

Dryland Afforestation and Poverty Alleviation: Bedouin and Palestinian Non-timber Forest Product Collectors in Contrasting Economic Environments

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Introduction

Non-timber forest products (NTFP), whether consumed or marketed, represent a substantial value (Pimentel *et al.* 1997; Kusters and Belcher 2004). NTFP are believed capable of alleviating poverty or at least helping maintain consumption levels while averting impoverishment (Vedeld *et al.* 2007; Mahapatra and Tewari 2005). Communities find in forests edible and medicinal plants, meat, honey, fodder, and fuel. Studies (Arnold 2001; Neuman and Hirsch 2000) have shown that NTFP extraction can serve the poor as a safety-net. NTFPs may be utilized on a regular basis to provide food to some households and income to those pursuing more intensive extraction strategies. However, the extent to which the rural poor rely on the forest for their livelihood depends on the measure of their access to alternative opportunities (Arnold 2001).

The share of natural resources in the income of the rural poor is higher than in that of wealthier households. Three studies out of four (in India, Himalayan villages, Zimbabwe and Nepal) reviewed by Narain *et al.* (2005) suggest a

decreasing dependency on natural resources as income increases. Escobal and Aldana (2003) observed the same relationship among collectors of Brazil nuts in southeastern Peru.

In a survey of 537 households in India, Narain *et al.* (2005) found a more complex relationship: a U-shape effect of income on natural resource dependence, which decreases with increasing income, while in the higher income groups it increases again. In sum, the rich collect no natural resources, or collect a lot, while the poor collect a sizable amount for subsistence purposes. NTFP extraction will play different roles in diverse economic environments. It can be a major source of subsistence, part of a diversified portfolio of rural community activities or compensate for income shortfalls.

In drylands, planted forests often take over grazing land previously used by the underprivileged. Mediterranean dryland forests are often small and recently planted, providing limited resources. In Israel, afforestation has served, among other purposes, as a tool for land control, sometimes over disputed territories. Nevertheless, and despite warfare constraints in the Occupied Palestinian Territories, fringe communities have informally been allowed to make use of Israeli-planted forests inside the Green Line.¹

While NTFP production in tropical and equatorial forests has been abundantly treated in the literature (Escobal and Aldana 2003; Morris and Ingles 2003; Narain *et al.* 2005; Wunder 2001), little is known about such production in dryland single species forests, widely planted in the Mediterranean basin. Croitoru (2007) provided an estimate for Mediterranean forests with an average NTFP valued at €35 ha⁻¹, reaching €54 ha⁻¹

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¹ The 1949 armistice line separating Israel and its neighbors. It is also used to delineate areas captured and occupied by Israel in 1967. Here it refers to the line separating Israel and the West Bank.

on the average in the southern regions. For the Middle East (Turkey, Cyprus, Lebanon, Syria, Israel, Palestine), the value of NTFP was estimated to be the lowest of all, at €20 ha⁻¹. There is no other specific estimate of NTFP value in Israel and the Palestinian Authority Territories specifically.

NTFP extraction practices in a single forest by two distinct categories of rural poor (e.g. each living in a different economic environment) have also, to our knowledge, never been assessed. This study centers on ways by which national prosperity may affect NTFP collection by the poor in low NTFP production forests. The study considers the livelihoods of two marginalized communities located on opposite sides of a forest and sharing its resources, while living respectively in a relatively wealthy country and in an impoverished one: specifically an Israeli Bedouin community and a Palestinian community in the West Bank.

Methodology and Area Studied

Our study was conducted in Yatir, a 3,000 ha forest planted in 1964 in the Northern Negev desert of Israel (31° 20'N

and 34° 55'E). Yatir stretches along the Green Line between Israel and the West Bank (Fig. 1), and constitutes Israel's largest forest. Precipitation occurs erratically between October and May, and averages 270 mm year⁻¹, the lowest limit for large-scale rainfed afforestation. The main tree species in the Yatir forest is *Pinus halepensis* Mill., resistant to dry and hot summers as well as to consecutive years of drought.

On the northern edge of the Negev (Israel) reside sedentarized Bedouin and in the South Hebron Mountains (West Bank) there are former peasants. These communities dwell in the towns of Hura and Sammu', respectively. Both are underprivileged vis-à-vis the rest of their societies. Yet they use the forest differently, due to the contrast between the Palestinian and Israeli economies.

