

Gender and Shifting Population Trends in Protected Areas in the Dominican Hinterlands: The Implications of Female Outmigration for Conservation in the Cordillera Central

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EXECUTIVE SUMMARY

The conservation community has increasingly acknowledged the importance of obtaining an understanding of the human context for implementing lasting management approaches. Within this, gender is increasingly gaining attention as a key variable for conservation planning and action at multiple scales (i.e. national, ecoregional, and site-or protected area). The following research, sponsored by WIDTECH, investigates skewed sex-ratios favoring males and explores how gender analysis can provide an opening into a broader and more in-depth understanding of the conservation process in the Hispaniolan Pine ecoregion of the Cordillera Central of the Dominican Republic.

Although fertility surveys reveal compelling yet inconclusive evidence of skewed ratios at birth favoring males, the most important cause of male-skewed sex ratios surrounding protected areas is female migration. Outmigration of both men and women is high in these areas, but women have been migrating out of conservation areas in greater numbers and at a faster rate than males. Gender-differentiated migration does not appear to be the result of urban pull factors but rather push factors of a sex-selective nature. Women have been differentially impacted by the decline in traditional subsistence farming patterns and the decrease in the diversity of the local farming systems. The changes in rural life, in part related to conservation-oriented policies, have provoked a decline in the value of female labor *vis a vis* that of males for the livelihood of rural households. The consequence has been a bias in families that favors retaining males while facilitating the exit of females.

Although the social implications for rural women of these changes in rural life are mixed, the abandonment of the region by women and men would appear to favor conservation. The populations surrounding the protected areas in the ecoregion are in decline-- in large part due to the greater out-migration of women in combination with lowered fertility-- suggesting less future demand by the *campesinos* for park-based resources and improving long-term conservation prospects. But the relationship between declining population and improved biodiversity health is not so simple. Adaptations to outmigration and state-sponsored shifts in national production have stimulated changes in land use, primarily land concentration and the growth of large scale agro-enterprises, which threaten the conservation of biodiversity, habitat and watershed areas within parks and buffer zones.

The article concludes with a discussion of major themes that emerged from the study. These include the following: 1) The need for ongoing consultation and dialogue with local stakeholders and the involvement of women, who are often invisible in a community's political processes and in the conservation process and have more free time than men; 2) The need for educational programs that emphasize the teaching of individual rights which are gender-based and environmental laws and policies in conjunction with the teaching of the technical rationales for conservation; 3) The critical need for the professionalization of the Dominican Forestry and Park Services; and 4) The need for entrepreneurial activities, particularly targeting women, that reinforce the values associated with conservation of parklands.

INTRODUCTION

The conservation community increasingly recognizes the importance of obtaining an understanding of human context issues for implementing lasting management approaches within conservation areas (Agrawal and Gibson 2001; Brandon, Redford and Sanderson 1998). From the point of view of conservation practitioners, the social context of a protected area has been described as being comprised of the human "threats" to the conservation of biodiversity and habitat. Nevertheless, although the identification of the immediate threats may be relatively simple, understanding the human behaviors that constitute the threats is often highly complex. For example, uses of a given resource may be driven by complex socioeconomic forces that are nested at varying scales (e.g. local, eco-regional, national and international) (Brandon 1998). Furthermore, cultural norms and institutions influence the way that human populations interact with the natural systems in their surroundings and respond to conservation oriented social interventions. For that reason conservation-oriented organizations are turning their focus to a broad range of human issues that come to bear on conservation. Discussions of social variables and concepts including community, gender, population, class and ethnicity have become increasingly common in conservation circles (Western, Wright and Strum 1994; Agrawal and Gibson 2001).

Within the socioeconomic variables deemed necessary for a better understanding of the human-conservation interface, gender analysis is increasingly applied for effective conservation planning in appropriate ecoregions and sites. Evidence of the importance attributed to gender was the participation in a recent workshop held at The Nature Conservancy (TNC) entitled "Mainstreaming Gender in Conservation." The event, jointly sponsored by TNC, WIDTECH, and World Wildlife Fund (WWF), was attended by over fifty individuals representing thirteen major conservationist, bilateral and multilateral funding organizations. Furthermore, major funding organizations such as USAID (United States Agency for International Development), of which WIDTECH is a project, and the Global Environmental Facility (GEF) among others have ready resources available for research and projects that link gender and conservation.

Recent publications have drawn increased attention to the social context of conservation in the Dominican Republic, the setting for this case study. Geisler (2001) discusses efforts of the Dominican government to reconcile conservation with "disenfranchised groups seeking subsistence" through land reform in Los Haitises National Park, located on the eastern side of the country. As will be seen in this paper, the disparities in power that Geisler discusses, expressed through rights to land use and access, have been a serious hindrance to collaborative conservation not only in Los Haitises but in all protected areas in the Dominican Republic including those in Cordillera Central. Similarly, a case study in the recently published AAAS Atlas on Population and the Environment (2000) points out the important linkages in the Dominican Republic between internal migration and land use, once again a broad challenge to conservation faced throughout the country.

The pages that follow, however, discuss the causes and conservation implications of an unusual migratory phenomenon present in the communities within the Hispaniolan Pine ecoregion of the Dominican Cordillera Central--namely, the high rate of female outmigration from this region. The research project was inspired by trends initially identified in data gathered during TNC and USAID financed socioeconomic baseline surveys within the scope of the Parks in Peril (PiP) program.¹ Through TNC's Population and Environment Mapping Project (PEOMAP) researchers noticed a persistent pattern of male-skewed sex ratios in the rural Dominican Republic, a phenomenon especially evident in regions surrounding national parks in the Central Cordillera.² This project investigates the causes of these skewed sex-ratios and explores how gender analysis can provide an opening into a broader and more in-depth understanding of the conservation process in the Hispaniolan Pine ecoregion.

The paper is based primarily on qualitative and quantitative data gathered with funding from WIDTECH in the summer of 2001. However, for comparative and longitudinal analysis throughout the paper we will be also be using data from two PiP socioeconomic baseline surveys -- one conducted in Juan B. Pérez Rancier National Park in 1998 and the other in Armando Bermúdez National Park in 1999-- as well as national census data from the National Statistics Office (ONE).

Study Region:

The Hispaniolan Pine Forest ecoregion of the Dominican Central Cordillera encompasses 238,000 hectares, or approximately 15% percent of the Dominican territory. Altitudes in the region range from 1,800 feet above sea level to the 10,414 foot summit of Pico Duarte, the highest peak in the Caribbean. As the key watershed for the country's major river systems--including the Yaque del Norte and Yaque del Sur, Bao, Yuna, Nizao, Las Cuevas, Grande, Tireo, Blanco, and the Ocoa--the Cordillera provides fresh water for the approximately 2.2 million inhabitants of the capital city, Santo Domingo, and for the inhabitants of other low lying areas in the Republic. The water generated in the ecoregion is also critical for the maintenance of low land irrigation systems and ten hydroelectric dams.

The Dominican government along with the Organization of American States (OAS), USAID and local and international NGOs among others have identified the region as a critical conservation zone. In step with conservation efforts elsewhere in the Dominican Republic, the most environmentally sensitive areas of the Cordillera have been set aside as protected areas. In 1956 under the regime of the dictator Rafael Leónidas Trujillo, 766 km² were set aside as Armando Bermúdez National Park and in 1996, under the Balaguer administration, approximately 657 km² were designated as Juan B. Pérez Rancier National Park.³ These two parks, a large and practically contiguous expanse of land in the heart of the Central Cordillera, provide the setting for this study.

In the assessments carried out in 1998-99, the Parks in Peril research team estimated that approximately 3500 people were living within the limits of the Juan B. Pérez Rancier Park. In contrast, the team found the interior of the Armando Bermúdez National Park virtually depopulated, but in close proximity, in an area officially designated as a buffer

zone and subject to increased government regulation, it found an estimated 7000 people distributed in 35 rural hamlets.

People living in the areas surrounding the parks practice one or a combination of four primary farming strategies: 1) the planting of coffee, a perennial crop; 2) the intensive production of short cycle non-traditional crops such as potato, carrots and onions; 3), the production of traditional subsistence crops (beans and root crops such as yucca and taro) using shifting agricultural techniques; and 4) livestock rearing, including goats, pigs and, most importantly, cattle.

Because social organization differs with respect to each of these production systems--having important consequences on land tenure, land use, and the incorporation of women into labor and systems of ownership--research was conducted in two areas where varying configurations of these productive strategies are practiced.

Objectives, Methodology, and Research Sites

The research project was designed to generate an understanding of male-skewed sex ratios and assess the implications for conservation efforts in the Dominican highlands. To accomplish this objective surveys and case studies were conducted in two rural Dominican *secciones*, political units similar to counties in the United States, herein referred to by the fictional names "Los Postes" and "Las Papas."⁴

Los Postes is located in the heart of the Cordillera Central, bordering the Armando Bermúdez National Park. The sección consists of five small rural hamlets, called "parajes", and includes a total of approximately 130 households. The inhabitants of Los Postes are herders, coffee growers, and to an ever diminishing degree, traditional swidden farmers.

Las Papas is located along the northern limits of Perez Rancier National Park. The case study focused on three hamlets within the sección with a total of approximately 150 households. As in Los Postes, the Las Papas hamlets are in close proximity to one another. The inhabitants are involved in the production of nontraditional short cycle crops including potatoes, garlic, cabbage, onions, carrots, and flowers. Production is intensive and depends on the application of industrial pesticides and fertilizers.

The case study fieldwork was conducted from June to August 2001. The research methodology involved the use of a combination of quantitative and qualitative methods, including semi-structured interviews, focus groups, an opinion survey, fertility surveys, household composition surveys, gendered resource use mapping and technology surveys. For comparative purposes, the study also involved an in-depth analysis of survey data gathered during the Parks in Peril (PiP) research projects carried out in 1998-99.⁵

STUDY RESULTS

Skewed sex ratios favoring males is a growing demographic trend found in many rural areas of the Dominican Republic (see Table 1, Figures 1 and 2). This is an unusual phenomenon, especially in the Caribbean where sex ratios have been largely skewed towards males (see Text Box #1). Sex ratios are typically measured by the number of males for every one hundred females in a given population, referred to as the masculinity index. The 1993 Dominican National Census revealed that in areas with a population density of less than 260 people per square mile (100 people/km) the masculinity index averages 118 males for every 100 females. The over-representation of males is a trend especially evident in communities surrounding parklands. For 44 communities bordering Perez Rancier and Armando Bermúdez National parks, data from the 1993 Dominican National Census indicated a masculinity index of 127 males for every 100 females.⁶ In the Madre de Las Aguas/Parks in Peril research project, carried out in 1998-99, the combined sex ratios for 16 park communities studied was 129 males for every 100 females (Charts 1 and 2).⁷

From a comparative perspective, sex ratios heavily favoring males are an unusual phenomenon. The natural human birth rate is between 104 and 106 males born for every 100 females. At every age following birth—and even in the womb--males tend to die at higher frequencies than females, a trend evidenced by the fact that in the year 2000, the world-wide sex ratios for all 190 countries listed by the United Nations was 101 males for every 100 females. Only 50 of these countries had sex-ratios favoring men, and only 13 had sex-ratios greater than 105, two of which were India and China, comprising over 1/3rd of the world's population. If China and India are eliminated from the count, worldwide sex ratios for the remaining 188 countries are 99 men for every 100 women (United Nations Statistical Division, 2000: <http://www.un.org/depts/unsd>).⁸

Exceptions to the expected female-skewed sex ratios occur, particularly at the sub-national level, but they are embedded in specific demographic and socio-economic circumstances. Such circumstances include:

1. Early stages of the development of frontier areas and other areas receiving high numbers of male laborers or refugees;⁹

Chart 1: Sex Ratios (1993 National Census)

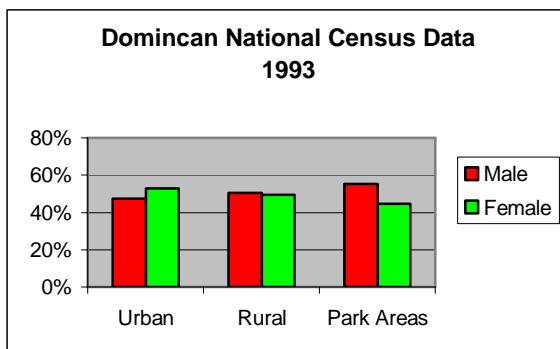


Chart 2: Sex Ratios (PiP Surveys 1998 and 1999)

