

**The Geopolitics of the Brazil's Amazonian Border**

**P.S.**

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**Abstract:** This thesis takes an in depth look at the geopolitical drivers behind Brazilian military policy and development along the Amazonian border. Background on past Brazilian policies and interests along the border combined with current regional initiatives help ground this thesis's argument that reduced border development and stronger engagement with international concerns are better for all parties involved. Interests explored include border tensions, impacts of Brazil's western military philosophy, past regional initiatives and the ecological impacts of roads in the tropics. The frameworks of Political Ecology and Military Science are combined to provide a unique lens through which to analyze current borderland dynamics.

**Keywords:** development, geopolitics, military science, security, roads, borders

**Introduction:**

The days of national security concerns being bound by geographic locality are long gone, replaced by intervention minded multi-lateral organizations, NGOs with influence surpassing some countries and aggressive military force projection strategies. Along with traditional nation states, these institutions must all navigate the complex global dialogue attempting to address global economic and environmental issues. The degradation of the Amazon and its effect on the global environment is a primary subject of this dialogue and Brazil has taken notice. Challenges to the geopolitical control of the Brazilian Amazon by these multi-level actors have only served to increase Brazilian assertion of its own influence in the region. Efforts to establish control over the Amazon by Brazil date back the Monarchy of 1621(Ryan 1993) and have continued on to today. This long standing effort of establishing regional control has developed into a geopolitical way of national thinking, still promulgated in today's Brazilian geopolitics

**Proposal:**

Internationalization of the Amazon by governments and NGO's under the altruistic guise of universalist idealism such as human rights and ecological preservation has been an evolving political fear of Brazil since the establishment of "A New World Order" with the end of the Cold War in the 1989 (Filho and Zirker 2000) While many countries lauded the "New Order" as a quickly arriving era of international peace, Brazil saw this talk as a diplomatic power-play by global superpowers to continue their influential dominance through political means. That suspicion has helped spur political and military paranoia about how to properly maintain control of the Brazilian Amazon, specifically the North and Northwest regions. Initiatives such as Calha Norte, a settlement based plan to increase force projection along the majority of the Western Brazilian border and recently 428USD of national funds appropriated for military force increases and modernization in the Amazonian border region effectively show Brazil's determination to maintain regional influence (Ryan 1993; JP 2010). In my paper I ask the questions: How has Brazilian paranoia over geopolitical interventionism in the Amazonian border area affected regional military policy and action? Has prioritization of military force projection led to the neglect of ecological impacts that accompany the buildup of transportation infrastructure?

As global interest amongst both state and non-state actors concerning the environmental well-being of the Amazon increases as well as international initiatives to curb narcotics trafficking, Brazilian suspicion of these initiatives and ulterior, interventionist motives behind them also increases. Brazil's threat perception of Amazonian internationalization finds a focal point with the U.S.'s policy of battling drug narco-guerillas in the Andean region. Nationalist perspectives create political pressure to exert influence over the area through means of increasing Brazilian military presence (Filho 2005). Brazil is no stranger to military involvement along their Northern and Western borders. A long history of Brazilian academics, military strategists and political figures has viewed the Amazon and its abundant resources as Brazil's road to '*grandeza*' (Ryan 1993). Brazilian paranoia over the internationalization of the Amazon stretches beyond its own borders. Fear that the U.S. might further its own agenda through military presence in Colombia and Peru is deep seated, and for good reason. In 2010 the U.S. announced its plan to create seven more military bases in Colombia in addition to its already extensive network of South American military bases (JP 2010). Post Cold War suspicion over U.S. desires to influence regional geopolitics began in 1989 with President George Bush Sr. declaring the largest threat the U.S. facing as drugs and his announcing of an Andean Initiative with the goal of combating drug trafficking abroad rather than prevention at home. With this came a narrowed focus on SOUTHCOM, the U.S. Military's force command for all of Central and South America as well as increased aid to Colombian forces to the tune of 2.2 billion USD\$ and a largely expanded role of the Department of Defense and CIA in the region. (Tate, 2001:46). The U.S.'s expanding role in South America with the stationing of a significant military presence only served to unsettle Brazilian internationalist thinkers even further (Filho 2005). It is actions like this, specifically U.S. actions that this paper proposes incite more and more geopolitical power jockeying in the Amazonian border region which in turn requires development to accommodate the military units used in these assertions of influence along the Amazonian border.