Like the other Palestinians who stayed in Israel after 1948, the Bedouin received Israeli citizenship in the 1950s (Marx 1967). The peasants of the Hebron Foothills fell under Jordanian rule and later, in 1967, when Israel occupied the West Bank and Gaza, lived under Israeli administration. In 1997 they were integrated into the Palestinian Authority, when, in the framework of the Oslo Agreements, Israel ceded control of Sammu' and Yatta to the

Fig. 1 Map of the studied area

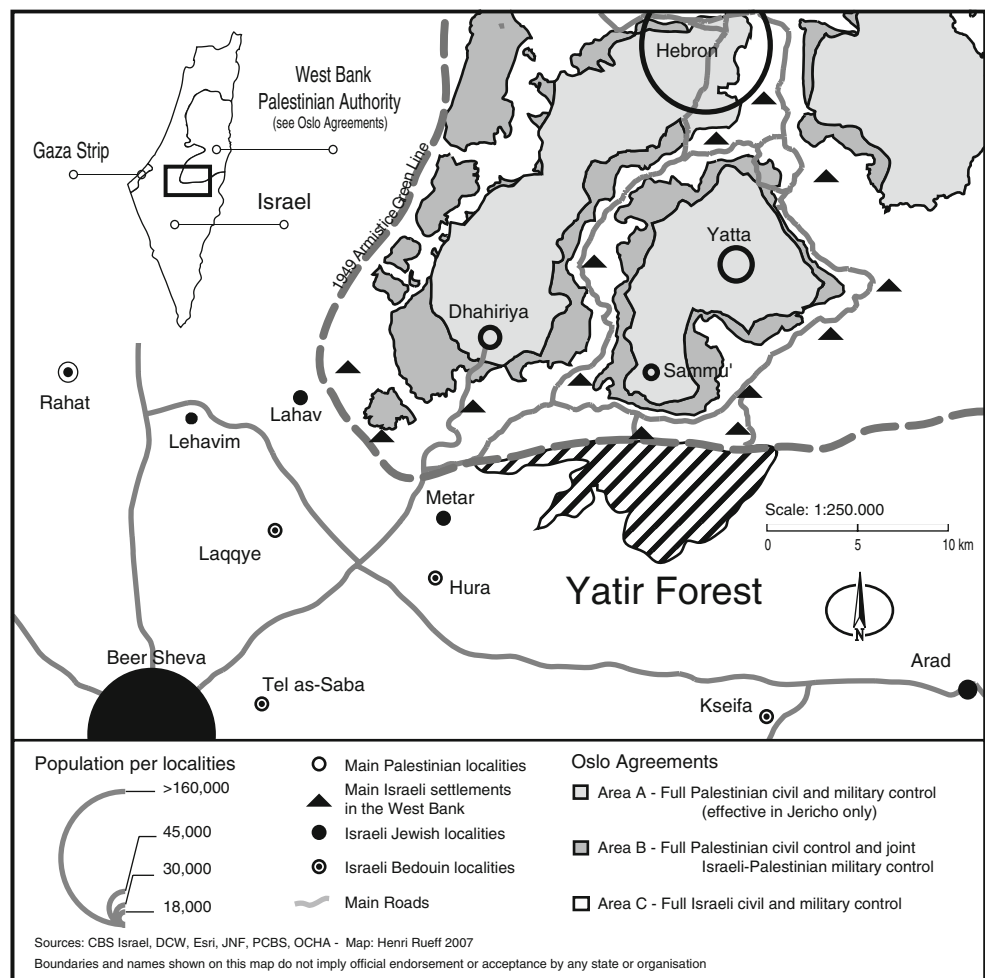
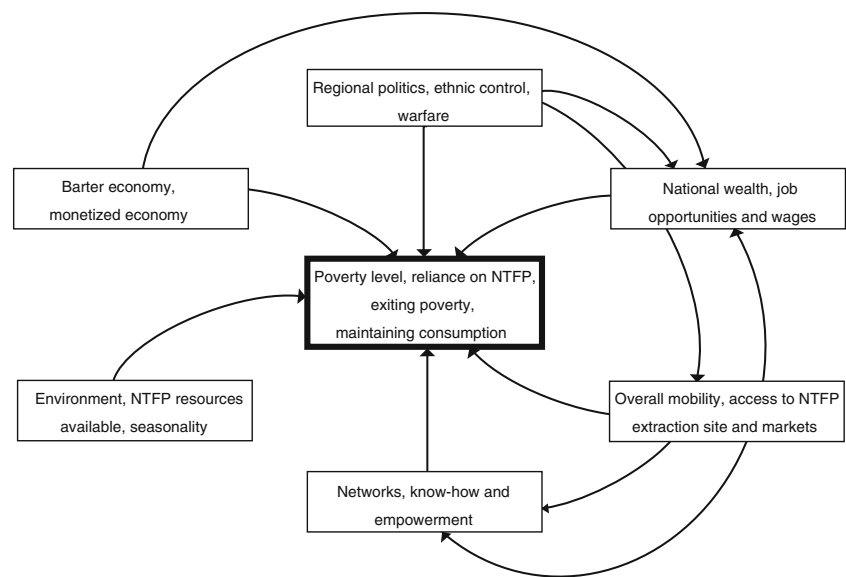


