significant improvement."

Figure 15: Durability measures at the mosaic level indicate conditions may impede conservation, based on data provided by AAI



According to AAI's M&E system, illegal and legal threats are widespread in the mosaics where they operate (Figure 16). AAI bases these estimates on field visits, interviews, and a series of GIS studies funded by AAI to map various pressures and threats.

To validate AAI's threat assessment, we surveyed grantees directly about future threats at their sites using RAPPAM (Figure 17). The survey results confirmed that there are considerable threats posed to the areas, albeit less extensive than AAI's estimates (this may be due to the fact that AAI's assessment includes PAs, ITs, *and* the non-protected lands immediately between and around them, while our survey includes only the areas within the PAs and ITs.)

Additional validation comes from the international consortium, RAISG, which has developed a striking set of maps showing the overlay of pressures on PAs and ITs across the Amazon. The results indicate that *every* existing PA and IT is threatened by at least one of the following: hydropower development, mining, oil and gas, fire, roads, and deforestation (presumably for cattle or agriculture). Figure 18 is a summary map of the threats.

Figure 16: Future threats to AAI's mosaics, based on AAI monitoring data

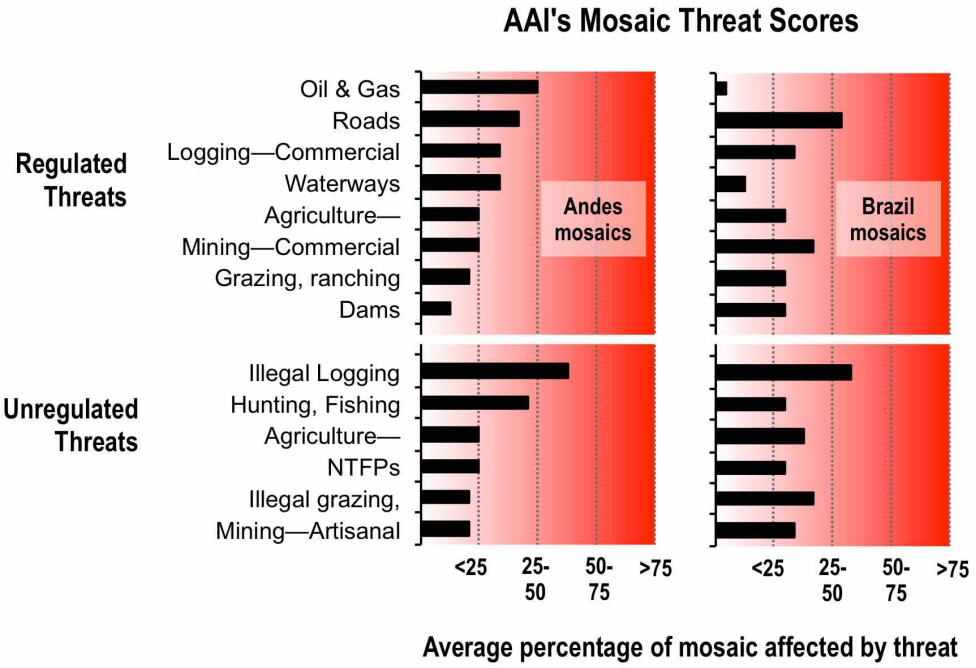


Figure 17: Future threats to AAI-supported areas, based on data provided by grantees