These Brazilian national security and defense concerns are pertinent to the theme of road and rail in that you cannot have proper military control of an area without the ability to mobilize force in a timely manner. Since the importance of borderland security to Brazilian geopolitics is apparent, and the plans to station more military units are public, the roads necessary to sustain these units must follow. Military colonies cannot sustainably survive without proper connection to core markets and the central state (Salisbury et al. 2010). These

roads cause forest fragmentation resulting in a loss of bio-diversity and potential use by groups focused on timber extraction, both of which are two main drivers of global environmental concerns for the Amazonian area. Brazil's focus on the Amazon as an intrinsically threatened land of national importance is in direct contention with the NGO's, guerilla's and all other non-Brazilian groups that may show interest in the area in a manner which does not fit with the military's regional ambitions of complete sovereignty.(Zirker 2005).

In this paper I frame the sources available on Brazilian geopolitical interest concerning the Amazonian border lands, specifically the national security policies and international tensions present, through a political-ecology and military science framework.

Sources such as Joao Roberto Martins Filho "The Brazilian Armed Forces and Plan Colombia." Along with Filho's other works provide insight into just how entangled the military and regional policy are through an in depth look at Brazilian policy in reaction to efforts by outside variables to influence regional policy in the Amazon. The international relations framework through which these papers are written provide a solid understanding of the ways in which Brazilian institutions go about creating and enacting policies and the international variables that are considered. They effectively articulate Brazilian concerns over the Amazonia region in a strategic manner that combined with the external policies and public releases from the Minister discern Brazilian national concerns. After a general analysis of the regional geopolitics, Filho's papers become narrowly focused on the U.S.'s policy of combating drug trafficking and forgoes other international pressures being exerted on the area such as ecologically minded NGOs which are of as equal concern in this paper. Another important source for establishing the military science aspect of this paper is Joao Fabio Bertonha's "Brazil: an emerging military power? The problem of the use of force in Brazilian international relations in the 21<sup>st</sup> century". This paper asks questions pertaining to Brazil's jockeying for power in future international relations, specifically whether Brazil would benefit more from increasing military power or maintaining its stigma as the peaceful part of four major economically developing countries referred to as BRIC (Brazil, Russia, India and China). These four countries are increasingly weighing in on global decisions and are participating more and more in multilateral organization summits such as the one in Brasilia 2010. Bertonha's global understanding of newly developing balances of power help to frame this paper in an international context and when juxtaposition

with Filho's Brazil centric focus, allows for a multi scale analysis of geopolitical drivers. The topics addressed overlap, but Filho approaches the subject of Brazilian border security from almost a governmental standpoint with the most severe analysis of how far Brazilian paranoia has been allowed to progress unchecked while Bertonha and to an extent Barbosa (2000) approach the Amazonian border situational analysis from an abstract international relations perspective. The contrasting scales of analysis help to flush out the political, military and ecological drivers at play in the region. Coupled with the tangible linkages made between military colony initiatives and environmental degradation made in Salisbury (2010) these papers when effectively broken down and compared, help to paint a vivid picture of the geopolitical variables and drivers at play on the contemporary Amazonian border situation. To frame this analysis of contemporary geopolitics in the region in a historical context I employ a case study by Ryan (1993) which provides an in depth analysis of the Calha Norte project and subsequent effects of its implementation. This comprehensive analysis compared with recent Brazilian troop increase initiatives outlined in public releases and newspapers such as (J.P. 2010) provide a historical context and illustrate a pattern of Brazilian national policy.