Fig. 2 Interconnection between poverty factors and NTFP reliance in the Israeli–Palestinian space



Palestinian Authority. While both Arab communities belong to the Palestinian population which lived in the region prior to the establishment of the State of Israel (1948), we will use the terms "Bedouin" when referring to the population which lives inside 1967 Israeli borders and "Palestinians" to refer to the peasants of the Hebron Foothills. Though we use different labels for these communities, we are well aware of the close networks they maintain across the Green Line (Kressel 1993; Parizot 2006a, b).

Data on NTFP extraction were collected in 2004 through participant observation and by interviewing government officials, key local figures and community members. Official statistics were also used. While questionnaires might have yielded a more systematic estimate, respondents had become suspicious of formal interviews during the second Intifada (uprising), which broke out in September 2000 and was still ongoing at the time of the study. Moreover, responses to questions about the extraction of protected plants (hyssops) or the trapping of protected animals are highly suspect at all times, which gave us an additional reason to favour an ethnographic approach.

We interviewed three Palestinian respondents in the town of Sammu', all three acquainted with NTFP collection practices in Yatir. Each of them estimated separately the numbers of people hired to do the work, the length of the season, and the amount of products trucked from Sammu' to markets in other cities. We also gathered information on the amount of work involved in picking and processing the products. Finally, we received information about prices and their variations and about labour costs, which allowed us to produce an overall estimate of seasonal income.

In Hura we interviewed the head ranger of the Yatir forest, himself a Bedouin, and three other Bedouin living on the outskirts of the forest, who have grazed their

livestock in Yatir for the last 17 years. We gathered information on how the Bedouin use the forest and what incomes they derive from it. We finally cross-validated the data acquired (Fig. 2).

Poverty in the Bedouin Community of the Negev

The 150,000 Bedouin of the Negev are the most underprivileged section of Israeli society. This is partly due to the fact that the Negev is Israel's poorest region, but also due to the allocation of land to natural parks, industries and Jewish settlements. Israel's withdrawal from the Sinai in the 1980s, following the peace treaty with Egypt, further increased land scarcity as most of the Negev was allocated to military bases. These allocations have often led to the eviction and resettlement of Bedouin (Marx 2000).

The patterns of administration and integration imposed on the Bedouin of the Negev by successive Israeli governments have marginalized them (Parizot 2001). Settled in seven planned townships around the city of Beer Sheva (Fig. 1) and in slums,² this semi-urban proletariat belongs to Israel's lower socioeconomic strata, constituting a "lumpenproletariat".³ Unemployment is high among the

² Disagreements between Bedouin people and the State of Israel mostly center on unadjudicated land claims. Bedouin assert actual ownership of land which the state declares to own. Given the uncertainties characteristic of land issues, Bedouin in unrecognized settlements favor temporary dwellings made out of lightweight material, which are, to some extent, tolerated by the State. Actual buildings in unrecognized settlements are considered illegal land appropriation and threatened with demolition.

³ From the German, literally "proletariat in rags" (Marx and Engels 1932).

Bedouin, and registered self-employment (mostly family businesses), does not alleviate it (Jakubowska 2000). Moreover, poor municipal services, as well as poverty and crime, afflict Bedouin towns (Abu Saad and Lithwick 2000; Lithwick 2000). Up to 60% of salaried employees in Bedouin towns earn the minimum wage or less, while their Gini income inequality indices average 0.321, confirming a low-income evenness when considering the formal sector of the economy alone (Table 1). More than half of the Bedouin labour force earns the minimum wage or less, on average less than US\$800 per month.

For comparison purposes, nationwide, 40.3% of Israelis earn the minimum wage or less, while the country exhibits higher income inequalities, with an index of 0.48 (Table 1), but an average monthly salary of US\$1,288.