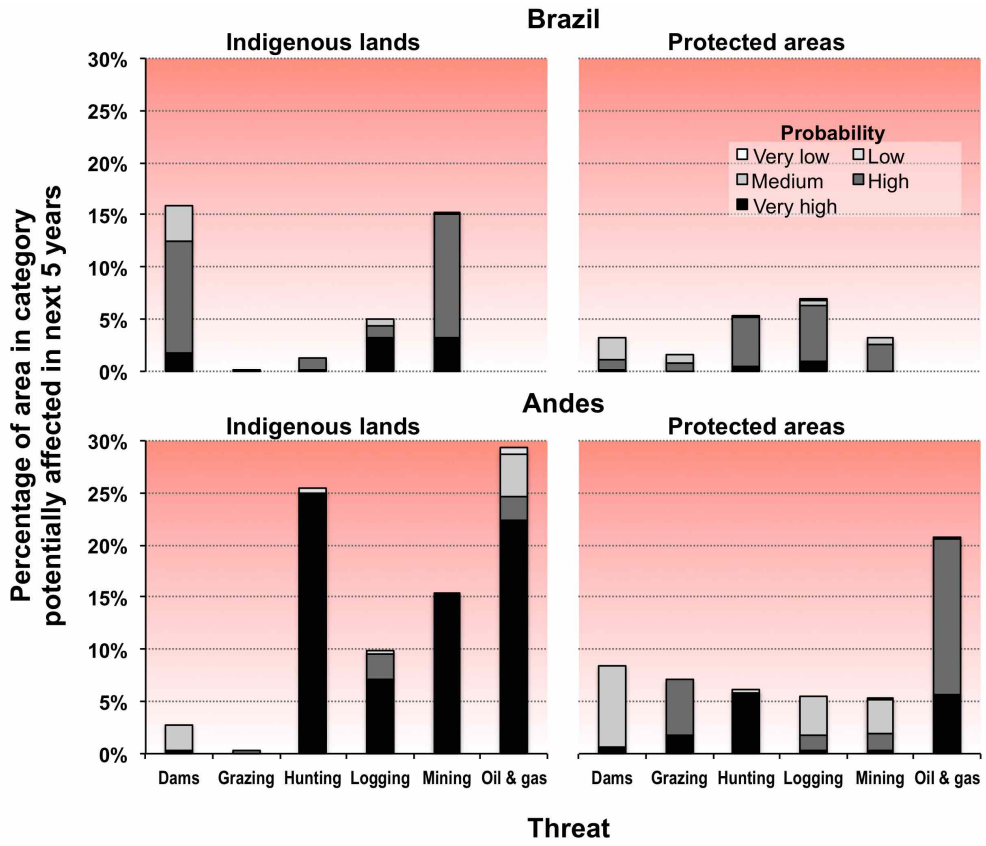
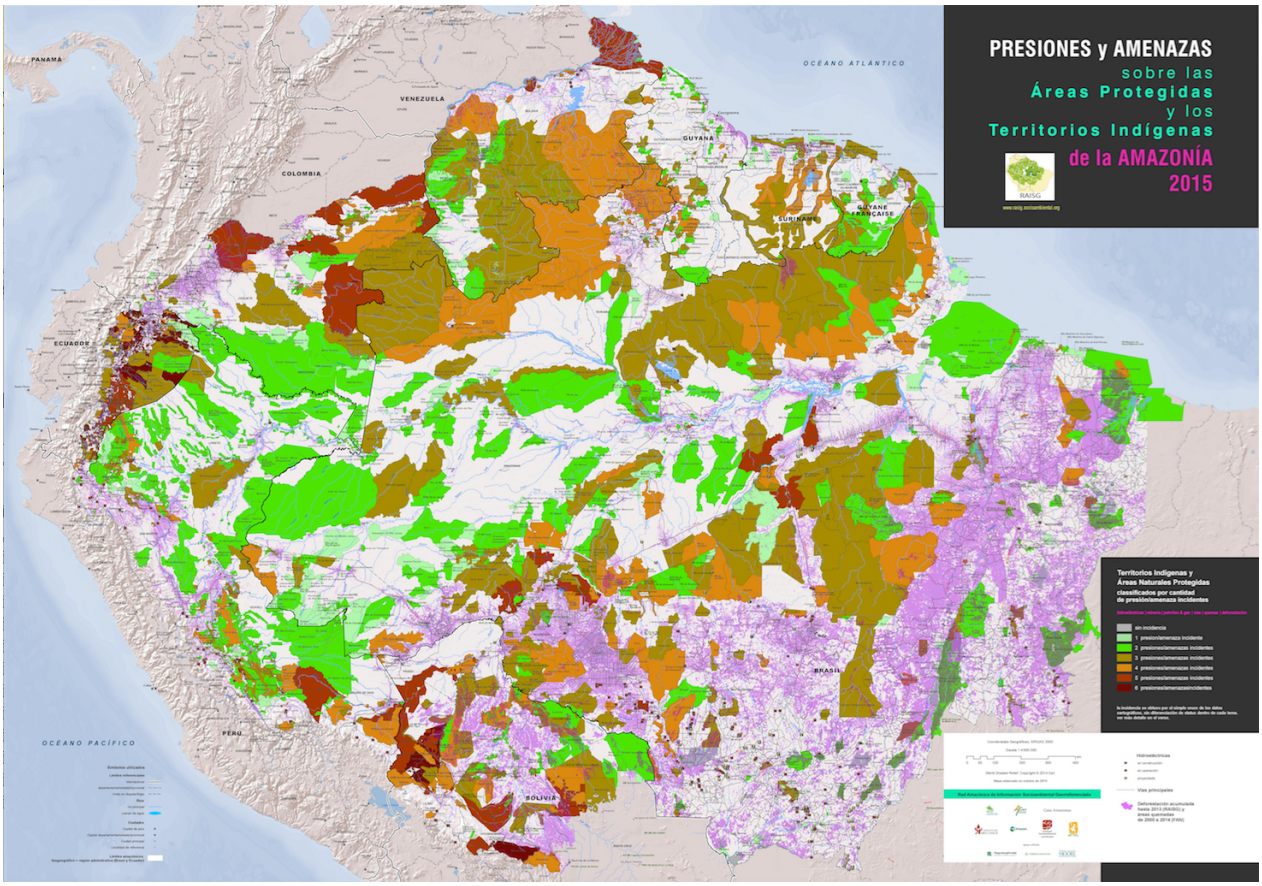