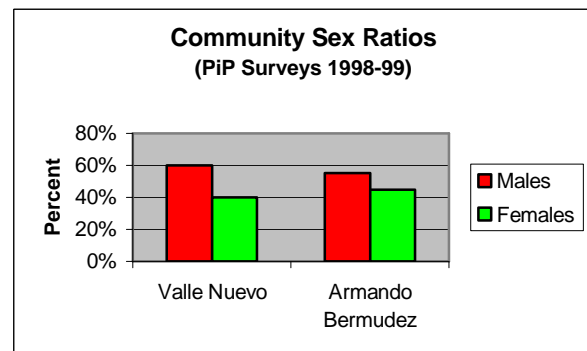


Table 1: Historical Sex Ratios for Case Study Municipalities

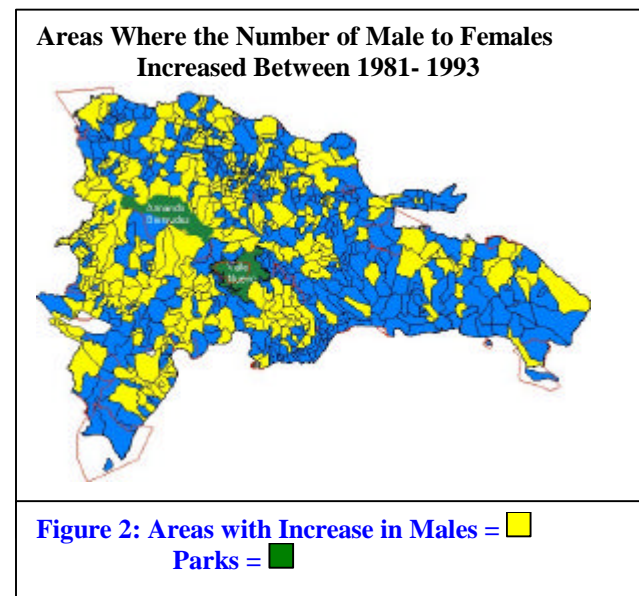
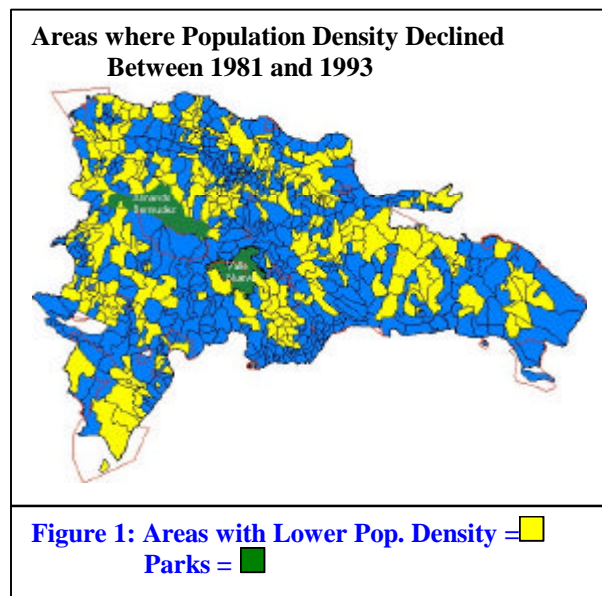
	San Jose de las Matas		Constanza		Jarabacoa	
	Rural	Urban	Rural	Urban	Rural	Urban
1935	105.7	93.3	104.7	104.5	105.4	87.0
1950	105.5	80.0	107.8	92.7	105.3	86.0
1960	N/a	N/a	N/a	N/a	N/a	N/a
1970	108.5	81.7	108.6	93.6	107.3	91.5
1981	111.0	92.9	111.6	101.0	110.0	93.8
1993	113.0	101.7	112.6	101.0	N/a	92.6

Source: Dominican National Census, 1935, 1950, 1960, 1970, 1981, 1993.

2. Areas where females are leaving at higher rates than males.
3. Traditional societies where the prevailing subsistence patterns and/or high levels of internecine warfare lead to exceptionally high male mortality and a greater need for male versus female infants. Female infants are therefore systematically discriminated against in favor of male infants.¹⁰
4. Societies where political and economic repression of women articulates with political policies, such as China, with its one birth law and an infant sex ratio of 117 males to every 100 females.

In cases where differential sex ratios result from sex-specific patterns of migration, explanations must focus on the push and pull factors that induce migration. In the absence of migration, however, explanations for male biased sex ratios focus on differential rates of male versus female infant and fetal mortality, the causes of which range from the unintentional consequences of preferential treatment of male offspring to outright killing of female infants.

Our data confirms that in the park areas of this study there are higher numbers of female than male out-migrants. The data also suggest male skewed sex ratios at birth.



Source for both maps: 1981 and 1993 National Census Data and PEOMAP project ARCVIEW coverages.

Text Box #1.1: Sex Ratios in the Caribbean

Sex ratios skewed in the favor of males, like those currently found in rural area of the Dominican Republic, are a historic anomaly in the Caribbean, especially in the English and French Caribbean. For over a century, male wage migration to urban and industrial agricultural zones resulted in sex ratios ranging far below the expected 99 males to 100 females**.

Country	Census Date					
	1881	1891	1911	1921	1946	1960
British Honduras	-	-	-	85.7	75.7	83.5
British Guiana	-	124.4	105.9	95.4	87.4	84.4
Trinidad and Tobago	-	115.9	104.0	94.6	91.8	85.5
Antigua	75.9	76.3	55.3	48.6(a)	74.5	74.7
Barbados	-	59.0	42.5	43.0	74.6	70.5
Dominica	-	57.9	64.7(a)	71.6(a)	73.5	71.4
Grenada	70.4	73.3	57.1	46.8	53.3	65.0
Jamaica	81.3	74.2	75.0	68.9	81.7(d)	77.4
Montserrat	64.6	58.3	35.5(a)	35.0(a)	61.5	58.5
St. Kitts - Nevis	-	67.8	43.4	38.8	73.2	71.0
St. Lucia	-	84.7(b)	72.2(c)	71.9(c)	76.6	70.8
St. Vincent	-	74.0(b)	48.5	45.1	60.8	67.1

**The majority of ratios are for Males aged 20-49/Females aged 15-44 x 100

Modified from Marino (1970:163)

(a) For the age group 16-45 females, 21-50 males.

(b) For the age group 15-49, both sexes.

(c) For the age group 16-50, both sexes.

(d) For the year 1943.

Sex Ratios at Birth (SRBs)

Male biased sex ratios found in park regions may in part be attributed to differential sex ratios at birth (SRB). Based on the natural human birth rate, the expected SRB is 105 males to every 100 females. But in the nine Rancier communities studied (carried out under the Parks in Peril Project in 1997), the overall SRB was 119, a rate higher than the 117 male to 100 female infants found in China, the world poster-child for female infanticide.¹¹ In the entire Parks and Peril project, 7 of the 16 communities studied had SRBs over 117, and the combined birth sex ratios for all 18 park communities was 113, considerably higher than the sex ratio of 108 found in India, runner-up to China as country most frequently mentioned country as having an unnatural SRB. (Table 2) The heavily male-skewed SRBs found in the park areas seem to suggest differential rates of fetal or infant mortality. However, no evidence was found to suggest that people in the park areas are deliberately manipulating infant sex ratios through mortality. Fertility surveys and interviews did not reveal either intentional or incidental differences in female vs male fetal or infant mortality rates. In Los Postes, for example, the reported SRB was 118; the reported number of infant and child deaths was 43 males and 41 females (104),

Table 2: Comparison of Overall Community Sex Ratios to Sex Ratios of Reported Live births¹²

Zone		Sex Ratios			
		General Population (PiP Surveys 1998-99)	Live Births (PiP Surveys 1998-99)	General Population (Widtech survey 2001)	Live Births (Widtech survey 2001)
Rancier (data obtained from community census)	Las Papas (3)	213 (N= 72)	116 (N= 69)	160 (N = 109)	172 (N = 127)
	Las Papas (2)	153 (N= 48)	157 (N= 54)		
	Las Papas (1)	149 (N= 59)	131 (N= 37)		110 (N = 63)
	Rancier (1)	133 (N= 114)	128 (N=107)		
	Rancier (2)	161 (N= 60)	96 (N= 56)		
	Rancier (3)	120 (N= 22)	112 (N= 17)		
	Rancier (4)	164 (N= 145)	116 (N=136)		
	Rancier (5)	169 (N= 75)	126 (N= 68)		
	Rancier (6)	110 (N= 84)	93 (N= 58)		
	Total	151 (N= 679)	119 (N=601)		
Armando Bermúdez (data obtained from sample of community)	Bermudez (1)	142 (N= 218)	120 (N=185)		
	Bermudez (2)	131 (N= 236)	103 (N=203)		
	Bermudez (3)	125 (N= 266)	98 (N=261)		
	Bermudez (4)	158 (N= 168)	108 (N=188)		
	Los Postes	116 (N= 240)	114 (N=214)		118 (N = 427)
	Bermudez (5)	108 (N= 374)	117 (N=324)		
	Bermudez (6)	115 (N= 254)	107 (N=190)		
		Total	124 (N =1756)	110 (N = 1523)	
All Communities		122 (N = 2734)	113 (N= 2181)		

Note: In order to maintain the anonymity of the study communities, the non case study hamlets have been numbered.

essentially equal. Many female informants also reported what they call 'resultas', referring to a kind of miscarriage. The possibility was explored that through 'resultas' women are selectively aborting female fetuses.¹³ But when comparing SRBs among the population of women not reporting 'resultas' with the pool of women who reported 'resultas,' the difference between birth sex ratios in the two groups provides no indication of sex selective abortion (Table 3).

Furthermore, although there was a repeated emergence of male biased birth and infant sex ratios, the trend was statistically significant only in the case of one Las Papas hamlet (Table 4.1). The upshot is that it cannot be concluded with a high degree of confidence that male biased SRBs in the studied communities were anything but coincidence. A broader study of fertility in the region is needed to clarify this issue.

Table 3: Abortions and Sex of Children Born

Sex of children born to mothers who report at least one 'resulta'			Sex of children born to mothers who report no 'resultas'		
males	females	sex ratio	males	females	sex ratio
66	57	116	202	166	122

Source: WIDTECH 2001 Fertility Survey

Differential Male vs Female Migration

The most important cause of male-skewed sex ratios in the park regions is female migration. Significant numbers of both women and men are migrating out of the park regions. The Dominican National censuses reveal that between 1981 and 1993 despite continued high fertility rates (see below) many areas surrounding parks actually declined in population density. Entire households are migrating. In some cases families go so far

Table 4.1 SRBs for Five Communities

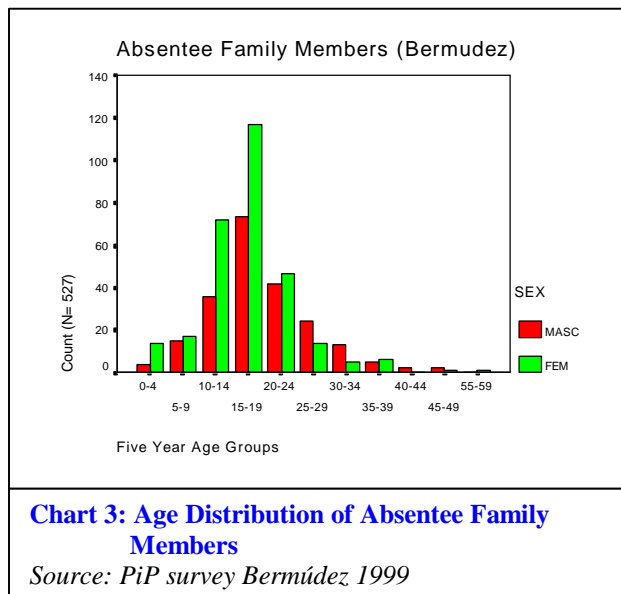
	Sex				Proportion			Z-score	Prob
	Males	Females	Total	Ratio	Male	female	proportions		
Las Papas3	80	47	127	170	0.63	0.47	0.12	2.75	P < .003
Los Postes	231	196	427	118	0.54	0.46	0.03	1.2	p < .115
Las Papas1	142	160	302	89	0.47	0.53	-0.04	-1.46	p < .072
Las Papas2	33	30	63	110	0.52	0.48	0.01	0.19	p < .425
Total	486	433	919	112	0.53	0.47	0.02	1.02	p < .154

Source: WIDTECH Fertility Survey 2001

Table 4.2 SRBs from the Madre de Las Aguas, Parks in Peril Project Data

	Sex			Proportion male	Proportion female	Difference proportions	Z-score	Prob	
	Males	Females	Total						
Rancier	326	275	601	119	0.542	0.46	0.030	1.50	p < .067
Bermúdez	818	747	1565	110	0.523	0.48	0.011	0.85	p < .198

Source: PiP surveys 1998-1999



as to dismantle the house and take the construction materials with them into the city. Some hamlets, especially those in the most remote areas located far from roads, are being completely abandoned. At least two hamlets were identified in which there has been a reduction in the last 5 - 10 years of 50% or more of the population. But women have been migrating out of park areas in greater numbers and at a faster rate than males. According to the 1998 PiP survey data for Armando Bermúdez National Park, for example, between 10-24 years of age 80.2% of females leave (24.5% between 10-14 and 55.7% between 15-24) compared to 70.1% of males (16.6% between 10-14 and 53.5% between 15-24). (see Chart 3).