Laurance (2001; 2002) Chomitz and Thomas (2003) and Nepstad (2001) provide a political ecology centric perspective to balance against the military and political science driven frameworks employed by Filho, Bertonha, Barbosa and others. The focus on roads as the key drivers of the deforestation process and the factor that is most amiable to new policies of sustainability highlights how my proposed analysis of road infrastructure development by military colonies is empirically proven to cause environmental degradation and the potential that this degradation can be mitigated through future policy creation. This linkage is essential to the political ecology aspect of my paper as the harmful effects of roads and what geopolitical drivers influence their creation are centric to my thesis. The exploration of possible ways to mitigate road development present in the majority of these paper's conclusions is also interesting, but does not address the military as a driver for road construction and therefore does not offer alternative methods of road mitigation in regards to its policies.

This paper proposes to bridge the gap between the analyses of ecological impacts of road development in papers such as Laurance et al. (2001) with military science and political science papers such as Filho and Zirker (2005) and Ryan (1993) by drawing linkages between past

Brazilian national defense policy, increased development in the rainforest and the ecological impacts that accompany such development. The analysis then addressed the question of how effective is Brazilian regional policy in the area interest at forwarding its own agenda of geopolitical influence when viewed from a global scale.

### **Framework:**

To provide this analysis I intend to present a literary comparison and case study analysis of available material on the subject through the frameworks of Political Ecology and Military Science. A Military Science lens is necessary to fully understand why Brazil's current national defense policy mandates such a buildup and how their military force structure and stationary tactics along the border are carried out. An analysis of western tactics influencing Brazilian military thought along with the previous military regimes is necessary to properly understand just how contemporary military policy has formed. The effects of this national defense policy will be couched in a political ecology framework to understand both the political bureaucracy at play and the physical ecological impacts of these policies. International agendas have taken note of the ecological degradation of the Amazon as a global threat to human interests (Soroos 1994), and as more and more institutions become entangled in the power play for influence of Amazonian policy, an analysis of the regional Political Ecology becomes both more complex and more necessary for proper comprehension of the regional situation. Both frameworks are at their root based in qualitative research as both are human and policy driven and as such are hard to quantify and compare. Their combination will provide a complimentary analysis of both the military and geopolitical forces at play in my regional literature and case study analysis.

In my paper I intend to provide a contemporary update on the national security concerns surrounding the Amazonian borderlands between Brazil, Peru and Colombia, with a particular focus on the Brazilian perspective as they possess the largest resource deposits in the area and therefor the largest amount of national interest, and along with it, the largest military presence (Filho 2005). I will frame this analysis through the lens of Military Science which is a comprehensive science encompassing all military actions and preparations made in order to effectively forward a national defense policy (Lanir 1993). National defense policies are designed to produce necessary military forces with the capabilities for national defense and other strategic military operations. Central to this is the creation of theories, concepts and methods to

increase efficiency, effectiveness and simplicity of complex operations within the force structure which in turn lead to effective employment of forces or what the U.S. Army calls “economy of force”. These principles were first defined by Clausewitz in his 1873 essay “Principles of War”. Later expanded upon, “Principles of War” is still studied today at the U.S. Army War College and throughout many other nation’s upper level military strategists training centers to provide an in depth analysis of the key concepts of war fighting. Military science interpretation and execution is by no means standardized throughout nations. There is currently a large divide between Western and Russo-Asian military thought. Western national defense policies prioritize technology, highly trained non-commissioned officers and superior intelligence gathering capabilities resulting in a highly lethal and flexible force focused on imposing ineffectiveness through disablement of logistical forces rather than combat force destruction. Russo-Asian thought focuses more on large force massing at advantageous battlefield points, highly trained yet small officer corps and well-rehearsed, albeit inflexible battle plans. How these past military theories all correlate to the state of Amazonian security is just as important as how it does not correlate. While the Brazilian army’s employment of highly flexible western tactics in the amazon to properly project force is an effective method of establishing sovereignty, the army also faces emerging variables never before faced by military/governmental strategists. Military scientists are often referred to as reactionary forces, always focused on fighting the previous war with tactics learned from it rather than adapting for future threats (Nagle 2005). Brazil faces a highly unique situation of controlling an environment hostile to military operations in both transportation and tactical execution. High levels of international interest in the area mandate high levels of accountability and repercussions when accountability breaks down. Failures to observe and enforce a national defense policy are now apparent the next day in national media due to the increasing levels of media connectivity in today’s technological world, such as FARC intrusions and drug cartels exerting influence and the subsequent backlash of other countries concern (Tate 2002).