Figure 18: An assessment performed by the international consortium, RAISG, shows how threats affect all of the existing PAs and ITs in the Amazon. Source: RAISG. 2015. *Pressures and Threats to Protected Areas and Indigenous Territories of the Amazon 2015*



There is a great deal of concern, especially in Brazil, that public policy is shifting away from conservation and protection of PAs and ITs, as political constituencies that represent economic interests gain influence. Examples include recent controversies over hydropower and road development affecting PAs, and proposed legislation to weaken the recognition of ITs (PEC 215). This is compounded by a serious economic recession in Brazil, which is resulting in government budget cuts. The situation is starkly apparent in the State of Amazonas (AAI previously assisted in the establishment of the state's 18 million hectare protected area system), where staff and budgets for protected area management have been cut by over 30%.

PAs and ITs are currently effective at reducing large-scale deforestation where legal status and protections are in force. However, future durability will depend upon addressing current pressures and future threats facing all of the PAs and ITs in AAI's portfolio. Finally, it is worth noting that current legal protections in place are not necessarily permanent – as political winds shift over time, strong constituencies for conservation will be necessary to defend the legislation that protects existing PAs and ITs.

Factors Affecting AAI's Performance

AAI's early years occurred during a period of enthusiastic political support for conservation in Latin America, especially in Brazil and Peru. This movement resulted in one of the most significant waves of PA establishment in world history, accompanied by substantial improvements in institutional capacity for conservation within governments and the NGO community. Today, global donors show more interest than ever in conservation in the Amazon, including the notable *quid pro quo* payments made by the Government of Norway for reductions in deforestation. Additionally, the international community is paying ever more attention to the needs of indigenous peoples.

Over its lifetime AAI has shifted out of countries with unfavorable contexts, such as Venezuela, Guyana, and Suriname (although it was able to ramp up in Colombia at the same time), and scaled down activities in Bolivia. Today, public policy regarding PAs and ITs is ambiguous in Brazil.

It is unquestionable that these external factors have influenced, and will continue to influence, AAI's success. This should be expected given the nature of AAI's ambitious goals - it would be naïve to assume that conservation at this geographic scale could be undertaken in isolation from larger political and economic forces.

There are, of course, many factors that have been within the control of GBMF and have affected AAI's performance. We enumerate below the major issues that have come to our attention over the course of the three EIEs.

Factor #1 – Vision and Commitment

The most significant positive factor has been the long-term vision and commitment of GBMF's Board of Trustees with regard to achieving the ambitious goals of AAI. We are aware of no other conservation donor that so steadfastly maintains such a focused commitment. Most donors arbitrarily set time and resource commitments that are generally too short or too small to achieve ambitious goals and are forced to walk away from incomplete work.

