Supporting Information

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Meat Consumption Patterns. Household wildlife consumption ranged from 0 to over 53 kg of wildlife per year in the study households. The proportional composition of wildlife in the diet over total meat consumption ranged from 0% to 76%, with a mean of 16% and a median of 14% (Fig. S2). There was a negative correlation (−0.40, P value < 0.0005) between household income and the proportional mass-by-weight of wildlife over total meat consumption in the diet. Thus, there was a greater relative reliance on wildlife as an animal source food in lower income households. Wildlife consumption was positively skewed, with median household consumption at ~8.75 kg per year.

Household and Individual Level Characteristics of the Study Population. A high prevalence of stunting is often a marker of a chronically malnourished population, whereas a high prevalence of wasting (low weight-for-height z-score) is a marker of acute malnutrition. This population appears to be chronically undernourished, evidenced by high rates of stunting and very low rates of wasting (Table S1). Hemoglobin concentrations were normally distributed in our study population (mean 11.7, SD: 1.3 g/dL) and we categorized 42% of children as anemic. The mean hemoglobin concentrations show that this population is on the fringe of being healthy. Hemoglobin thresholds for anemia are known to be subjective and individuals may not experience symptoms when deemed anemic and may be symptomatic even when their hemoglobin is above the threshold.

Calculating Harvest Rates and Harvest Areas. We conducted semi-structured interviews in 481 households in 26 villages from January-December 2007 throughout the Makira Protected Area. We identified households within selected villages through systematic random-sampling techniques and recruited them over a period of several years, starting in 2004. We also estimated through oral recall the total number of individuals of each of the 23 locally occurring mammalian bushmeat species that were consumed by the household during the prior year (1; see ref. 2 for validation of method). Total harvest for each village was then determined by extrapolating the sample to the actual village population sizes. We calculated a range in biomass harvested by using published estimates of species body mass (3). Harvest area was calculated as a circle surrounding a village center, with a mean radius of 4.4 km and a SD of 2.9 km, determined by hunter reports of either distance or time traveled to actively hunt or passively trap lemurs (see ref. 1 for details). We assumed the maximum harvest area to be the forested area within the mean harvest radius plus one SD.

Strategies to Alleviate Anemia. Although supplementation (through pills or other vehicles), fortification (integration of nutrients into the food supply like iodized salt), and biofortification (genetically modifying crops to enhance their nutritional value) are efficacious strategies to alleviate iron-deficiency anemia (4–7), there are also several prominent drawbacks. Supplementation is very expensive and only designed for short-term interventions (8), and fortification, although cost-effective in the long term, is often prohibitively expensive for developing countries that may be particularly at risk for a heavy burden of anemia (8). In addition, because iron supplementation improves iron status without improving general health and other micronutrient deficiencies, blood may become richer in red blood cells without correlative improvements in other micronutrient health and immunity. In certain cases, this type of supplementation has been shown to place populations at increased risk for other micronutrient deficiencies or malarial morbidity (9–11). Therefore, dietary diversification and the integration of animal-source foods into the diet is likely the best solution to iron-deficiency anemia on a population level in this setting. These strategies are likely to be more rapidly adopted by local people and can treat anemia in a holistic fashion that does not compromise the immune health or micronutrient status of the individual. Because such vast quantities of iron and zinc are required by people during periods of rapid growth, dietary diversification of vegetarian diets only would likely not satisfy nutritional demand.

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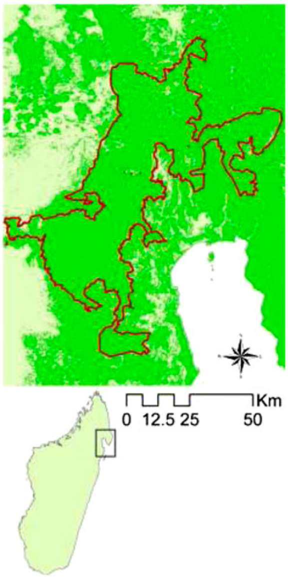

Fig. S1. Featured (*Upper*) is a map of the Makira Protected Area in northeastern Madagascar. The study village was located near the eastern boundaries of the protected area in a lowland, secondary rainforest (*Lower*).