Along with this high level of international interest in the Amazon has come Brazilian national paranoia over the internationalization of the Amazon. Government officials and military strategists’ interviews and press releases have shown distress over the outside forces attempting to exert their influence on policy affecting the Amazon (Filho 2005). For this reason the U.S. policy of battling drug narco-guerillas in the Andean region and political pressure used to

enforce this policy are of particular concern and have resulted in increased Brazilian military presence in the area in attempts to –reassure, sans intervention, the control and sovereignty of the region (Filho 2005). Increasingly complex variables such as this and others unforeseen in a world order increasingly dominated by NGO's and inter-governmental agreements such as NATO, SADC and SCO mandate the use of a Military Science framework in a flexible manner as evolving military variables are often slow to emerge from the fog of war.

The political ecology focus of my paper will focus on the bureaucratic and ecological variables and effects of the forces at play in the region of interest. Political ecology provides a comprehensive study of the relationships between political, economic and social factors in relation to environmental issues and change (Forsyth 2003). It focuses on the political philosophy of environmental science that indicates how social and political framings are woven together to produce both environmental problems and the solutions to reduce them (Forsyth 2003). The advent of political ecology in academic publications began in the 1960's and 70's such as (Russet 1967; Wolf 1972; Miller 1978), not to insinuate that politics and environmental concerns had not existed before this. As human concern over environmental impacts increased so did interest in the mechanisms that drive them, but this framework is intrinsically different from other, more scientifically couched environmental studies since it must take into account the political and social variables. In (Watts 2000) An analysis avoiding the integration of science and politics such as a land change science approach is not comprehensive enough to compliment the military science framework as one would have institutional drivers flushed out and broken down in one portion while the science portion would be blind to its own drivers and more focused purely on the state of the environment rather than the causality of how this state of affairs came about.

With a lens of analysis compromising both frameworks my paper will have a duality that provides for both political (military and governmental) and environmental drivers along with the resulting realities. Interviews of high ranking military and political officials along with the policies they implement or try to implement will be of specific interest to my paper in order to gain first-hand accounts of the policy makers' intentions. The literature comparison of sources addressing national defense policy such as Filho (2005) Filho and Zirker (2000), Tate (2002) and Salisbury (2010) with more scientific research addressing ecological impacts Chomitz and



Thomas (2003) and Kirby (2006) can provide insight into how future policy can, may or possibly will turn out. Intentions for future expansion or insight into the Brazilian paranoia surrounding the internationalization of the Amazon can be extrapolated into possible force increases in the area and with it an expansion of transportation infrastructure, the ecological effects of which may incite more international concern creating a cyclical cycle of international concern resulting in force increase, further ecological impacts like forest fragmentation and avenues for deforestation which in turn prompt more international concern.

### **Methodology and Organization of Thesis:**

A combination of the case study and literature review and comparison is employed in this paper. The incorporation of the Calha Norte project and other Amazonian development projects are analyzed in conjunction with literature on Brazilian geopolitical policy, the ecological effects of road development, international political drivers along the Amazonian political borders and Military Science in regards to western military philosophy. Current initiatives in Northern Brazilian region are framed in the context of past initiatives and the resulting geopolitical outcomes. Independent variables of geopolitical, ecological and military influence are illustrated through the juxtaposition of these initiatives. These variables are then combined to provide an analysis of whether Brazilian Amazonian policy is currently forwarding or deterring their nationalistic goals. The first part of the analysis provides a review of the past regional situation from a national and international perspective while the second draws correlations between these two perspectives and analyzes whether both national and international interests are being forwarded or deterred by regional initiatives.

What I intend to present in this research is literature reviews and case studies on Brazilian concern or “paranoia” for the borderlands affecting military policy and action in the area to draw a link between ecologically harmful transportation infrastructure buildup and Brazil’s concern for its border sovereignty.