Factor #2 – Flexibility

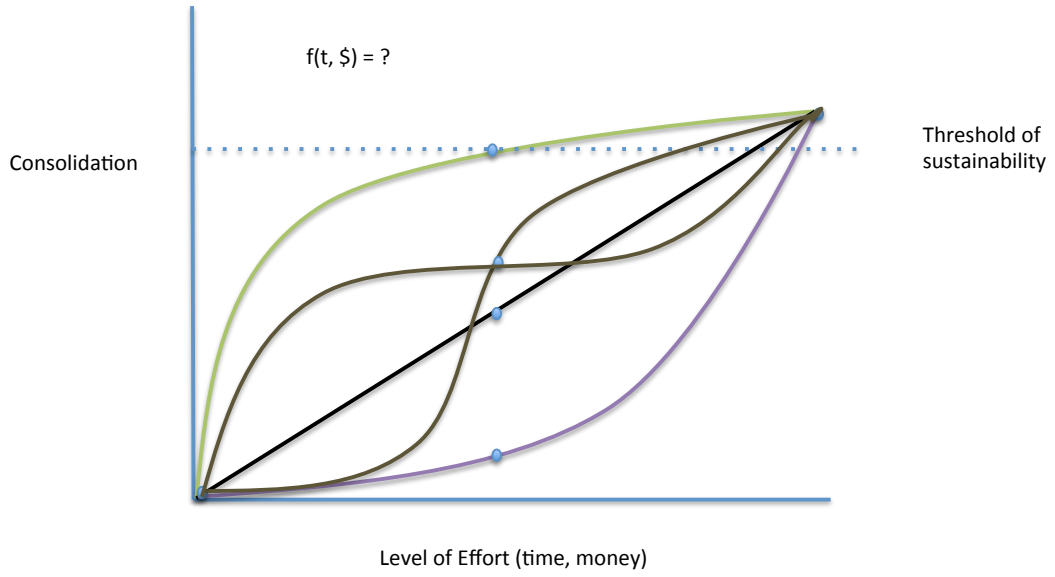
Without exception, during the three AAI evaluations we have conducted, grantees have stated that the most important aspect of an AAI grant is the flexibility to do what is needed to get the job done. Other donors tend to be very restrictive and require tight compliance with detailed plans, regardless of external changes that affect the project or opportunities that arise to achieve outcomes using alternative means.

Factor #3 – Critical Path of Consolidation

The over-arching design and implementation issue that has affected AAI since the outset has been the absence of a critical path analysis for consolidating the PAs and ITs in its portfolio. The problem is compounded by the lack of systematic data collection to support an analysis that would shed more light on this issue. A "consolidation curve," as a function of time and money

invested in a site, may take a range of forms (Figure 19). It remains to be determined whether progress on consolidation in AAI's portfolio is constant, slowing, or accelerating. Based on the existing data we have analyzed, there is no basis for stating that it is one or another. More likely, it is site-specific and the AAI portfolio includes areas represented by each of these descriptions.

Figure 19: The functional form of the "consolidation curve," which as yet remains undetermined, describes how gains can be anticipated from the expenditure of time and money in the consolidation of PAs and ITs. If it is the black line with a constant slope, every increment of additional time and money is equally beneficial. If it is the green logarithmic curve, PA or IT establishment and early investments in management provide the largest gain towards consolidation, after which progress is slow in resolving remaining limiting factors, as may be the case in more remote areas. The purple exponential curve describes little benefit from establishing an area without complementary progress on other limiting factors, such as institutional capacity to perform management, as may be the case for areas on the frontier of deforestation. The inner "s" curves may be representative of other scenarios with multiple inflection points in the process of consolidation.



Factor #4 – Monitoring and Evaluation

AAI has performed admirable work to develop an M&E system during this most recent evaluation period. Unfortunately, it has come late in AAI's life and allowing so many years to pass without such a system did damage. It is our perception that decision-making was challenged for years by the lack of M&E data. The valuable contribution that data from AAI's Internal Tracking Tool made to this evaluation and to the Trustees' understanding of where AAI currently sits in relation to its goals illustrates the type of impact that an M&E tool could have made over the last 13 years.

Factor #5 – Theory of change for ITs and Extractive Reserves

The AAI portfolio is diverse and *cannot* be viewed as a collection of conventional national parks, all with similar consolidation needs and timelines. ITs and multiple use areas known as *extractive*

reserves are inhabited. A major advantage of ITs and extractive reserves is that they have local constituents prepared to protect their own interests by defending the areas from external pressures. The flipside is that their success depends on the viability of those communities and how they manage their resources over time. The important takeaway is that to work with extractive reserves and ITs, a theory of change is needed that is distinct from conventional PAs. AAI has accommodated this via its grantees' diverse approaches, but the character and magnitude of the differences between categories of sites is not fully reflected in AAI's planning.

Factor #6 – Sustainable Finance

AAI did not address the issue of sustainable finance in a meaningful way until this last evaluation period, which has forced the initiative to play catch up on an extremely challenging issue. AAI supported a remarkable achievement in the establishment of a long-term financing mechanism in Brazil, ARPA-for-Life, and supports establishing similar mechanisms in Colombia and Peru. Additionally, AAI has supported the establishment of state-level funds in Brazil that utilize funding from the environmental compensation fees paid by developers. Nonetheless, more than half of the areas in AAI's portfolio, including all ITs and a significant portion of PAs, will not benefit from national funding mechanisms in Brazil, Peru and Colombia. Therefore, additional strategies will need to be developed to find long-term support for these areas.