REASONS FOR MIGRATION

Pull Factors

The most widely accepted explanation for greater female versus male migration out of rural areas of the Dominican Republic focuses on the recent reorganization of national production and the concomitant differential incorporation of women versus men into newly emerging non-traditional employment sectors, specifically duty free zones and the non-traditional agricultural sector (e.g. Raynolds 1998; Safa 1995). One argument is that these nontraditional sectors act as pull factors, attracting poor female laborers from remote areas into the urban and agro-industrial workforce. An examination of the most

recent statistics seems to support this view. For example, 56% of duty free zone employees are female (Consejo Nacional de Zonas Francas 2000). Furthermore, 42% of employees in non-traditional agricultural jobs are women in comparison to an estimated 5.5% of women overall in rural areas who report salaried work in agriculture (Raynolds 1998, CESDEM 1997).

But it is arguable whether or not low wage urban job opportunities can explain why women are leaving rural areas at greater rates than men. Dominican women have long been excluded from key economic sectors of the economy, with a much lower participation than that of men in private firms, as independently employed professionals, as workers in publicly owned companies, and as owners of non-registered businesses (PNUD 2000). Between 1996 and 1999, 60% of the new permanent jobs created in the Dominican Republic were for men (Secretaría de Estado de Trabajo 2000). In the year 2000, 70.3% of males of working age were economically active in comparison to 40.6% of females. In the same year, 7.9% of the economically active male population was unemployed in comparison to 23.8% of the economically active female population (Banco Central 2000). Women's participation is largely concentrated in the service sector of the economy, primarily in domestic service and the duty free zones, in which their contributions are largely in non-professional, low paying jobs. Domestic service in particular was mentioned by informants in Los Postes and Las Papas as one of the primary urban job opportunities available to female migrants.

The average pay of women is 72% of that of salaries for males in the Dominican Republic (PNUD 2000). The current minimum wage for a worker in the duty free zone in the Dominican Republic is pesos \$2490.00, or approximately US \$150 per month, which translates into US\$0.93 an hour, among the lowest paid industrial employment opportunities in the Western hemisphere. In comparison, in 1999 the Dominican Republic Central Bank calculated the average cost of the family food basket as pesos \$6,240.84 per month (US \$374.60), 251% of the minimum salary paid in the duty free zones (Banco Central 1999).¹⁴ Fulltime domestic servants, another of the few urban wage opportunities available to Dominican women, earn \$1,500 – 3,000 pesos per month, about what an unskilled illegal male Haitian immigrant makes in 20 - 30 days working in the park study areas or in 4-8 days on an urban construction site. Perhaps the scarcity of well paying jobs available to women in the Dominican Republic explains why recent studies estimate that as many as one in every ten Dominican women between the ages of 16 to 30 is currently working as a prostitute.¹⁵

Opportunities available to men outside the study areas certainly equal or exceed those opportunities available to females. The simple fact is that the low-salaried jobs available to rural women in the urban areas are generally low level, repetitious assembly activities. And as will be seen, men continue to enjoy at least some gainful economic opportunities in the park areas (only 14% of the traditional agricultural labor force is constituted by women).

In summary, it is unlikely that the available employment opportunities explain why more women than men are leaving rural areas of the Dominican Republic. For a more

plausible explanation to understand gender-differentiated migration out of the park areas it is equally if not more important to focus on the opportunities in the park areas themselves, the push factors. The research bears out the importance of push factors in the park areas and the sex-selective nature of these push factors. Over the last several decades there has been a declining availability of viable rural opportunities to make a living. This trend has affected everyone, male and female, but it has more greatly affected women. The sexual balance of labor in these areas has gone from one of relative neutrality to one favoring males. The consequence has been a bias within rural households that favors retaining males while encouraging females to leave.

Push Factors

People living in rural areas of the Dominican Republic have experienced declining economic opportunity over the past several decades. Family based agriculture has been hard hit by a series of crises, including damage wrought by Hurricane Georges in 1998 and a decline in local coffee production due to the destructive plague of "la Broca," a coffee berry boring beetle (*Hypothenemus hampei*). The price of coffee on the international market plunged after 1998-99, falling from highs of US\$112.50 to US\$52 a quintal (110 lbs.) at the time of fieldwork (summer 2001). At the same time, the current estimated cost for a Dominican coffee farmer to produce the same quintal of coffee is estimated as high as US\$105 (Carvajal 2001). Another factor has been the lack of attention paid to these regions by the state, which is attested to by the deplorable condition of local infrastructure (roads, bridges and communal paths) as well as the lack of basic services (health, education, and agricultural extension) in most communities surrounding the park.

But park areas have suffered exceptional economic pressures. The proximity to the parks appears to have played a significant role in provoking rural out-migration. The formation of the parks has been associated with restrictions on land use, both in the park and in the areas surrounding the parks. The creation of the parks cut farmers off from vast areas that had been used as communal pasturage and for swidden farming. Areas surrounding the parks were designated "buffer zones" and farmers were required to obtain permits to plant gardens or cut trees, even when the trees and gardens were on their own private property. Permits were often not granted.

Enforcing the new rules was the Dominican Government's environmental military-police force called *Foresta*. Formed in 1967, *Foresta* agents often harassed farmers who refused to comply with the laws. For violations farmers were fined, and often jailed for weeks and even months. Other conservationist measures adopted by the State included the taxing of livestock within park limits and the restriction of government credit in the park areas and buffer zones. In Las Papas, the government initiated displacement activities, mobilizing a full brigade of infantry. Homes were destroyed and the local campesinos were pressured to leave the area.¹⁶

Causes of Differential Female Migration

Declining income from traditional export staples, the formation of the parks and the criminalization of traditional *campesino* production strategies explain why farmers appear to have been leaving park regions in greater numbers than other areas. But it does not explain why females have been leaving at a greater rate than males. The WIDTECH case study research leads us to believe that the answer lies in the diminished value of female labor, a process related to the changing nature of production, particularly the transition from subsistence-oriented to more intensive and specialized market-oriented agricultural production.

Historical Sexual Division of Labor

The historical point of departure for the discussion that follows is the 1940s and 1950s, the period before the formation of the Armando Bermúdez National Park in 1956. The qualitative information presented was obtained primarily through in depth interviewing of key informants, particularly community elders in both WIDTECH case study communities of Los Postes and Las Papas.

Traditionally there has been a rigid sexual division of labor among Dominican *campesinos*. The domain of women was the household. Women processed food, cooked meals, retrieved water, washed clothes, cleaned the house, made and mended clothes, tended kitchen gardens and care for small livestock such as poultry and goats. Female involvement in activities outside the home was rare, restricted primarily to participation in agricultural harvests and to a lesser extent the planting of short cycle crops such as beans and corn. With the exception of petty commercial activities, such as sewing and making sweets to sell, harvesting of coffee was the only income activity open to rural women.

Male labor activities were oriented toward the world outside of the homestead. Men planted crops, gathered firewood, cut lumber, and raised large animals. Men were responsible for building and maintaining houses and fences, they dominated local political and administrative leadership and, unlike elsewhere in the Caribbean such as in neighboring Haiti, men controlled regional trading, making long grueling trips on muleback across rough mountain trails to purchase supplies such as salt and other hard goods. They sold harvests in regional markets and engaged in wholesale and retail commerce.

Children were critical in traditional *campesino* production. Beginning at four or five years of age, both male and female children aided women in the completion of household chores. By seven or eight years of age tasks began to be differentiated according to the sex of the child. Male children were expected to participate in agricultural labor, to work in the fields, fix fences and take responsibility for herding activities. At harvest time, male children participated in the shelling of the coffee seeds, a tedious task using hand turned mills. Girls would fetch water, take food to the males in the *conuco* (fields), participate in the preparation of food, the cleaning of the house and the brewing of coffee.

Girls would also help in picking coffee. But in general, girls were not sent to work in the fields, in the words of one informant: “the work is too tough for them.”

The economic autonomy inherent in the agro-pastoral complex of “traditional” campesino life was matched by the self-sufficiency of the household. The Cordillera household was a productive unit around which labor was organized and members sought to satisfy the majority of their needs through the processing of locally available resources. This adaptation matches what anthropologists call the ‘domestic mode of production’ (DMP). The form it took in the Dominican Republic was semi-subsistence household livelihood strategies. Campesinos would sell some of their surplus production in the market and purchase others. Purchases were almost entirely focused on subsistence. They included goods such as sugar, salt, spices, alcohol, machetes, hoes, matches, lamps, pots, dishes, cutlery, textiles, sewing needles, saddles and saddle bags (*macutos*). Early on, shoes were a rare commodity, despite a law passed during the Trujillo regime that required the use of shoes in towns and cities. Cloth was purchased, although burlap from discarded sacks was also used for blankets and, in extreme cases, for the making of clothes. At times vegetable oil was purchased, although pig’s lard was commonly used in cooking.

In Los Postes and Las Papas, houses were constructed of locally available materials. Depending on the zone, hand-sawed pine (*Pinus occidentalis*) or manacra palm (*Prestoea acuminata*) was used to make beams for the frame and boards for walls. Roofs were thatched with palm leaves or made of hand sawed pine shingles. In most hinterland communities of the Cordillera, water was plentiful and reasonably close to the homestead, it nevertheless had to be carried to the house and stored in gourds, *higüeros* and *bañanos*. Kitchen implements were produced out of wood. Brooms were crafted out

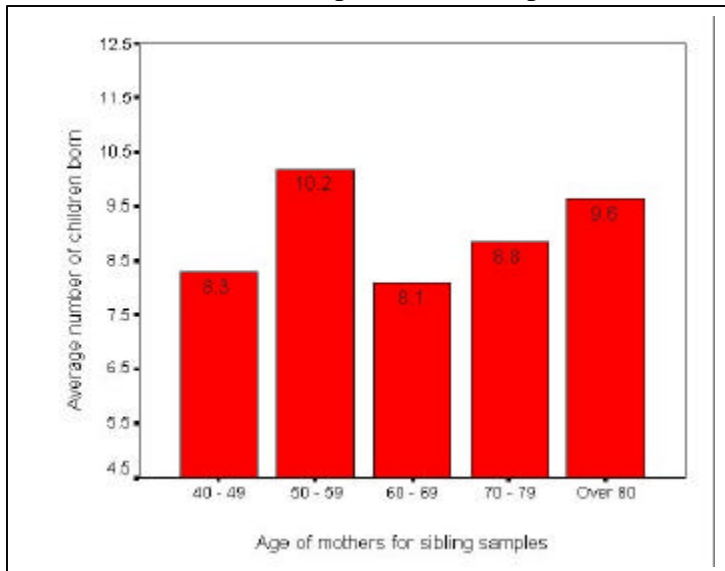


Chart 4: Past fertility of Los Postes

Source: WIDTECH Sibling Sample data (see footnote iv below)

of sticks and grass or palm thatch. Beds were fashioned out of cloth casings stuffed with plantain leaves. Sticks steeped in pine resin were gathered for lighting at night. Many women would make clothes for the family and clothes had to be washed in the stream or river with homemade soap and pounded on rocks to get them clean.

All food for meals was processed in the household: cow peas and beans had to be husked, rice had to be pounded in a mortar before being winnowed and chickens

had to be scalded and feathered. Women would make cheese from cow’s milk. The

making of cassava bread out of bitter manioc was a tedious process that involved pounding the boiled manioc into flour before baking it into the round cassava cakes. Women would cook when their husbands organized a “junta” (labor exchange group) and participate in cooking for juntas at other homesteads.

Women had a burdensome reproductive role. With an average completed fertility rate of eight to nine children, women spent most of their reproductive years pregnant or nursing an infant (Chart #4).^{iv} Women gave birth in their homes attended to by a traditional midwife. Mothers and female cousins assisted young mothers in dealing with the burden of rearing infants and toddlers. But as daughters reached the age of five and six they assisted the mother in the rearing of their younger brothers and sisters. A household with many girls and young women was a viable production and reproduction unit.¹⁷

Accomplishing household tasks involved significant labor commitments. While we do not have precise data available for past labor commitments of Dominican women we do have data from an area in neighboring Haiti where rural women continue to perform tasks similar to those performed in the past by Dominican *campesino* women. In an area of Farwest, Haiti, known as Jean Rabel, households require weekly labor commitments of as much as 155 adult work hours. The exact amounts of labor are given in Table 5 (Schwartz 2000).