In my paper I combine these sources and others under and a combined military science and political ecology framework to paint a broad picture of the institutional drivers at play in the Amazon and the fine scale effects these drivers have on the creation of roads and the subsequent

deforestation. To do this I will pose various qualitative and quantitative research papers alongside one another to establish correlation aspects concerning my topic.

Drawbacks faced in this type of analysis are intrinsic and common among projects not conducting their own first hand research. Filtering other's research into a new framework requires deconstructing their frameworks and perspectives to draw the essence of their argument. Drawing too much information from one source and inadvertently taking on a paper's perspective is as much a fear as is drawing too little and having the research not properly represented or skewed from the original meaning. To alleviate these risks I attempted to draw from numerous sources with varying angles of approach on the subject I am attempting to flush out. Drawbacks such as this have their upside though, as it is possible to expand understanding of the same material simply by framing it alongside material drawn from other sources. No new data has been added but the change of approach angle helps broaden thinking on what otherwise could have been a one dimensional thought process.

### **Analysis:**

Internationalization of the Amazon by governments and NGO's under the altruistic guise of universalist idealism such as human rights and ecological preservation has been a growing political fear of Brazil's for quite some time (Filho and Zirker 2000). In an effort to assert its regional influence Brazil has long implemented projects along the Amazonian border such as Calha Norte (1985-1989). Begun during the first civilian government, projects like this indicate towards a pro-active geopolitical military policy along Amazonian border regions (Filho 2005). Even before the international push for environmental responsibility with the emergence of strong research illustrating the current state and future implications of global warming, Brazil showed concern for the development and protection of the region. Other projects such as Operation Amazonia, National Integration Plan and Polamazonia (Salisbury et al. 2010) have been ongoing along the Amazonian borders since the 1970's and 80's to further Brazil geopolitical interests. The Brazilian State goes to great length to avoid letting international pressures dictate their regional policies and military force projection. The relatively peaceful nature of the region in terms of direct international conflict has turned the Brazilian military's focus more on police

tasks or even politics (Bertonha 2010). Because of this, the military is an increasingly frequent topic in policy and diplomatic debates. This paranoia of interventionism within the Amazonian combined with a the strong military pull in national policy making create an interesting dynamic resulting in what seems to be ever increasing development of the Northern regions.

Understanding this dynamic situation will only become more important as national and multi-national organizations attempt to assert their influence in the region in conjunction with their increasing concern over the consequences of ecological consequences that arise with regional development. In this paper I attempt to isolate just how Brazil is attempting to maintain influence and sovereignty over the Amazonian border lands as well as ask the question has prioritization of military force projection within the Amazon led to the neglect of ecological impacts that accompany the buildup of mobility infrastructure? Linearly put, the following analysis will start broad, illustrating the international and regional pressures Brazil faces, the military's responses and policies to these pressures, then a brief foray into military science theory on mobility in regards to Brazil's western military ideology, the resulting roads necessary to maintain force projection with Brazil's force structuring and finally the ecological impact of these roads.

The Amazon is a routine topic when discussing the subject of climate change. It is estimated it absorbs 1.8 billion metric tons of CO<sub>2</sub> annually from the atmosphere or roughly the equivalent of one fifth of global emissions from fossil-fuel combustion (Berardelli 2009). This importance to the global eco-system creates a focus of attention from nations, their multi-lateral organizations and NGO's which brings Brazil and its ecological policies into the limelight. The U.S.'s international war on drugs, specifically "Project Colombia" an initiative to curb narco-drug trafficking in the Andean region also create international interest in the area, interest Brazil views with suspicion to the point of considering it meddling (Filho 2005). This suspicion first manifested itself in 1989 with the Executive Intelligence Review by Lyndon LaRouche which reported a U.S. interest in invading the Amazon in a manner similar to its campaigns in Panama and Grenada (Ryan 1993). This along with verbal statements by U.N. officials about potential plans to transfer Asian populations to the Amazon helped forward the Brazilian fears of internationalization threatening their Amazonian sovereignty (Ryan 1993). Another notable U.S. initiative surfaced in 1989 with President George Bush Sr. declaring the largest threat the U.S. faced at the time as drugs and to combat this he implemented the Andean Initiative with the goal