The Bedouin economic situation has declined after 5 years of Intifada-related economic slump and due to the Thatcherist policies implemented by the right wing Likud government. These measures halved child welfare allowances in Israel hurting already weak social groups, such as the Bedouin, whose families include large numbers of children (Sinai and Leyden 2005). Since few Bedouin serve in the Israeli army (Parizot 2006a, b) many families may expect an additional cut of 25% of their child allowance. In all, many large families may see their 2009 allowances reduced by 70% compared to what they received in 2003.

This shrinking of Israel's welfare state has rendered the search for additional income an urgent matter for some Bedouin. Even before the cuts, they had extensive business networks and a strong informal sector, part of it dealing with activities across the Green Line, such as smuggling into Israel clandestine Palestinian workers, construction material, livestock, and stolen car parts. During the 1990s, with more freedom of movement in Israel and the West Bank than Palestinians, owing to their Israeli citizenship,

Bedouin drivers took over the transportation market between the Hebron Foothills and Israeli cities. Moreover, some families in the towns of Hura and Laqqye, near the Yatir forest and the Green Line, profited from the newly rising border economy, which is favoured by increasingly severe Israeli closure measures around the Occupied Territories (Parizot 2006a, b).

Despite their lower socioeconomic standing within Israeli society and their limited access to employment and services, the Bedouin of the Negev are much better-off than the Palestinians in the South Hebron Hills. The Bedouin have better access to jobs and services, suffer no restrictions on mobility, and enjoy higher salaries, far higher rates of access to higher education, better healthcare and, last but not least, access to Israeli welfare payments.

Poverty in the Palestinian Communities of the Hebron Foothills

Palestinians in the South Hebron Hills include former local farmers and shepherds as well as a few former Negev Bedouin who took refuge in the area in 1948. As the Israeli labour market opened to Palestinians in the early 1970s, most men went to Israel to work in construction and agriculture. In the early 1990s, more than a third of the West Bank Palestinian manpower was employed in Israel (Arnon *et al.* 1997). In the Hebron region, where rainfall is much lower than in the northern West Bank (300 to 450 mm year⁻¹ rather than 700 mm year⁻¹ further north), agriculture is less attractive, and thus almost half the men may have worked in Israel. Like other inhabitants of the West Bank, Palestinians from the South Hebron Hills have endured closures since the outbreak of the second Intifada in 2000.

Before closures were strengthened, Palestinians in the area could trade goods in the Beer Sheva market, or earn wages in the center and south of Israel. Alternatively, they had access to the Palestinian centers of Hebron, Jerusalem, Ramallah and Nablus. The increased restrictions have left the Hebron Foothills population with Hebron as the only large city labour market. Declining employment opportunities drastically lowered wages. The Hebron governorate⁴ has the highest level of unemployment of the West Bank at 24.2% (PCBS 2005).

The Palestinian economy has been in deep recession since 2000, with only a short respite in 2003 (UNCTAD 2005). Workers formerly employed in Israel often shifted to agriculture to reestablish subsistence-based household economies. Since the latest Intifada, households increasingly raise small ruminant herds and poultry (Nori 2003).

Table 1 Minimum wages or less and income inequality index in the seven Bedouin towns and in Israel as a whole

Bedouin towns and countrywide	Gini index of inequality	Percentage of salaried earning the minimum wage or less	Average monthly wage (US\$) ^a
Rahat	0.3188	59.9	684
Hura	0.33	51.9	793
Kseife	0.2996	55.4	685
Laqqye	0.343	59.8	675
Arara	0.3157	57.8	683
Sqib as-Salam	0.3021	50.2	765
Tel as-Saba	0.3423	57.3	736
Israel	0.4836	40.3	1,288

Source: Statistical Yearbook of the Negev Bedouin 2004

^a Prices are converted from New Israeli Shekels to US\$. Exchange rate US\$1=NIS 4.4 as of January 2005

⁴ Geographical administrative subcategory.

Land is also cultivated more than before; employment in agriculture rose from 12.6% in 1999 to 15.9 % in 2004. UNCTAD (2005) reports that in 2004 61% of Palestinians live under the poverty line set at US\$350 per month for a household of a couple and two children. The same report estimates at 20% the proportion of West Bank households living in extreme poverty unable to satisfy basic needs.