Table 5: Average Daily Labor Requirements for Principle Household Tasks (Average hshold size = 5.43)

Task	Frequency per day	Days per week	Avg number Hours per performance	Avg. Time per week (in Hours of Adult labor)	
				Minimum	Maximum
Morning house cleaning	1	6	1 – 2	6.0	12.0
Weekly house cleaning	1	1	3 – 6	3.0	6.0
Water carrying ¹	1-4	7	1.2	8.4	33.6
Morning meal	1	7	1 – 2	7.0	14.0
Afternoon meal	1	7	2 – 4	14.0	28.0
Gathering fire wood	1	7	1 – 3	7.0	21.0
Laundry	1	2	6 – 12	12.0	24.0
Walk to garden + harvesting...	1	3.5	2.5	8.8	8.8
Trip to market and purchasing	1	2	4	8.0	8.0
Total	-	-	-	74.2	155.4

Source: Schwartz 2000

Change in Work Demands

Traditional work tasks of women and men have changed little. Female contributions continue to be centered on household tasks and male work activities continue to be focused outside the household. There have been movements toward increasing female participation in political and administrative activities, such as school management and leadership in grassroots organizations. Furthermore, women have attempted to develop

^{iv} The data for Chart 4 was derived from a Sibling Sample questionnaire carried out in Los Postes during the WIDTECH study. Thirty four household heads born in Los Postes were asked for the location of siblings and, for those siblings who were no longer in the area, the date the sibling had left. The objective was to capture an image of past migration and fertility levels.

petty commerce activities. In Los Postes, for example, a few women organize raffles; some women have started beekeeping and tried, unsuccessfully, to sell processed coffee. But these activities are tied to NGOs and Peace Corps initiatives and, on the whole, women continue to be largely excluded from primary economic activities, such as *colmado* (small store) ownership and commerce. Women in Las Papas report that female involvement in paid agricultural labor has significantly increased, but women are still expected to perform domestic chores such as cooking, washing clothes, and housekeeping. Men are still seen as breadwinners, still dominate politics, and still control retail and wholesale trade. Women continue to perceive their economic participation outside of the household as transitory and justified only during times of crisis, and they express a preference for maintaining their traditional role as homemaker (Pou et. al. 1987:204). One female informant from Las Papas explained,

We work day jobs (echando día), tying up the vines, pulling up garlic and onions. . .we would gather potatoes and beans, but women aren't into that. If we have the opportunity in which it has to be done, it has to be done. But often if you have your husband and he doesn't want you to work we thank God for that. But there are many women who due to necessity have had to 'echar día' (work as day laborers).¹⁸

The sexual division of labor has not changed, but what has changed over the past three to four decades are demands for female labor within the household. With the shift from dependency on household production to purchased industrial products both male and female domestic labor demands have declined precipitously. The declining viability of the domestic mode of production gave way to the high rates of out-migration seen earlier. Men and women began leaving for urban centers and areas of non-traditional agricultural production. But among those who remained behind the changes in productive strategies had a greater impact on the demand for female labor than on the demand for male labor. The domestic mode of production has been largely supplanted by a dependence on imported processed foods, industrial textiles, soaps, and other products sold in the market. This dependency is underwritten by income generated from largely male activities carried out independently of the household. Examples of these primarily male-centric, extra-household income generating activities include intensive agricultural production (coffee and potato farming), livestock rearing (in which livestock is sold on the hoof rather than processed first by the household), agricultural wage work, lumber contraband, honey gathering, remittances, small businesses, trade, taxi and freight services.

The decline in dependency on the domestic mode of production and the concurrent shift in demand for male vs female labor began in the 1960s and 1970s and can be linked to four processes:

- 1) protected area formation,
- 2) urban-oriented State policies
- 3) the modernization of daily life and fertility reduction
- 4) the incursion of Haitian migrant labor.

We elaborate on these processes below to show how women were impacted with the ultimate result being the emergence of social strategies through which women are encouraged to leave the family home at a young age.

A) Protected Area Formation

There were three aspects of park formation that made traditional *campesino* household-oriented productive strategies extremely difficult: 1) land was being pulled out of circulation by the creation of the parks, 2) household production strategies in buffer zones were criminalized by making it illegal to plant gardens or cut trees without a permit, even on private holdings, and 3) household production strategies were rendered not feasible by taxing free-ranged animals and denying park-area farmers access to agricultural credit.

These processes affected men and women. Men were affected because they were no longer able to access land for traditional male *campesino* activities, principally farming and livestock rearing. Many men who could not find land or did not already possess land migrated out of the region. Significantly, those men who stayed were forced to intensify and specialize agricultural production. Those with little land increased their reliance on agricultural wage labor, sought alternative subsistence strategies, such as involvement in trade, or devised new strategies based on a combination of opportunities, such as clandestine lumbering or smoking bee hives for honey. But for the households whose members managed to remain in the park areas the impacts differentially affected women. While men intensified income generating activities outside the household women found themselves with less and less to do. The reduction in the female labor tasks associated with the decline in *conucos* (garden plots) and livestock rearing is evident in the lamentations of one female informant from Las Papas:

In many ways, things in the past were better. With modernization and all of that today is better but in times past we lived with less torment and less problems. . . Before it was more comfortable. In the house we had goats, cows, chickens, [and now] if it isn't fenced in you can't have any of that. Now we live more poorly, we live more comfortably but we live more poorly. We used to eat cheese that my mother made. We worked in agriculture in my house, we planted manioc, corn, potatoes, we had milk, chickens, goats, pigs, because we had the means to have all of that. Instead of heading to the market, we headed to the conuco (garden). Before we lived off of agriculture but now we live off of money. Before you could go three months without finding any money. Now it is not like that.¹⁹

B) Urban-oriented State policies

A second factor lowering the demand for female labor in the park regions was the increasing availability of processed foods and the progressive decline in market prices for traditional staples. The conservation movement, manifest in the formation of protected areas, coincided with policies designed to shift the entire rural Dominican economy away from dependence on the production and export of primary products (sugar, tobacco, coffee, cacao, and bauxite) and the self-sufficient internal marketing system developed during the Trujillo period. Instead, the new emphasis was on economic growth through

import substitution--the development of agro-industry and urban-based factory production. These new productive strategies relied on a low wage labor force and the encouragement of international capital investment in the country. The United States and international lending institutions, which became extremely active in the Dominican Republic after the killing of Trujillo in 1961, fomented the strategy.

In order to keep urban labor costs sufficiently low, price controls were applied to basic food staples. The effort to keep the cost of staples down was complemented by the import of processed foods and massive giveaways of US grains and vegetable oils in the form of 'food relief' under PL-480. Thus "by 1966 the Dominican Republic was the highest per capita recipient of US aid in all of Latin America and second in the world only to Vietnam (Black 1986 cited in Georges 1990:30)." Similarly, at the time *The Wall Street Journal* reported that one in four Dominicans was dependent on US Food Aid (Georges 1990:30). The effect was a flooding of the Dominican market with ready-to-cook food staples and a crashing of prices for most traditional staples, staples that had depended for processing on female and child household labor.

The effect of these policies on campesino households was to reduce incentives for the production of surplus staples and make imported processed food a major part of the diet. In the park regions, deprivation of access to traditional swidden garden and grazing land articulated with the availability of low cost food created households where men were desperately trying to hang onto traditional subsistence strategies. They were working harder, with less, to produce enough income to support families--while *campesino* women were cooking processed foods--effectively lowering the amount of time they were engaged in productive household labor activities. Many men, women and families began leaving for wage opportunities in the city. The campesinos that have stayed often describe themselves as the "cabezas duras," the hard heads or stubborn ones. The majority who have stayed have still been able to eak out a living through independent coffee or potato production often supplemented by wage work by themselves and their sons. Others rely in part on remittances. Others have become full time rural proletarians by working as bosses or laborers on farms, or working in transportation or other small commercial activities.

For women, their role in the home reduced, they were left with even fewer options in the rural areas. Some women entered the ranks of seasonal day laborers—where they found themselves competing with low wage Haitian immigrants for seasonal agricultural jobs.

C) The Modernization of Daily Life and Fertility Reduction

The consequences of Park formation and the efforts by high level economic planners who aimed to drive *campesinos* away from the traditional livelihood practices has been complemented by the introduction of labor saving devices such as gas stoves, mills, piped water, and washing machines. The availability of pre-fabricated clothes has reduced time for ironing and darning as well as the making of clothes. The recent introduction of these devices and products effectively lowers the amount of time and number of women necessary to accomplish traditional household labor tasks.

Table 6.1: Percentage of Households with Technology

	Piped Water	Gas Stove	Washer	Sewing Machine	Generator	Solar Panel	Motorcycle	Car	TV
Los Postes	72.9	62.4	11.9	8.3	16.5	12.9	20.0	7.1	21.2
Las Papas	16.9	64.0	4.8	0.0	3.2	16.9	25.0	2.4	29.6

Source: WIDTECH Technology Survey 2001

Table 6.2: Average Number of Years Owning Technology

	Piped Water	Gas Stove	Washer	Sewing Machine	Generator	Solar Panel	Motorcycle	Car	TV
Los Postes	7.7	3.37	1.6	13	9.7	3.2	5.5	3.5	4.7
Las Papas	7.7	4.3	1.5	0	2.0	3.4	4.8	9.0	3.4

Source: WIDTECH Technology Survey 2001

Table 6.3: Approximate Date First Introduced

	Piped Water	Gas Stove	Washer	Sewing Machine	Generator	Solar Panel	Motorcycle	Car	TV
Los Postes	1971	1987	1997	1976	1974	1982	1986	1985	1981
Las Papas	1969	1979	1998	N/a	1997	1994	1980	1979	1980

Source: WIDTECH Technology Survey 2001

Gas stoves and piped water were the earliest labor saving devices introduced into the regions and they are currently the most widespread. Whereas in the past women cooked almost exclusively with rudimentary woodstoves and charcoal grills, today most women in the park areas have wood, charcoal and gas stoves. In Los Postes, gas stoves were introduced through private initiatives. In Las Papas, they were introduced privately but a government-sponsored program for displaced persons (persons displaced by the formation of the protected area) also distributed stoves in one of the hamlets of the sección in the mid 1990s. In Los Postes, the first gas stove was introduced approximately 14 years ago and currently over 62 % of households have access to gas cooking fuel. Similarly, in Las Papas, the first gas stove was introduced in the area 1979 although it was not until the early 1990s that these began to proliferate due primarily to strict park and Forestry laws related to charcoal making and the collection of fuel wood. Currently, 64% of women have gas stoves in Las Papas (see Tables 6.1-6.3).

Despite the added cash burden (approximately US\$6 dollars for a subsidized 50-pound tank of gas—which lasts an average household approximately 6 weeks) local informants express a preference for gas stoves. They emphasize that the introduction of gas stoves saves at least ½ to 1-hour cooking time for each meal, in addition to the labor saved by men in the collection of firewood.²⁰

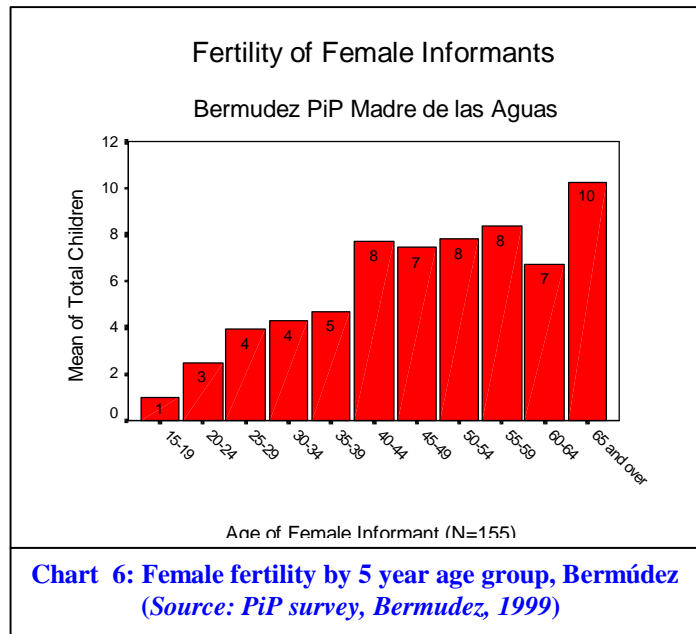
The second major time and labor saver is piped water. In Los Postes, almost ¾ of households have piped water, acquired primarily within the last 10 years. Although

water is not scarce in Los Postes, women claim that piped water saves them and their daughters 3 – 4 trips to the closest water source per day. It also saves considerable time in washing clothes, which typically required spending up to a full-day per week at the river. In Las Papas, few households have piped water, but three years ago a water pump was installed in the center of one of the major hamlets of the sección.