of combating drug trafficking abroad rather than prevention at home. With this came increased focus on SOUTHCOM, the U.S. Military's force command for all of Central and South America. Following this, aid to Colombian forces drastically increased to the tune of 2.2 billion USD\$ and a largely expanded role of the Department of Defense and CIA in the region (Tate, 2001:46). It is interesting to note that this drastic increase in U.S. interest came right at the end of the implementation of the Calha Norte project, a project authorized by the Brazilian government in 1985 to achieve the geopolitical needs of Brazil by increasing military presence along a 6,500-km frontier between Colombia, Venezuela, Guyana, Suriname and French Guiana or roughly 14% of Brazilian National Territory (Barbosa 2000). These needs included the safeguarding of valuable timber and mineral deposits as well as establishing a security presence in the region (Ryan 1993). Like contemporary troop increases in the region, Calha Norte has piqued both regional and international interest along with creating unanticipated consequences. Peruvian military policy responded with its own buildup along its border with Brazil (Salisbury 2010) (see fig. 2) while illegal mining along the border of Venezuela increased due to utilization of the infrastructure that accompanied Calha Norte (Ryan 1993). This back and forth of geopolitical power jockeying around the Amazonian border area highlights the jockeying for regional influence by nations and gives way to further analysis in this paper proposing Brazilian national interest begets more international interest which in turn begets more Brazilian interest.

In 2009 the U.S. proposed the building of seven more military bases in Colombia and announced official plans in April of 2010 (Newman 2010). The building of military bases by the United States in South America is nothing new. Before this proposal there were already bases in Bolivia and the Peru along with naval bases in Iquitos and Santa Lucia. These bases are suspiciously viewed as existing beyond posts solely for conducting anti-drug trafficking operations, but as launching points to intervene militarily in whatever South American country necessary to defend the U.S.'s economic and political interests. This suspicion is highlighted in a 2009 statement during an interview with Brazilian writer, professor, political scientist, historian and poet Luiz Alberto de Vianna Moniz Bandeira about the proposed seven military bases to be built within Colombia saying, "the justification in the agreements for military bases in Latin America and the Caribbean is the combat of drug trafficking, but there is an explicit understanding that in the use of these bases other types of organizations of the Department of Defense are not prohibited." And he goes on to say later in the interview, "In reality, the

militarization of Colombia with the presence of more than 1,000 soldiers and U.S. mercenaries who are employed by Pentagon business firms, in the region and neighboring regions, constitutes a threat to Brazil's own national security, in the measure that it threatens the Amazon". (Melo, Brasilino 2009). A study conducted by then-Infantry Colonel Jose Alberto de Costa Abreu, the current military advisor for Brazil's Northeast region summarized the consequences of these bases saying, (there is) "The diminished Brazilian capacity to predict regional power dynamics due to the existence of a 'belt' of North American installations near Brazilian borders, especially in the Amazonian region"(Zibechi 2009) (see fig. 1).

Brazil's geopolitical action, most likely in response to U.S. power assertions in the region, appeared in the popular magazine "The Economist" reporting that the number of Amazon border posts where troops will be stationed and trained in jungle warfare will increase in the coming years, despite the last military engagement along the Amazonian border occurring one hundred and seven years ago with Bolivia over Acre. (J.P 2010) The Latin American Herald Tribunes provides specificity on these increases quoting the Defense Ministry's official release saying, they will deploy twenty eight new units to join its current twenty three along the border with an estimated price tag of 428.6USD over the next nine years with another sixty million being spent to modernize existing bases.