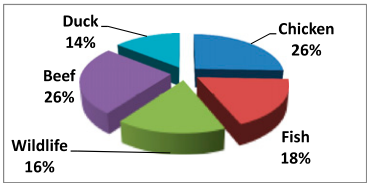

Fig. S2. Diet composition of an average Malagasy diet in the study population. Before cooking, each household in the study (n = 28) weighed the mass of all dressed meats consumed with digital kitchen scales. These weights, in addition to other dietary-intake information, were recorded three times per day onto diet calendars. Compliance was observed by a research assistant weekly throughout the year.

Table S1. Household and individual level characteristics of the study population

Variable	Mean (SD)/percentage
Household variables	
Household size (no. of people)	5.36 (1.73)
Annual wildlife consumption (kg) [median (IQR)]	8.75 (13.35)
Annual income [median (IQR)]	\$153.33 (\$185.64)
Maternal education	
No education	25%
Primary education	61%
Secondary education	14%
Ethnicity	
Betsimisaraka	89%
Tsimihety	11%
Individual variables	
Female	55%
Annual wildlife consumption (kg) [median (IQR)]	0.97 (1.98)
Hemoglobin concentration (g/dL)	
Average hemoglobin concentration (g/dL)	11.7 (1.3)
Hemoglobin concentration (g/dL) for children < 5 y old	11.2 (1.3)
Hemoglobin concentration (g/dL) for children ≥ 5 y old	12.0 (1.2)
Anemia	
Average anemia	42%
Anemia for children < 5 y old	39%
Anemia for children > 5 y old	44%
HFA *z*-score	−1.18 (1.88)
BMI for age *z*-score	−0.3 (0.69)
WFH *z*-score	−0.32 (0.72)
Time since deworming (mo)	2.84 (2.56)

Household size is the unweighted number of individuals in a household. Annual wildlife consumption in the household was measured as the number of kilograms of meat consumed by the household. IQR, interquartile range. Annual income was measured as the total value of wages earned, products sold, and items bartered. A conversion rate of $1 = 1,800 Malagasy ariary was used. For ethnicity, Betsimisaraka and Tsimihety represent the two primary ethnic groups in this region. Annual wildlife consumption for individuals is calculated by multiplying household consumption by a proportion allocated to an individual as derived from observation in the intrahousehold allocation study. Hemoglobin concentrations were measured using a HemoCue Hb 201+ (1). Anemia was defined as hemoglobin concentrations less than 11.0 g/dL in children 0–5 y of age and 12.0 g/dL in children 5–12 y of age (2). HFA *z*-score is a standardized value of vertical height by age, where children below two SDs are considered stunted or abnormally short for their age (a condition secondary to malnutrition). BMI (Body mass index) for age *z*-score is a standardized measure, which is the ratio of a child's weight to his height squared. WFH (Weight-for-height) *z*-score is a standardized measure of acute malnutrition where a value two SDs below the mean of zero is considered wasting (a form of severe undernutrition).

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Table S2. Results of a generalized linear mixed-model examining the response of hemoglobin concentrations (g/dL) to levels of wildlife consumption

Model and variables	Coefficient (95% CI)	*P* value
Model 1 (73 children)		
Wildlife consumption	0.20 (0.0078, 0.39)	0.041
Age (y)	0.14 (0.094, 0.19)	<0.0005
Sex	0.30 (−0.014, 0.61)	0.061
Annual income	0.69 (0.39, 1.00)	<0.0005
Domesticated meat consumption	−0.022 (−0.39, 0.34)	0.908
BMI for age *z*-score	−0.084 (−0.24, 0.075)	0.300
Malaria	0.11 (−0.20, 0.43)	0.483
Deworming	−0.020 (−0.047, 0.0065)	0.139
Constant	10.66 (9.23, 12.09)	<0.0005
Model 2 (77 children)		
Wildlife consumption	0.20 (0.014, 0.38)	0.035
Age (y)	0.17 (0.12, 0.22)	<0.0005
Annual income	0.55 (0.30, 0.79)	<0.0005
Constant	10.48 (10.10, 10.87)	<0.0005

Model 1 has fewer children because of incomplete deworming data for four children. Model 2 includes the significant ($P < 0.05$) variables from Model 1. Wildlife consumption is the amount of annual wildlife consumption (kg) and was log-transformed because of positive skew. Annual Income is the mean centered log-transformed annual income data. Income was measured as the total value of wages earned, products sold, and items bartered. Domesticated meat consumption is the amount of annual domesticated meat consumption (kg) and was log-transformed because of positive skew. Malaria is a binary variable of whether or not the individual had malaria in the previous month. Deworming is the number of months since the last deworming medication has been taken.