Factor #7 – Governance and Planning

A significant addition to AAI's strategic approach has been to emphasize regional planning. This has evolved at a different pace for each mosaic. The mosaic governance approach is a more focused version of its former strategy on public policy, in many cases seeking to affect specific policies, plans, or decisions. As for its implementation, there are opportunities for AAI to improve its effectiveness through greater investment and the inclusion of a broader group of stakeholders, namely project financiers and the professional community that performs strategic environmental assessments and environmental impact statements.

Factor #8 – Role of Science

During the last evaluation period, AAI curtailed investments in science. As discussed earlier, AAI set out to support efforts that would maintain the hydrologic function and biodiversity of the Amazon Biome via large-scale forest conservation, however the scale and geography required to accomplish this goal are still not known. AAI could have firmer conservation targets based on better science.

Factor #9 – AAI Team

AAI's current team is excellent. They are widely respected by government officials, conservation organizations, grantees, and other key stakeholders. Their experience, relationships, and strength of character make them very effective in the field.

Looking Ahead

How Best to Sustain Gains – Recommendations for AAI

The original AAI plan was ambitious and the foundation supported it with a generous long-term commitment. The initiative came at a fortuitous moment when, especially in Brazil, governments were amenable to the establishment of vast expanses of PAs. Combined with existing and new ITs, the total area of conservation now covers 56% percent of the original forest cover of the Amazon (355 million hectares).

The rapid establishment of protected areas was not the end point in AAI's original plan. The plan's authors realized that a short window of opportunity existed for legal establishment of these areas before land use pressures became too great. The more substantial task for AAI was to consolidate the management of existing and new PAs and ITs, which was recognized to require years of effort.

Progress on consolidation is apparent throughout the AAI portfolio. However, AAI will need more time to achieve durable consolidation results.

The following recommendations may help to guide AAI's future efforts.

Recommendation #1 – Continue to invest in current portfolio sites

The evaluation results clearly show that the PAs and ITs in the AAI portfolio are not consolidated and that more work will be necessary to ensure that the gains achieved thus far endure. As this evaluation came to a close, the Board of Trustees provided a clear message to management that AAI should continue working towards a goal to consolidate its portfolio of PAs and ITs. It is our view that this decision is consistent with achieving meaningful impact and will be widely regarded by the global community as a wise choice. At the same time, AAI must continue to work towards developing a better understanding of the time and money that will be required to complete this ambitious undertaking.

Recommendation #2 – ITs are key to AAI's success and require a dedicated theory of change

ITs comprise half of the total area supported by AAI (and over half of the area considered protected in the Biome), and as such, the effective management of these sites is essential. Many indigenous communities are at crossroads as they come into ever more frequent contact with illegal miners, loggers, and others seeking to exploit their land and other resources. Failure to assist these communities to sustain their internal organization and to protect their resources now will preclude options for conserving ITs in the future. Consolidating these areas will require a long-term commitment to assist the communities in a variety of ways. A dedicated theory of change for consolidating these areas must be developed and a realistic plan should be presented for achieving AAI's goals.

Recommendation #3 – Support designation of additional ITs

A substantial area of the Amazon is occupied by indigenous peoples but still not officially recognized as indigenous territories. AAI should seek opportunities to support the legal and

political processes necessary to complete these land designations. Significant opportunities still exist in Brazil, Peru, and Bolivia.

Recommendation #4 – A blend of system and site-level interventions is required for consolidation

AAI's theory of change for site consolidation should continue to recognize the need for a blend of system- and site-level interventions to address the range of needs of AAI's portfolio sites. For example, there are few options for supporting ITs via systems-level interventions – NGOs with expertise in working with indigenous communities will be required to work at the site-level. In the case of PAs, there are notable shortfalls in institutional capacity, not least of which is seen in Brazil where staffing is legally constrained and will likely never take on the community-level engagement necessary to consolidate extractive reserves. Again, NGOs capable of working at the site level with PA managers and communities are badly needed. AAI already supports a number of excellent NGOs that perform this work, and this should continue.

Recommendation #5 – Continue to promote sustainable finance mechanisms

AAI's support for the establishment of national and sub-national funds to support protected areas should continue. In addition, there are opportunities to leverage the global funding flowing to the Amazon by working more closely with the Government of Norway and the Brazilian development bank BNDES, which has disbursed US$ 1 billion to Brazil, and has approved a follow-on commitment of US$ 600 million to be disbursed over the next 5 years.