Some of these base improvement funds will undoubtedly be allocated towards transportation infrastructure as mobility is essential to any effective military operation. Sir Basil Henry Liddell Hart, a renowned English military historian and inter-war theorist once said, "An army without mobility is but a corpse". Sir Hart was referring to the importance of tactical mobility which can be described as the range of characteristics and features that enable military elements to transport a given payload over different types of terrain (Bianchi 2007). To effectively command a unit a commander must be able to defeat or avoid obstacles at various scales as necessary to achieve success in tactical maneuver operations (Blundell, Guthrie and Smiental 2004). The Amazon is difficult to transverse without roads due to forest density, particularly when transporting materials for large scale building products such as a military base. A history of road development coinciding with regional troop increases and a western military philosophy of small, highly trained, *highly mobile* units with superior technology all but guarantees that these troop surges will be accompanied by increased road building.

Road building in this area has been attempted before, but with little success. President Emilio Garrastazu Medici undertook the first large scale attempt in 1973 with the Northern Perimeter Highway. It was meant to transverse from the Atlantic coast to the border with Bolivia in Acre, but was abandoned in the late 1970's for financial and technical reasons (Barbosa 200). This road was meant to compliment the Transamazon Roadway and provide access for regional development. Initiatives like this were viewed as in the interest of Brazil because they were helping to incorporate perimeter Amazonia into the national territory, and little was said about the destruction they caused up until the 1980's when the importance of tropical rainforest to the global environment became known.

The negative effects of road building in the Amazon have been extensively written on. Many studies were published following the completion of the trans-Amazonian highway documenting the increased deforestation following Amazon road building such as Laurance et al. (2001), Nepstad et al. (2001), Steininger et al. (2001) Chomitz and Thomas (2003) and many others. Laurance et al. (2002) reported that roadway proximity was the "single most important predictor of deforestation." While Nepstad (2001) stated that more than two-thirds of the deforestation in the Amazon has occurred within 50 km of major paved highways. While military roads are not major paved highways, they do still provide increased access points for loggers as well as fragment habitats. Forest fragmentation results in drastic changes to forest composition, structure and microclimate resulting in high vulnerability to drought and fire (Laurance et al 2000). Nepstad et al. (2001) paints a bleak picture if forest deforestation continues unchecked. He warns that deforestation could turn half the Amazon into fire-prone scrub vegetation and cattle pastures as well as drastically reduce wildlife mobility and subsequently, bio-diversity. Laurance et al. (2002, 2000) calls upon the international community and foreign investors to exercise their means of leverage to plan in a more environmentally conscientious manner, but the application of this pressure may directly result in Brazilian geo-policy doing just the opposite.

The link between military effectiveness, road development and ecological concern is a complex dynamic to discern. As international concern over the global environment manifests itself as interest in the Amazon, Brazilian concern over interventionism increases resulting in geopolitical actions such as the recent 428USD budget allowance for military force projection

and modernization along the border. This in turn spurs development which has negative ecological impacts such as deforestation and road creation, in turn inciting more ecological concern from international actors. This cyclical pattern begs the question; is more development counter-intuitive for Brazil's national interest, as well as; is international pressure an effective tactic to deter development within the Amazon.

From strictly a military standpoint the answer is yes, more development is better. Blurred national boundaries of the Amazon could result in countries to challenge claims to valuable forest resources and allow for illegal immigration and settlement, but with effective force projection these threats along with others like illegal deforestation and drug trafficking could be prevented or at least mitigated (Ryan 1993). These tensions may also serve the purpose of helping the military garner more of the national budget, and increase readiness for future operations just as the Calha Norte helped the Army to justify additional funds in 1989 amidst budgetary cutbacks (Jornal do Brasil 1991).

Military interest does not always line up with national interest and rarely ecological impacts. Brazil may be its own worst enemy in addressing its interventionist paranoia. As stated earlier, Brazil's aggressive geopolitical expansion initiatives along the border region result in international nations and organizations increasing their own concern. There is no conclusive way to measure the extent to which Brazilian concern and international concern over the state the Amazon are linked, but previous quotes cited in this paper, Filho, Zirker, Barbosa and Berthona's papers addressing Brazilian interventionist paranoia, the coincidental timing of the Andean Initiative directly following Calha Norte and the recent 460 million dollar increase in the Brazilian military budget shortly after the U.S.'s proposal for more Colombian and Peruvian bases all strongly indicate that such a linkage exists.