Fertility:

Labor saving devices and the general shift in household livelihood strategies have contributed to lower fertility rates. The use of tubal ligations is the primary method used by *campesina* women to control fertility. In Las Papas, female informants recall that the first woman to *prepararse* (literally ‘prepare themselves’) did so approximately 20 years ago. Today there is an overall drop in the fertility rate beginning with women in the 30 to 40-age range.

Women are not only practicing birth control due to the proliferation of contraceptive technologies but rather, more importantly, as a response to the reduced need for children. The reduced need for children in Los Postes and Las Papas is linked to the decline in subsistence production and the increase in availability of labor saving devices. As children have become less needed in terms of labor they have become more costly to rear in terms of cash. In the words of a 44 year-old Las Papas woman with eight children:



- Question:* Are people having as many children as families in the past?
- Answer:* We aren't into that anymore. The economy is very hard. . .
- Question:* How did people manage with such large families?
- Answer:* Giving goat's milk, cow's milk, to the youngest ones. In the morning they would make them rice with cream of beans, for dinner they would prepare another thing with a little of milk and they (the children) would raise themselves. . . [now] you have to buy a can [of powdered milk] that costs \$40 pesos or so in the colmados (small grocery stores), and if it a small sack it is \$25 pesos.
- Question:* So now people don't want to have so many children because it costs them a lot of money?

Answer: The last girl that I had tasted like cash. [The costs of raising her] are bleeding me to death (i.e. draining her financially). . .

A reduction in fertility represents a reduced labor burden for women as responsibilities for bearing and rearing children are reduced. At the same time, lowered fertility reduces the need for female children in the household to attend to the younger brothers and sisters and participate in other household tasks made more cumbersome by larger family sizes.

D) The Incursion of Haitian Migrant Labor:

Another factor that reduces the demand for female labor and the gainful economic opportunities available to women in the park regions is the incursion of low wage Haitian laborers. Haitian laborers have long been a presence in Dominican sugar plantations but it was only recently that they became important in other agricultural sectors, including those that predominate in the park areas, particularly coffee and potatoes. The emergence of Haitian labor in areas outside of sugar production can be attributed to a relaxing of migration policies, a response to the increasing intensification of agricultural production in the 1980s and the increasing pressure from entrepreneurial interests aiming to reduce production costs.

Informants report that Haitians first began arriving in Los Postes and Las Papas during the late 1980s. The current population of Haitian migrant workers is entirely male and depending on the season ranges from 10% to 25% of the Dominican population of the case study *secciones* (Haitian workers are not included in the national census or the PiP survey samples).

Haitian labor is available to any campesino that can afford to pay 50 to 100 pesos per day. Some small landholders employ Haitians when weeding gardens or picking coffee and most people employ Haitians to accomplish menial tasks such as mixing mortar when constructing houses or carrying rocks. But in both areas it was clear that the influx of Haitian workers is facilitated by large landowners who provide sleeping quarters and on whose fields the Haitians primarily work.

Throughout the year a steady stream of Haitian men come and go from specific regions and towns in Haiti to specific farms in the park areas. Landowners who hire Haitians establish ongoing relationship with the men. They provide the migrants with housing and free access to subsistence gardens. They employ the men when they need them. When not working for the *patrón* the men are free to work elsewhere. Whomever they are working for, the *patrón* or another person, the client must feed the men two meals per day.²¹

Although large landowners praise Haitians for being diligent workers and, according to the Haitians themselves, generally provide them with decent treatment, many small farmers and especially Dominican laborers resent the presence of Haitians. They claim that the Haitians have lowered wages and taken agricultural jobs from Dominicans. Dominican women, however, were not so harsh. The ones we spoke with typically said that Haitians have not taken jobs from them. Nevertheless, the presence of Haitian

migrant labor in the park areas clearly has an indirect impact on female migration. Haitian men are a widely available, highly motivated and inexpensive labor force that large landowners have come to depend on to harvest coffee, the primary traditional extra-household income opportunity available to women.

Conclusions Regarding Push Factors:

The formation of the parks with the concomitant restrictions on access to resources, the transformations in the domestic mode of production and the availability of labor saving devices and Haitian migrants make significant female presence in park area households a burden as opposed to an asset.

Campesina women and daughters living in the park areas have found themselves in less demand. The reorganization of production as a response to the formation of parks and the strict application of *Foresta* policies deprived *campesinos* of recourse to traditional livelihood strategies. This shift away from dependence on traditional household livelihood strategies lowered the importance of household labor. While men responded by turning to extra-household income generating occupations and boys remained valuable for the performance of non-remunerated extra-household tasks that still need to be accomplished—such as gathering wood and fruits, and watching livestock-- women and girls became less critical in the processes that sustained households. At the same time, new trade policies brought about by international pressure in combination with “food relief” opened the floodgates to inexpensive imported foods, foods that were already processed and that further reduced the demands for household labor. The introduction of labor saving technologies such as piped water and gas stoves further reduced demand for female household labor. The process became self-reinforcing. Females labor was increasingly supplemented with labor saving devices and the decline in demands for household labor meant monetary costs for additional family members became an increasing concern, giving way to increased use of contraceptives and a reduction in fertility. Fertility reduction reduced the childcare burden and, once again, lowered female and child time commitments even further. Simultaneous to the plunging need for female labor within the household, the incursion of inexpensive Haitian labor reduced the need for female and child participation in coffee harvests, the major traditional female and child economic opportunity in many areas of the Cordillera. Without a corresponding shift in the sexual division of labor, women and their children, particularly female children, were becoming superfluous.

RELEASE MECHANISMS/MIGRATORY STRATEGIES:

With the decline of the household as the principle mode of production, additional non-contributing family members represent financial drains on household resources, resources now obtained largely through extra-household, male-centric income earning activities. Evidence suggests that rural families in the park areas are taking steps to release or “unload” female children at increasingly younger ages while trying to hold onto male children. The primary mechanisms identified through which families ‘release’ females

from the household are marriage, education, and channeling them into urban job opportunities.

Marriage patterns:

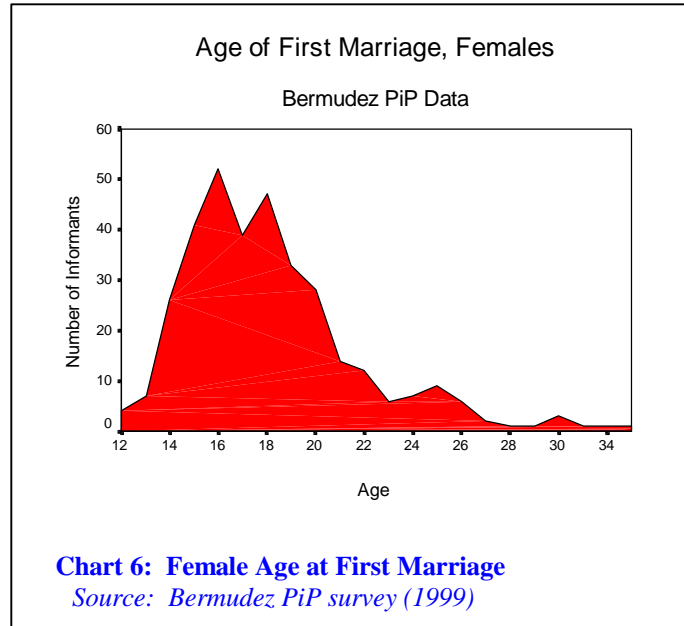
The primary mechanism through which women leave the park communities at greater rates than males is marriage, or more specifically in the case of the park regions, consensual union. Rural Dominicans tend to be patrilocal, meaning that upon entering union young women leave their home communities and move to the community of their new husband. In the past, the loss of local women was largely compensated for by young women from outside marrying into the communities. But data suggests that women are marrying out at increasingly younger ages. Men, on the other hand, are tending to stay at home longer and marry older. Thus, early marriage is functioning as a mechanism by which girls are leaving, being drawn off, or perhaps it could be said, being expelled from the park regions.

The process works like this. The vast majority of marriages begin as consensual unions but there are customs and social rules related to the consolidation of a consensual union that imbues the relationship with formality and social acceptance. The ‘marriage’ is typically planned in secret and involves an elopement. The “groom” escapes with his ‘bride’ to a motel in a nearby town, to a relative’s house, or to his parent’s home. When their daughter fails to appear at a reasonable hour, the parents recognize that she has been “taken”. In Los Postes tradition dictates that the man appears on the following day to ask his bride’s parents for forgiveness for taking their daughter. In Las Papas, where the majority of residents are migrants from the south, the traditional practice is called the “*besa mano*”, the kissing of the hand. The new ‘bride’ generally remains hidden in the house of the male’s family *avergonzada* (embarrassed), until the ninth day. During this time the male visits the woman’s parents and asks for their blessing. On the ninth day the bride emerges and a dinner or party is held to celebrate the union and bring the families together. The families and other members of the community thus provide a social legitimization to the union similar to the marriage ceremony in western circles. The couple refers to one another as husband and wife (“*esposa*” or “*mujer*” and “*esposo*” or “*marido*”) and is expected to form an independent household and produce children.

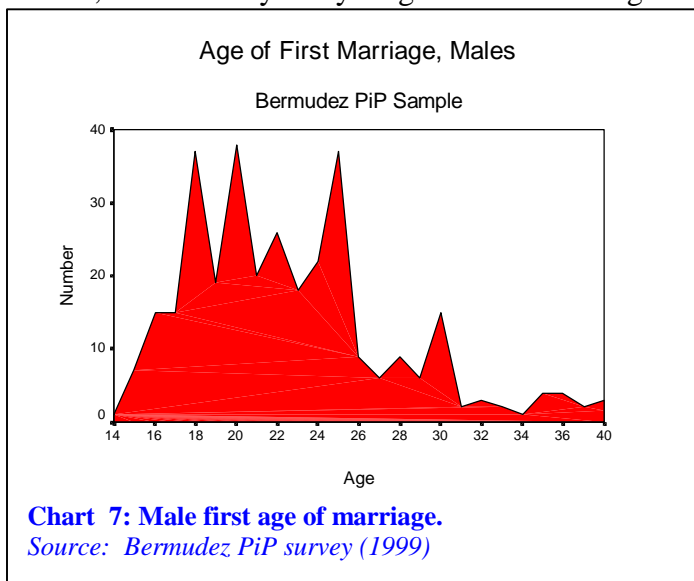
Parents repeatedly express that once their daughters are “taken,” they become the full responsibility of their husbands. They tell their new “son in law” that the daughter has now become his responsibility—he is to provide for her fully and not mistreat her. The *campesinos* emphasize that once their daughters are taken they undergo a transformation. They become adults and can only return to the parental household in the event of a crisis in the relationship such as abandonment or severe mistreatment by the husband. (It should also be pointed out that the policy of the Dominican Secretariat of Education does not allow young women in union or legally married to attend school with the single female students. If these want to continue their education they must attend night school).

Of particular significance is that the Dominican Republic has new laws mandating punishment for men who engage in sex with female minors (under the age of 18). Local authorities we interviewed were emphatic about the application of the law. If parents

protest legally, the law is strictly enforced. The man is fined and incarcerated for a period of several months to as much as two years. But the fact is that parents in the park areas are not turning in men for eloping with their young daughters. On the contrary, it appears that parents are increasingly using 'marriage' as a mechanism to escape the burden of caring for daughters who no longer have a significant economic value to the household. The sheriffs of Los Postes and Las Papas and their deputies in the hamlets emphasized that it is unusual for the girl's parents to bring suit against men who have eloped with young girls. And yet in both Los Postes and Las Papas a striking number of young women were identified who entered into first union between 11 and 14 years of age. Looking at Chart 6, it can be seen that girls begin entering union in relatively significant numbers by the age of 14 and by 16 years of age 38% of women in the PiP 1998-99 surveys reported having been in at least one union.