Finally, it is important to note that additional strategies will be needed to find long-term support for ITs, as well as for PAs not covered by national funds.

Recommendation #6 – Expand engagement on regional planning

It is our perception that further opportunities can be pursued in regional planning. One opportunity is to engage more directly with other communities of practice involved in large-scale project development (e.g. roads, dams, mines). For example, the International Association for Impact Assessment is a network of practitioners of environmental impact assessments, financial organizations, and government regulators. They recently hosted a symposium on sustainable infrastructure in Latin America, where a range of experts addressed issues directly relevant to AAI's planning and governance work[15]. AAI and its grantees could participate in similar events and engage this community directly.

Recommendation #7 – Continue use of AAI's monitoring and evaluation system

AAI has made *great* strides in measuring its performance. It now has a fully operational monitoring and evaluation system that allows for tracking its progress at the site and mosaic level. We recommend that AAI continue to use this system. It can also provide the base of information

[15] http://conferences.iaia.org/panama/

needed to eventually develop a generalizable model of the costs and time required to consolidate protected areas and indigenous territories.

Recommendation #8 – Renew investments in science

Scientific uncertainty remains high regarding the key issues that drive the program, namely the threshold of forest cover required to maintain normal hydrologic function of the Amazon Basin and the potential implications of climate change for the Amazon Biome.

AAI should resume science grants to reduce uncertainty about the response of forests in the Amazon Biome to climate and land use change, and ensure that this improved understanding informs decision-making at GBMF and influences national and international conservation strategies for the Amazon.

Learning from the first 12 years of AAI

While significant work remains to ensure the long-term viability of Amazonian PAs and ITs, the gains made to date may represent the greatest conservation advance in history. There is no doubt in the minds of government agencies, nongovernmental organizations, academics, funders, or local groups that AAI has made a vital and significant contribution to that advance.

The success of AAI, as well as the internal and external challenges it has encountered, provide valuable learning not only for the initiative itself, but also for the foundation as a whole and the donor and NGO communities beyond. First, AAI demonstrated the value of genuine commitment. To back up its enormously ambitious plan, the foundation allocated a significant amount of funding and an adequate amount of time to effect real change. Solving problems of a "generational scale" requires patience and tenacity.

AAI's experience also has shown the value of staying consistently focused on core business. While strategy was a topic of internal debate during much of AAI's life, by and large the initiative stuck with the heart of its work—advancing the establishment and improved management of PAs and ITs —and it was there that it had its greatest success. Where detours were made into strategies like REDD and mitigating the drivers of deforestation, this and past EIEs could discern less meaningful or enduring impact. In many cases, these movements away from AAI's core plan came at a cost in terms of efficiency, continuity, and human resources.

There are no "silver bullets" or "solitary solutions" in conservation. There are many barriers to achieving environmental change, with tremendous interdependencies that involve a multitude of actors. Single strategies, particularly those led as a solitary charge, will not be sufficient to generate meaningful and lasting outcomes for forests, biodiversity, and the services they provide to human kind. Rather, conservation initiatives must seek to address the full suite of limiting factors, either on their own or, more often and more effectively, working in close concert with a wide and diverse array of other actors.

Finally, there is no question that AAI's impact in the Amazon can first be attributed to the scale of funding provided. Even considering bilateral and multilateral donors, GBMF was the third

largest conservation funder in the region for the past dozen years. However, beyond the sheer amount of funding, grantees and other stakeholders highlight the critical importance of AAI staying true to the comparative advantage of its funding model, which allows the flexibility needed for grantees to adapt and respond to changing contexts and opportunities and the long time horizons needed to change minds, policies, legal designations, and, most importantly, behaviors. These characteristics are atypical in the conservation funding community today, which tends to adhere to more traditional funding models of short time horizons, close adherence to restrictive plans and comparatively small grant sizes. As a result, AAI's funding has been viewed as a critical and almost irreplaceable complement to other donor funding, large or small.

As GBMF goes forward with its work in the Amazon and beyond, we would encourage it to keep in mind these lessons from the Andes-Amazon Initiative's experience. Committing to a goal (even one that requires a very long time horizon), staying focused on core business, not getting caught up in "silver bullet" solutions, and leveraging the comparative advantage of its unique funding model were critically important factors in the foundation's success in the Amazon and, we believe, can drive its success in the future.