This paper views Brazil as has three options it could pursue in relation to sensitivity over its Amazonian sovereignty. It could: (1) exert its regional influence through a continued aggressive military presence increase to the extent that the permeability of its borders and outside geopolitical influence are greatly reduced; (2) maintain current regional status quo and increase cooperation with environment oriented NGOs and multi-lateral organizations in an effort to reduce concern surrounding the region of this analysis; (3) increase diplomatic cooperation with the U.S. and other major geopolitical players in the region through an increased alignment of

political and economic goals in an effort to influence the nations that are the object of their suspicion.

This paper recommends option (2), increased cooperation with NGOs and multi-lateral organizations. Constant increases to military presence in the region are financially draining to the nation's budget as seen by the recent 428USD price tag for the most recent increase, and serve only to heighten tensions and concern over the region. Viewed from a nationalistic perspective, it may be hard to stray from this current policy, particularly since Brazilians view the Amazon as intrinsically and solely theirs as well as their road to a main stage on the global economic and political scene (Filho and Zirker 2000). Option (3), Increasing diplomatic relations with the U.S. and other major regional powers also seems unlikely in light of strong Brazilian nationalism as well as unfavorable to their own domestic goals. Political and economic alignment requires compromise which often requires sacrificing policies national progress in favor of amiable diplomatic relations. This in turn could be viewed as cultivating a submissive diplomatic mentality, which also does not agree with strong Brazilian nationalism. Option (2) presents an avenue for Brazil to assuage ecological concern through encouragement of environmental NGOs' involvement, while not involving major political actors such as the U.S. government which create the perception of sovereignty encroachment and/or a submissive diplomatic relationship. This would allow for NGOs' to increase their manpower presence along the Amazonian border who would have direct interest in preventing illegal logging, mining and immigration while negating the need for increased military units and the financial costs that come with them. Concern over the effects of Amazonian forest degradation on the global environment would be viewed as paralleling the concerns of the Brazilian government.

### **Conclusion:**

The introduction and analysis sections address the issues of: (1) International pressures (specifically the U.S.) along Brazil's Amazonian borders; (2) ecological impacts of roads concerning fragmentation and deforestation; (3) The not so coincidental timing between U.S. and Brazilian military increases in the border region; (4) whether these Brazilian border initiatives are counter intuitive to the goals they are meant to achieve, namely the assuaging of national



fears of interventionism within the Amazon; (5) possible and recommended courses of action for future Brazilian geopolitical policy.

The strong linkages presented between regional security, environmental degradation, and international concern show the complex geopolitical and ecological dynamic Brazilian policy makers must discern in order to effectively forward their goals of regional influence. What a single, national scale analysis would perceive to be a positive correlation between increased military presence and increased regional influence in reality is not so, and as such should be addressed by future geopolitical addressing the Amazon borderlands along a multi-scale level of analysis.

This paper has expounded upon current sources available on Brazilian geopolitics, ecological effects of roads in the Amazon and international tensions present along the political borders of the Amazon to recognize independent variables behind the regional geopolitics and better understand viable options for a reduction of tensions along these borders. Future research into the military science aspect of this paper, specifically the Brazilian Army and potential ways to maximize force projection while minimizing development could further this topic into a viable body of work for the Brazilian policy makers to consider. For this to be effective a more quantitative based analysis of the military's ecological impacts would be helpful in conjunction with a paper on how effective the military has been at achieving its regional goals. This body of work could provide valuable insight to all nations with a vested interest in the region, but is well beyond the scope of this paper.



fig 1 adapted from "Map of U.S. Military SOUTHCOM Installations in South America."  
Map. *Working People's Voice*. 20 Oct. 2010. Web. 13 Apr. 2012



Figure 2. The 35 military border settlement bases along the international boundaries of the Brazilian and Peruvian Amazon.

Adapted from Salisbury, David S., L Alejandro Antelo Gutierrez, and Carlos L. Perez Alvan. "Fronteras Vivas or Dead Ends? The Military Settlement Projects in the Amazon Borderlands." *Journal of Latin American Geography* 9.2 (2010): 49-71.

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