Marriage at these extremely young ages is a new phenomenon. The Armando Bermúdez PiP data reflects that the average age of marriage for females between the ages of 10-39 is 17.5, almost two years younger than the average 19.1 years of age for women who are now over the age of 39 (stat sig: $p < .000$). One 45 year-old male informant lamented,



*...they don't have experience to attend to a household. In our culture, in the times that I was raised it was very difficult for a girl of 16 to become involved with beginning her own family. . .Not all of them, but [now] they are marrying 'nuevecitas', brand new. . . This began some time ago, that they are marrying so young. Before a normal age for them to marry was 22 or 23...*²²

Men enter union later and over a much broader range of ages (Chart 7). In contrast to the 38% of women who are or have been in union by the age of 16, only 7% of males have entered a union by that age. The average age of first union for males is over four years older than their female cohorts (22.64). Even more significantly, however, many males do not enter union until their mid to late 20s. Thirty one percent (31%) of males marry for the first time at the age of 25 or over. In comparison, 93% of females are married by the age of 25. Congruently, males stay in the parental home for a longer period of time. Of the single individuals in the Bermúdez PiP sample in 1999 over the age of 16 (n=215), 80% are males and only 20% are females. This percentage differential increases as single individuals enter their 20s. Of single individuals over the age of 20 (n=105), 85.7% are male; only 13.3% are female. Over the age of 24 (n=53), 88.7% of the single individuals in the sample are male and 11.3% are female.

An elderly male informant from Los Postes explained, “the male child is worth more.” While parents are allowing daughters to leave earlier, they continue to hold onto their sons. Don Efrain, a 71-year-old campesino from one of the founding families of Los Postes, has five children, three males and two females. Both daughters left the community and married in Santiago. But his sons have stayed in the community. Efrain states that he has been ill lately, and at his age he needs the boys to stay at home. *“I taught them to work, to work in the coffee fields. They find jobs as day laborers. I can send them to do errands by themselves and other things, which I cannot do with girls ... Females? Cleaning, cooking, that is basically what they do.”*

Although during the interview Doña Carolina, his wife, suggested to him that it would be nice to have a female in the house to help her with the chores, Efrain says that his sons are in no position to marry and bring a girl home. Efrain states emphatically: *“my sons can’t fall in love yet because there aren’t any resources available for that.”*

Thus, while parents are allowing daughters to leave earlier, they are continuing to hold onto their sons. The demographic implication of this trend is an unfilled gap in the physical presence of women in the 10 to 25 year age-range, a principal cause of the unbalanced sex ratios identified through the PEOMAP mapping.²³

Female Education

Another mechanism by which a greater number of girls are leaving the park communities is education. When a female informant from Las Papas was asked: “Do you want your daughters to stay here in the community,” her response was; “oh, no, the schools are too far away.” Parents express a great desire to send their daughters to the cities to continue their education as well as a desire to keep at least some male children closer to home. Comments suggest that acquiring an education has become incorporated into the gender roles of females: *“the boys weed, the girls study, the work of women doesn't get as complicated as that of boys, [who have to work] to obtain money to survive,”* stated one informant.²⁴ And in the words of the director of the school in Los Postes: *“Parents keep the boys and send the girls to study. . .the girls have more freedom to study.”*

School enrollment data support the comments of the informants. In both Los Postes and in Las Papas, there were more males enrolled in grade school than females, a fact echoing the male skewed sex ratios (Table #7). But at the high school level there is a dramatic reversal. The male/female ratio of enrollments changes from 110 for grades 4-8 to 80 for grades 9-12 (Table #8). The same trend exists in the municipality of Santiago, one of the primary destinations of migrants of the region, with a ratio of 104 for grades 1-8 and 80 for grades 9-12 (Secretaría de Educación, pers. comm.). In Los Postes a rural video high school program was recently initiated with an enrollment of 8 females and 3 males.

Table 7: Enrollment in Schools of Los Postes and Las Papas 2000-2001

Grade	Los Postes				Las Papas**			
	Initial Male	Final Male	Initial Female	Final Female	Initial Male	Final Male	Initial Female	Final Female
8 th	7	5	1	1	N/a	N/a	N/a	N/a
7 th	6	6	7	6	N/a	N/a	N/a	N/a
6 th	13	12	6	7	3	3	5	5
5 th	12	10	5	5	1	0	9	9
4 th	8	8	7	7	5	5	9	9
3 rd	11	9	7	7	13	13	3	2
2 nd	5	5	9	9	10	10	5	4
1 st	8	8	4	4	12	10	8	5
TOTALS	58	68	46	46	44	41	39	34

** The school in Las Papas only reaches 6th grade.

Source: Interview with the school director in Los Papas during the WIDTECH case study (2001)

Table 8: Student Enrollment by Municipality (1999-2000)

	Grades					
	Inicial (grades 1-4)		Basico (grades 5-8)		Media (grades 9-12)	
	Masculine	Feminine	Masculine	Feminine	Masculine	Feminine
Constanza	400	413	4286	4000	751	1030
Jarabacoa	672	634	6065	5578	926	1226
Jánico	113	119	2270	2020	185	220
San José de las Matas	434	377	5333	4733	748	797
Totals	1619	1543	17954	16331	2610	3273
<i>Masculinity Ratio</i>	1.05		1.10		0.80	

Source: Secretaría de Estado de Educación, Departamento de Estadística, Dominican Republic

The family of Ramoncito Pujols illustrates how *campesinos* in the park regions tend to push their daughters through school, sending the girls away to towns and urban centers while at the same time trying to hold on to the boys. Ramoncito is a middle-aged father from the sección of Los Postes, who has nine children, five girls and four boys.

Ramoncito's eldest daughter left to study in Los Postes, the municipal capital, when she was 15 years old. Initially, she would return home on weekends. Then she met a man in town and married when she was 16. After marrying she abandoned her studies and never completed her first year of high school. The next oldest daughter also was sent to study in the municipal capital. Ramoncito states that she frequently returns home on weekends, as did her sister. This daughter has been more persistent in her studies, avoided the temptation to marry, and has reached her final year of high school before reaching her

17th birthday. Ramoncito expects that she will graduate from high school this year and find a job in Santiago. Ramoncito's three youngest daughters continue to live in Los Postes and are enrolled in the local school.

But Ramoncito's attitude toward his boys is much different. Ramoncito keeps the boys close to home. All four male children continue to live in the family home in Los Postes. The oldest, a 22 year old, completed his first year in high school by making the 2½ hour round trip to the municipal capital to study in a Saturday program. The next oldest, a 20 year old, first enrolled as a freshman in high school courses this year (2001), when high school became available locally through a video study program. The third boy, an 18 year old, recently began his second year of high school. He makes the 1 ½ hour daily round trip from Los Postes to attend a regional high school in the nearest town. The youngest son has just completed the 8th grade and is awaiting word on whether he has passed the National Exams to move on to high school. He has never left the community and, if he passes the exams, will probably enroll in the video studies program.

Ramoncito says that he has to send his daughters out of the community to study. It is more difficult for women to travel daily than men: "you have to be careful with the girls, the boys can catch a ride with anyone." But clearly there is more to it than this. Their brothers could escort the girls to school, or they could simply have remained at home as many boys end up doing. After all, if the girls were useful their education would perhaps be delayed or drawn out, similar to that of the sons. In fact, Ramoncito clearly emphasized that he needs his sons close to home:

I sent [both] of my daughters out to study. . . With my sons I have plenty of desire to send them out to study but I need them. For example, they study outside and do their work here. One of my sons just did his first year of high school in (a nearby town), he works with me in my bus and comes home at 12:00 noon.²⁵

Urban Jobs

Placing a conceptual emphasis on 'push' factors does not mean that young women are merely passive agents in the migration equation. Women are aware that there are labor opportunities available in the urban areas and they view migration into cities as an opportunity for social mobility and independence. In the words of a single Los Postes male expressing frustration at not being able to find a wife: "If one says to a woman 'lets fall in love, we are going to Santiago' they will go straight away. But if you ask a woman to come here, there is no way she will come. The women want to go to Santiago, they are *all* into that."²⁶

Females have work opportunities in the cities, however menial they are, and parents make use of urban-based kinship networks to facilitate the migration of daughters to the cities to study. Often the girls combine their studies with work, primarily as domestics. But what is notable is that only in rare instances did informants mention sending their daughters to the city exclusively in order to work to send back money to the family.²⁷ For example, Doña Esperanza reported that two of her four daughters migrated to

Santiago to work and study. Her oldest male also migrated, but in his case it was “solo a trabajar” (only to work). As one informant put it: “*the girls, when it isn’t leaving to study its to work, and the majority do both things. The boys don’t leave so much, the boys stay in the home.*”

Don Efrain was one of the few who decided to send both daughters to Santiago, “with the idea that they could better contribute to the household in that way, working and sending back *ayuda* (assistance).” But families understand that depending on daughters to work to send back support is temporary at best. For example, both of Don Efrain’s daughters married in Santiago. Although one daughter, Yadira continues to work in the duty free zone, they no longer send back much help: “their responsibilities are now to their husbands.”

Summary: Female Migration and the Skewed Sex Ratios

Explanations for greater migration of women out of park areas than men rest more on understanding the opportunities available to men and women not outside the park communities but within the rural communities themselves.²⁸ The decline of the household mode of production, the increasing use over the past three decades of processed foods, and the availability of household labor saving devices such as piped water, gas stoves, and washing machines has meant that the need for girls and women to accomplish traditional labor-intensive female household chores has declined precipitously. With the shift away from the DMP, the volume of female tasks has declined and the presence of contemporary labor saving devices has meant tasks that thirty years ago took several women a full day to accomplish can today be accomplished by a single woman in a matter of hours.

At the same time that the need for female labor in the household has declined, few new opportunities outside of the household have opened up for women to become viably incorporated into significant income generating rural enterprises. Women, who have become a financial liability for economically strapped rural families are being released at a young age from the households, either by allowing or encouraging young girls to marry at a young age or sending them out to live with relatives and study in the urban areas. Male labor, however, continues to be considered important for household subsistence and families are holding on to their males.

CONCLUSIONS: CONSERVATION IMPLICATIONS

What are the implications of the study for the conservation of the Hispaniolan Pine ecoregion and management of the two national parks in the study area? What do the results imply regarding opportunities for the incorporation of men and women into conservation efforts? On first glance, the social indicators seem to suggest positive trends for conservation efforts. The population of communities surrounding both parks is in decline. Some hamlets, especially those in the most remote areas, those located farthest from roads, are being completely abandoned. Two hamlets were identified in which there has been a reduction in the last 5 - 10 years of more than 50% of the

population. There has also been a shift in settlement patterns from the most remote mountainous *parajes* to hamlets closer to roads accessible by vehicle, creating a pattern of strip communities. This pattern is especially evident in Los Postes and other communities surrounding the Armando Bermúdez National Park. Furthermore, the greater out-migration of women in combination with lowered fertility implies that population will continue to decline. Lower population levels suggest less future demand by the *campesinos* for park-based resources, improving prospects for long-term conservation.

Another point that might be seen as positive for conservation outlook is that production strategies in areas surrounding both parks have been intensified. Whereas the majority of *campesino* farmers formerly practiced extensive slash and burn agriculture, they are now largely fixed on permanent landholdings. In the case of Armando Bermúdez National Park, these are landholdings outside of the park. In the case of Juan B. Pérez Rancier National Park, intensive agriculture is being carried out within the legal park limits, but the government has sanctioned activities within certain areas of the park. There are still clandestine activities that take place within the parks, primarily the extraction of lumber and the raising of livestock, but these are activities that could be suppressed with improved surveillance by authorities.

However, *campesinos* and their traditional livelihood strategies are not the greatest threat to park conservation. The greatest threats posed to park conservation are the activities of skilled and upwardly mobile agro-industrial entrepreneurs who have access to relatively large amounts of capital and who are well connected to urban political and financial elites. Migration appears to have provoked a continuing concentration of landholdings through land sales, transactions often carried out by *campesinos* to sponsor household migratory ventures. The agro-business enterprises fill the vacuum created by the out-migration of *campesinos*. In many instances they have emerged from the ranks of local big landowners or the emigrant *campesinos* themselves. In any case, the process is a new adaptation to the out-migration of the traditional smallholders and to the State sponsored shift in production in the country. These adaptations have stimulated significant changes in land use, which has proved to be a significant threat to the conservation of biodiversity, habitat and watershed areas within parklands and buffer zones.

In the surroundings of Armando Bermúdez National Park, especially along the eastern limits, there has been a vast expansion of sun-grown Caturra coffee plantations at the expense of traditional coffee farms. Further to the west, the lands are becoming progressively converted into large-scale grazing areas. But it has been the expansion of non-traditional intensive agriculture into the Las Papas area that has been the most environmentally damaging. Former President Joaquín Balaguer once called the nearby agricultural center from whence this expansion has taken place “the valley of death” because of the saturation of the area in agro-chemicals. Similarly, the expansion into the park areas involves the production of short-cycle crops such as potatoes and vegetables and has implied the massive re-contouring of the landscape using bulldozers and front-end loaders. There are few checks on erosion on severe mountain slopes. Chemical pesticides and fertilizers, many of which are banned in developed countries, are applied

in abundance and with no environmental or legal control. Eight-inch irrigation pipes are being extended ever farther into the park highlands where they effectively drain off water miles before it reaches the park boundaries.

The success of the agro-industrial entrepreneurs in Las Papas has depended on their negotiating the immigration of labor from outside the park areas. In movements that are reminiscent of urban 'land grabs,' Dominicans from the arid southern region are brought in to work on the fields of agro-industrialists, generally with the tacit support of one of the Dominican political parties. They are allowed to settle on small plots of land. The agro-industrialists have successfully used the squatter settlements to politically legitimize their own claims to land and fend off efforts by the State to reclaim the parklands.

If unchecked, the process of agro-industrialization of the areas surrounding the parks, and in the parks themselves, will likely continue. It appears that the reduction of the *campesino* population will probably continue to give way to a concentration of landholdings in the hands of a few large landowners. One way to deal with the problem of the agro-industrialization of the park areas is to encourage some *campesinos*, both men and women, to remain in the park areas, by working with them to devise economically viable market oriented alternatives to agro-industry, alternatives that reinforce conservation oriented goals. This will involve providing capital through small grants, loans and credit to individuals or cooperatives wishing to engage in conservation-appropriate entrepreneurial activities. Linkages need to be created with profitably oriented companies that purchase products or promote services conducive with conservation-oriented objectives

The study shows that women have been differentially impacted by the decline in traditional subsistence farming patterns and the decrease in the diversity of the local farming systems. Ironically the lower status and value of women for rural households suggested by the study also may be providing women with opportunities for personal independence and "empowerment" through education. Nevertheless, these are gains obtained primarily through migration to urban areas and do not appear to have translated into markedly greater empowerment for women in the rural areas. Large-scale land use is under the control of men. Few women directly control land or other resources. Instead, their management of lands has been limited to the yards of the homestead and to the margins of the family gardens.

But for that very reason, women are the ideal candidates to become the small entrepreneurs of the region. There are charismatic women who play leadership roles in many of the hamlets surrounding the park and women led organizations irrefutably display more consistency and internal solidarity than male oriented and male led organizations. Women express concern regarding the quality of the local environment, especially that of water, and they display a willingness to participate in outside projects. The development of viable economic alternatives for women, particularly in the service and petty commerce areas, should serve as a means of slowing female out-migration and lend additional stability to the families in the region.

The strengthening of the long-term conservation prospects of the park will also require fomenting the ongoing participation of the local people in the conservation process. The campesinos in Los Postes and Las Papas understand the importance of the conservation of the park areas but realistically complain about the lack of local economic alternatives. They express resentment over oppressive *Foresta* policies and of the fact that their direct needs and opinions have never really been taken into consideration in the formulation and implementation of conservationist policies. Frequently heard were comments about the inconsistencies in policy implementation and the incompetence of park guards who have taken advantage of their privileged positions for personal gain. Within this line of thought, four major themes that emerged out of the study are the following:

- 1) The need for ongoing consultation and dialogue with local stakeholders and the involvement of women, who are often invisible in a community's political processes and in the conservation process and have more free time than men;
- 2) The need for educational programs that emphasize the teaching of individual rights which are gender-based and environmental laws and policies in conjunction with the teaching of the technical rationales for conservation;
- 3) The critical need for the professionalization of the Forestry and Park Services.
- 4) The need for entrepreneurial activities, particularly targeting women, that reinforce the values associated with conservation of parklands.

Finally there are broader and more theoretical questions that are raised by this study. At what expense and at whose expense should conservation be carried out? To date the conservation achievements in the ecoregion have occurred not through the building of consensus but through conflictive processes carried out at the expense of the local populations.

State policies have had the practical effect of progressively destroying the "traditional" campesino economy of the region. The current urban-focused political and economic framework conflicts with the whole notion of "sustainable rural development." Larger forces that militate against the success of community-based conservation have generally frustrated the efforts local NGOs and international organizations have made, with considerable financial investments, to promote rural sustainable development initiatives in the region. One of the key roles that NGOs and conservationist-oriented international agencies can play in the conservation process is that of continuing to bring to public attention the plight of the men and women of park affected populations. Furthermore, local NGOs should concentrate efforts on lobbying the State to change key policies that, ultimately, provide incentives for unsustainable land use policies and result in the abandonment of the region by *campesino* families.

ENDNOTES:

¹ Along with an increased attention to key social variables conservation organizations have increasingly been making use of a broad array of research methods and data analysis techniques. One of the most important has been the use of modern computerized mapping technology, particularly geographic

information systems (GISs) to provide clear spatial definitions of conservation targets, ecosystems, and pertinent physical geographic characteristics. TNC and other conservation organizations have begun to explore the utility of mapping socioeconomic and population data, using the number and density of people as general indicators of the likelihood and nature of human impacts on sensitive conservation areas. The future of socioeconomic mapping in conservation likely will take a couple of different directions in the next few years, as conservation professionals and social scientists try to refine such inquiries. One is using mapping to explore different scales, particularly smaller geographic scales that can contribute to understanding human impacts on individual conservation sites. A second direction is the expansion of focus to examine other data in addition to population—notably by mapping data that provide insights on the reasons of population change, and other data that reveal more about the actual impacts of people. A final useful future direction of socioeconomic mapping in conservation contexts is the use of mapping to facilitate the identification of relationships between the human and physical/biological environments. The mapping of more sophisticated statistical data can prove useful in visualizing how people affect their natural surroundings across a broad landscape, and *vice versa*. (We would like to thank Dr. Larry Gorenflo, former director of The Nature Conservancy's PEOMAP project, for having provided written information on the use of social mapping in conservation organizations).

² The mapping was done as a contribution to TNC's Madre de las Aguas project, a Parks in Peril initiative designed to protect the Hispaniolan Pine Forest ecoregion. The ecoregion includes four national parks and one scientific reserve. The project received financial support from the Summit Foundation.

³ Juan B. Pérez Rancier National Park expanded the limits of the Valle Nuevo Scientific Reserve that had been formed in 1983 (Progressio et. al 1997)

⁴ There are four primary political administrative divisions in the Dominican Republic. The national level is divided into provinces, the provinces are divided into municipalities. The municipalities are divided into "secciones" (literally, sections), which are finally divided into "parajes", parishes or hamlets. The largest of the parajes of the sección generally serves as the seat of the "alcalde pedaneo", or rural sheriff, who presides over the sección as its highest local authority. The other parajes of the sección have a "segundo alcalde", a sheriff's deputy.

⁵ The four researchers spent a total of 27 days at two research sites. Research methodology involved a combination of methods, including the following:

a) Semi-structured interviews: Sixty semi-structured household and key informant interviews were conducted with migrant workers, local small farmers (men and women), female heads of households, local leaders (men and women), and community development workers. Interviews were designed to provide a qualitative understanding of the causes and local impact of women's migration, land tenure systems, changes in household labor organization, and views regarding the local impact of migratory labor and park formation.

b) Focus groups: Twelve small single gender and mixed gender focus groups were conducted (7-10 individuals, 6 groups in each study region). The goal was to understand perceptions of each group regarding changes in gender roles, changes in the community over time, changes in labor requirements and technology use and environmental awareness of the different groups. Participatory mapping was used with groups of men and women within the application of focus groups to obtain an understanding of current and historical resource use patterns.

c) Gendered resource-use mapping: To generate information regarding gender-specific land tenure and resource use participatory mapping was used at both the household and community level (we mapped sources of wood products, water, animal grazing areas, other construction materials, medicinal plants, and materials for local craft production).

e) Census analysis and reviews: We analyzed recent and historical quantitative census and survey data to determine the socioeconomic and demographic characteristics of the study communities.

f) Sibling Questionnaires: Thirty four household heads born in Los Postes were asked for the location of siblings and, for those siblings who were no longer in the area, the date the sibling had left. The objective was to capture an image of past migration and fertility levels. Other information collected included the age of siblings, education level, and for women, number of children born and the sex of those children.

g) Fertility Questionnaires: To capture an image of current fertility levels by sex, all women in 194 households were asked how many children they had borne--this included all primary women in the households (86) in Los Postes and a sample of 108 women in Las Papas.

h) Technology Use Surveys: Two hundred and fourteen (214) households in Los Postes and Las Papas were surveyed to obtain data on the labor saving devices present in the community.

⁶ Table 9: Populations and Sex Ratios of Communities Bordering Parks

Paraje	Males- 1993	Females- 1993	M-F Ratio 1993
Rancier			
Las Papas (1)	131	112	117.0
Las Papas (2)	266	144	184.7
East Hamlet (1)	51	45	113.3
East Hamlet (2)	73	41	178.0
Bermúdez			
Hamlet (1)	101	81	124.7
Hamlet (2)	128	115	111.3
Hamlet (3)	171	124	137.9
Hamlet (4)	116	76	152.6
Hamlet (6)	64	57	112.3
Hamlet (7)	41	34	120.6
Hamlet (8)	174	165	105.5
Hamlet (9)	12	1	1200.0
Hamlet (10)	68	57	119.3
Hamlet (11)	118	98	120.4
Hamlet (12)	126	87	144.8
Hamlet (13)	29	28	103.6
Hamlet (14)	99	83	119.3
Hamlet (15)	24	20	120.0
Hamlet (16)	143	118	121.2
Hamlet (17)	165	118	139.8
Hamlet (18)	328	295	111.2
Hamlet (19)	42	29	144.8
Hamlet (20)	135	110	122.7
Hamlet (21)	93	66	140.9
Hamlet (22)	164	133	123.3
Hamlet (23)	71	64	110.9
Hamlet (24)	140	108	129.6
Hamlet (25)	214	186	115.1
Hamlet (26)	159	128	124.2

Hamlet (27)	47	27	174.1
Hamlet (28)	55	46	119.6
Hamlet (29)	22	11	200.0
Hamlet (30)	51	28	182.1
Hamlet (31)	61	65	93.8
Hamlet (32)	100	67	149.3
Hamlet (33)	54	51	105.9
Hamlet (34)	45	42	107.1
Hamlet (35)	74	61	121.3
Hamlet (36)	109	77	141.6
Hamlet (37)	65	50	130.0
TOTAL	4129	3248	127.1

Data source: 1993 National Census of the Dominican Republic

⁷ Ten of the sixteen communities surveyed exhibited sex ratios higher than 120 males to every 100 females; only two communities exhibited sex ratios that fit global statistical norms. However, in the context of the other communities studied, these communities appear to be statistical anomalies, likely an incidental result of the low numbers of individuals in the respective communities--representing a combined population of only 121 of the 2,734 individuals sampled.

Table 10: Rural Sex Ratios

Zone		General Population			
		Males	Females	Total	Sex ratios
Rancier (data obtained from community census)	Las Papas (3)	49	23	72	213
	Las Papas (4)	29	19	48	153
	Las Papas (2)	35	24	59	149
	South Hamlet (1)	65	49	114	133
	East Hamlet (1)	37	23	60	161
	East Hamlet (2)	12	10	22	120
	East Hamlet (3)	90	55	145	164
	East Hamlet (4)	47	28	75	169
	South Hamlet (2)	44	40	84	110
	Total	408	271	679	151
Armando Bermúdez (data obtained from sample of community)	Hamlet 1	128	90	218	142
	Hamlet 2	134	102	236	131
	Hamlet 3	148	118	266	125
	Hamlet 4	103	65	168	158
	Los Postes	129	111	240	116
	Hamlet 5	194	180	374	108
	Hamlet 6	136	118	254	115
	Total	972	784	1756	124
All Communities		1380	1055	2435	131

Data sources: PiP surveys of Rancier (1998) and Bermúdez (1999)

⁸ In only three of the 191 countries listed in the 2000 Demographic Year Book is life expectancy greater for females than for males.

⁹ These include, for example, Haitian laborers in the rural Dominican Republic--which are often temporary immigrants, seldom included in calculations of local sex ratios for specific regions

¹⁰ Such societies include hunter and gatherers, horticulturalists, and pastoralists. For example, in a survey of over 600 'primitive' populations, anthropologist William T. Divale found that due to the practice of female infanticide the average sex ratio in the under 15 age range was 150 boys to every 100 girls (although higher male deaths in the older age groups tended to even sex ratios out; see Harris 1974).

¹¹ It should be noted that the data in a major survey carried out in 1996 in the Dominican Republic shows an infant/toddler (0 - 5) and child (5-9) sex ratio of 116.2, essentially equal with that of China (CESDEM et. al. 1997).

¹² Table 11: Children of Households Born in Communities Studied During Parks and Perils Research

	Zone	Males	Females	Total	Sex Ratio
Rancier (data obtained from community census)	Las Papas (3)	37	32	69	116
	Las Papas (4)	33	21	54	157
	Las Papas (2)	21	16	37	131
	South Hamlet (1)	60	47	107	128
	East Hamlet (1)	27	28	55	96
	East Hamlet (2)	9	8	17	112
	East Hamlet (3)	73	63	136	116
	East Hamlet (4)	38	30	68	127
	South Hamlet (2)	28	30	58	93
	Total	326	275	601	119
Armando Bermúdez (data obtained from sample of community)	Hamlet (1)	101	84	185	120
	Hamlet (2)	103	100	203	103
	Hamlet (3)	129	132	261	98
	Hamlet (4)	98	90	188	108
	Los Postes	114	100	214	114
	Hamlet (5)	175	149	324	117
	Hamlet (6)	98	92	190	107
	Total	818	747	1565	110
All Communities		1183	1048	2231	113

Source: PiP Rancier survey (1998) and PiP Bermúdez survey (1999)

¹³ Sonograms are widely offered in Santiago and Santo Domingo.

¹⁴ This average is for urban families outside of the capital of Santo Domingo with 4.3 members and two wage earners. According to the Central Bank this average should not be compared to the minimum wage, because the families in the lowest quintile (i.e. those with the lowest levels of consumption) can survive on \$2528.22 (US \$151.75) a month. Obviously this rationale provides a State justification for maintaining policies that support extremely low wages and dooms the poorest Dominican families to a life of perpetual poverty and misery.

¹⁵ Data from "social work groups" estimates there are currently 100,000 female Dominican prostitutes working within the borders of the Dominican Republic and another 40,000 working outside of the country (Dominican Prostitution: Cheap, Prevalent and Accepted. Miami Herald, Tuesday June 24, 1997. Found at <http://www.aegis.com/news/mh/1997/MH970604.html>).

¹⁶ The displacement was halted before reaching its full conclusion and the residents were left waiting to be relocated to new lands, subsisting on food rations for the better part of 5 years. With the change in

government in 1996, the displacement decree was lifted and the inhabitants were allowed to once again farm the lands.

¹⁷ According to local custom, after giving childbirth women were required to remain in the home for 40 days before being allowed to pass beyond the limits of the homestead. During this period, other women from the family would be required to attend to the women in retreat, collecting medicinal and aromatic plants for the preparation of daily healing baths. Pharmaceutical products were not available and women would gather medicinal plants to attend to family illnesses. The women and younger children would collaborate in the rearing of the ever-present newborns.

¹⁸ The quote in the paper is a liberal English translation of the following full quote: *[Trabajamos en] la vainita, mochando ajo cebolla, la vainita amarrarla y corta la vainita china, amarrar tomates se recogían papas, cacao, habichuela, pero ya las mujeres no están en eso. si tenemos la oportunidad de que había que hacerlo había que hacerlo mucha veces si tiene su esposo y el no quiere que trabaje le damos gracias a Dios por eso. Pero hay muchas mujeres que por su necesidad han tenido que echar días*

¹⁹ The quote in the paper was the authors liberal English translation taken from the following full quote: *En muchos aspectos atrás era mejor, con la modernización y la cosa lo de hoy es mejor pero en esos tiempos atrás vivimos con menos tormento, menos problemas. Hoy estamos más modernizados pero tenemos más problemas porque en esos tiempos cuando usted estaba por lo menos en los 20 años nosotros lo que comprábamos era hierros para trabajar, picos, azadas, colines, limas, no teníamos que acumular tantos abonos y hoy si va a sembrar 50 kilos de papas si usted no puede comprar 50 o 60 sacos de abono usted no está. Antes era más cómodo. En la casa teníamos chivos, vacas, gallinas, si no es por debajo de un cerco no puede tener nada de eso. Trabajábamos agricultura en mi casa, sembrábamos yuca, maíz, papa, leche, gallinas, chivos puercos porque teníamos como tener todo eso, ahora no. Hoy vivimos más pobres que en ese tiempo, vivimos más cómodos pero somos más pobres. Comíamos queso que hacia la mamá de nosotros. En lugar de coger para el mercado cogíamos para el conuco. R.7- Antes vivíamos de la agricultura ahora vivimos del dinero. Antes se podía pasar 3 meses sin hallar dinero. Se consumía menos dinero.*

²⁰ Although there is no good data available on the topic, it is unlikely that the introduction of gas stoves has resulted in significant reductions of habitat destruction within park areas. Firewood storage and use in the rural areas of the Cordillera Central is much different than what is commonly seen in the northern United States, for example, in which households display wood stacked by the cord, quantities sufficient to satisfy firewood needs during a long and cold winter. In the warm climate of the Caribbean, even in the mountains, which experience cooler evenings, Dominican campesino households rarely store more wood than that which will be needed for a week. Furthermore, the firewood used generally consists of dried twigs and sticks that are either gathered from the ground or chopped off of already dead trees. Especially in coffee producing areas such as Los Postes, much if not the majority of the fuel wood that is used is gathered in the coffee farms. Some campesinos admitted to chopping down one or two trees a year in the park, leaving them to dry to have available as a reserve source of fuel in times of scarcity (especially the rainy season). But the cutting of live trees for use as firewood currently is --and appears to have long been --the exception rather than the norm in the Cordillera Central.

²¹ Haitians jobs include construction, planting, tending animals, harvesting and fetching wood, among others. Any Haitian with a passport pays several hundred pesos at the border and heads straight for the Capital or Santiago where there are opportunities in commerce and relatively high paying jobs in construction. But for most of the men we met in the park communities this was not an option, they had no passports.

The trip from Haiti can be grueling and dangerous. In the areas we worked it took from three to five days on foot. First timers pay 1000 pesos to be led from Haiti illegally across the border and to a destination where they will find work. They must bring their own food. But after a couple journeys they learn their own way and come and go free of charge.

There are professional guides, Haitians, who make a fairly decent living leading other Haitians into the DR. But the job has its hazards. When the authorities catch a group of Haitians the guide is reportedly beaten by the authorities (they leave the money they make in Haiti).

If the migrant wants to cross at border checks even Haitians with no passport can accomplish this for a fee. But the emigrant then must negotiate the many checkpoints set up near the border. Buses are typically stopped several to a half dozen times within a three-hour drive of the border. How strict these check points are depends on some unknown and perhaps informal Dominican policies. There are 'loose times' when the guards allow Haitians to pass without checking them. At these times many Haitian men will take the bus in as well as out of the country. Even when times are tough, guards can be bribed but this is beyond the means of the poorest Haitians, the ones who work in rural areas such as the communities we studied.

Once 'nan tè' (on the soil), meaning inside the DR, the Haitian with no passport walks through the parks and through rural areas. Sleeping by the trailside or in the temporary and borrowed shacks of other Haitians met along the way. Thievery is a problem, especially when coming into the DR. The superior social position of Dominicans and the typical and warranted fear with which illegally entering Haitians regard the Dominican authorities results in stories of as few as two or three Dominican bandits, armed only with knives, robbing large groups of Haitians. In one case a Haitian man said he was with 20 Haitians stripped and robbed by three Dominicans. They took everything, even his morsels of bread.

Getting back to Haiti is not so bad. Haitians can take the bus because the soldiers do not stop buses heading toward the border, only those coming from the direction of the Haiti.

Haitians typically stay in the DR for 2 to 6 months. Many are very young and almost all fall within the age range of 16 to 30. A very few old-timers are in their mid thirties. The oldest we met was in his mid forties. About one fourth of the Haitians we met had no children. Most had two or three children and a wife waiting back in Haiti.

Haitians report getting credit from Colmados and they appear to move about freely and without much problems. They are afraid of the authorities but not in the rural areas where they work and are protected by their employers. They even report that if a Dominican employer refuses to pay them they have recourse to the law.

The greatest grievances cited by Haitian informants are problems with poor people, men, who heckle them and sometimes pick fights. They say that Dominicans 'pa bay nou valè'--do not respect them.

But although Haitians lay low those we met appeared at ease. The men who learn to speak Spanish appear to develop friendships with Dominicans and move at even greater ease. We even witnessed a Haitian boldly and aggressively flirting with a young Dominican woman in the midst of her family and neighbors. No Haitian children and women were seen in Los Postes and only a couple of each were identified in the area of Las Papas.

²² The quote in the text is was taken from the following full quote in Spanish: *No vale la pena que una muchacha de 16 y 17 años se case, no vale la pena, no tienen experiencia para atender un hogar. En nuestra cultura, del tiempo que yo me crié una muchacha de 16 años era muy difícil meterse en familia. . . No todas pero esas que se casan nuevecitas, la juventud es juventud, pero quizás no tienen un buen calor del padre que le dé confianza. . . Hace algunos años que se están casando más nuevas. Antes una edad normal para casarse era 22 años, 23. en ese tiempo los padres tenían más control.*

²³ Although polygyny in these areas of the Central Cordillera appears to have widely occurred in the past--something reported both in Los Postes and Las Papas—and was observed by the authors during a 1998 research project along the Dominican-Haitian border, polygyny was not found in the park regions where we carried out this research (see Murray, McPherson and Schwartz 1997).

Polygyny is commonly viewed as an indicator of female repression and therefore would be expected in the park areas due to the low value attributed to women. However, the issue is not so simple. Women in the park areas are actually being given greater freedoms. They are being allowed to marry younger (i.e. greater sexual freedom), and they are being encouraged to get an education. Both of these 'advancements' fall within the realm of what we have interpreted as efforts to release girls from the household. The seeming incongruence between "lower value" and "greater independence" only exists if the assumption is made that the repression of females is a manifestation of the low social 'value' of women. In fact, women may be repressed in many cases because they are so valuable, i.e. in areas where the production of children is critical to household sustenance. (For example, a recent article in the Christian Science Monitor reported that in India there are now villages consisting largely of bachelors due to the fact that the introduction of amniocentesis has allowed for the selective abortion of female fetuses. As a result, in these villages women are very valuable but also even more guarded (Seroki 2001)). Therefore there is no reason to expect that despite the fact that women have lower value within the household in the rural conservation areas women are being more repressed than in the past. Furthermore, there is evidence in Haiti that polygyny appears to be related less to the repression of women and more to 1) an inequality of income among males and 2) single women aggressively seeking financial support from the few males who have it to spare (Schwartz 2000).

²⁴ English translation of the following quote: *los varones van a deshierbar, las muchachas estudiar, el trabajo de la hembra no se complica tanto como los varones, para conseguir cuartos para sobrevivir* (o sea, en terminos economicos, de ingresos para la casa). . .

²⁵ Taken from the following quote in Spanish: *A los varones se me sobra el deseo de mandarlas a estudiar pero uno los necesita. Por ejemplo estudian fuera y hacen su trabajo aquí. Un varón que hizo el primero de bachillerato en el rubio, el se va conmigo en la guagua y viene a las 12:00 .*

²⁶ Taken from the following conversation quoted in Spanish: *A las mujeres. . .uno le dice: "vamonos a enamorarnos, que es para Santiago que nos vamos", y de una vez se va. Pero digale a ella que coje para aca, a ver si va a venir. No viene, ella no viene!*

P.- ¿Los hombres que se quedan aquí, se quedan sin esposa,

R.- Hay algunos que consiguen aquí, pero de una vez se dejan. La mayoría.

P.- ¿Las mujeres quieren irse?

R.- Si, ellas quieren irse para Santiago. Porque se ponen a conferiar que eso, y se van asi.

²⁷ Safa (1995:104-105) found that one half of her sample of women in the export processing industry were married and another fourth divorced or separated. Two-thirds of her sample had one or more children. She found that the workers are largely young--three fourths of women under the age of 30 years, 78 % are migrants from the rural areas, and 60 % had been living in the city for 10 years or less. Raynolds (1998) reports similar marital patterns for women working in the non-traditional agricultural sector. These findings contrast markedly with duty free zones in other countries such as those in Asia, where single, childless young women predominate. In contrast, in the Dominican Republic the presence of nubile females working in the duty free zones is relatively rare. The data tends to support our observations of migratory mechanisms employed in the rural areas. Few single rural women are migrating directly into the city to pursue employment in the non-traditional export sectors. Rather, marriage is the primary mechanism through which rural women first leave, or are released, from the household.

²⁸ If it could be demonstrated that SRBs are in fact deliberately skewed in favor of males then it would remain to be explained why parents prefer males. Once again, the explanation would have to do with the low value of female labor in the rural areas and the fact that women marry out and are lost to their natal families.

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