Yatir's Forest Agency: the Jewish National Fund

The Jewish National Fund (JNF) was established in 1901 at the Fifth Congress of the World Zionist Organization in Basle (Blougrund 2001; Shilony 1998). After the establishment of the State of Israel (1948), the JNF was entrusted with forestry development (Amir and Rechtman 2006). The JNF finances are mainly supported by real estate incomes and by donations from Jews in the Diaspora willing to contribute to the development of Israel through tree planting. Currently, the JNF is increasingly hiring Palestinian contractors to work in the forests, using their lower wages to cope with a critical financial situation due to declining real estate incomes.

From the planting of the forest in 1964 to the early 1990s, herders were excluded from it. However, once their potential contribution to fire control was appreciated,⁵ they were increasingly encouraged to use forest pastures. The herders welcomed the new situation as demand for pastures had grown (Rueff *et al.* 2004).

Formally, the JNF holds control over the area. Rights to use forests pastures are conditional on signing a contract with the JNF, stating fees to be paid, opening and closing dates of the grazing season, assignment of grazing plots, establishment of seasonal camps, and access to wells and fuelwood. Practically, some control is delegated to a co-opted Bedouin kin group of Hura residents, preferentially hired for maintenance tasks. The JNF and the co-opted group tolerate Palestinian herders without providing them with official permits. The two communities do not compete over grazing plots (Rueff *et al.* 2004).

NTFP Extraction in Yatir

Wild Artichokes

In the context of increasingly harsh closures since the early 1990s and dwindling employment opportunities in Israel, some Palestinians in the Hebron Foothills turned to *Gundelia tournefortii* extraction in the Yatir forest. The

plant, a perennial thorny wild artichoke, commonly called 'akub in Arabic, had not been exploited before the 1990s. After the onset of the second Intifada in 2000, its extraction has further gained in importance.

The thorns of the plant protect it from grazing animals and its large seeds and flowers are both edible. The plant's core is a much appreciated side dish for Palestinians in the center and north on either side of the Green Line. To harvest the core, the thorny shrub must be picked when its leaves are large but not overly mature, i.e. during a short season of three weeks between February and March. The small yield per plant and its rarity in the north have driven up prices and earned it the label 'green gold'. A diligent picker can fill two sacks of 20 kg each in a day's work.

The economic contribution of this plant is only felt in the Palestinian sector as the Bedouin take no part in its picking. Palestinian respondents reported that the 2004 season attracted more collectors than usual, an indicator of economic distress. Collectors and processors⁶ are usually elderly people, women, children and the unemployed. The artichokes are sold to merchants who come to Sammu' to truck them to markets in northern cities. Prices vary during the collecting season, according to supply, demand and whether the artichokes are processed or not. They can climb as high as US\$3.18 (NIS 14), or drop as low as US\$1.14 (NIS 5) per kilo. Collectors work in the forest from dawn to mid-afternoon, devoting the rest of the day to processing. In 2004, four tons were collected daily and processed by 200 Sammu' dwellers.

The value of the wild artichokes is highest in the early season when extraction is low and demand high, and decreases towards the end of the season as stocks increase. We thus estimated the total amount of wild artichokes collected by dividing the 21 day collecting season into three seven-day periods (low stocks/high prices, average stocks/mid prices, high stocks/low prices). The aggregate value of *Gundelia tournefortii* seasonal collection at the time of study (2004) was US\$165,480 (Table 2). As 200 collectors were involved daily, every one made between US\$23 and US\$64 a day, at least twice the daily wage of a professional driver in Hebron. At best, the daily income (US\$64) was 1.5 times the daily wage of an illegal Palestinian worker on Israeli construction sites (US\$40 a day). Palestinian collectors in Yatir take fewer risks than illegal Palestinian workers in large Israeli cities, while their earnings, although seasonal, are higher than some Palestinian wages in the West Bank and Israel. Prices, however, are volatile. If the price remains at its lowest, the daily reward of US\$23 is not worthwhile for collectors considering the risks involved in crossing the Green Line in addition to the strenuous work.

⁵ Grazing removes understory vegetation, allowing fire control (Rueff *et al.* 2004; Gutman *et al.* 2001)

⁶ Processing the artichokes consists of removing the larger leaves while keeping the plant's core intact.

Table 2 Total seasonal income from the extraction of *Gundelia tournefortii* by Sammu' collectors

Collecting season (week)	Price level	Amount after processing (kg)	Price per kg (NIS)	Price per kg (US\$) ^a	Total income (US\$)
1	High	28,000	14	3.18	89,040
2	Average	28,000	7	1.59	44,520
3	Low	28,000	5	1.14	31,920
				Total	165,480

^a Prices are converted from New Israeli Shekels to US\$. Exchange rate US\$1=NIS 4.4 as of January 2005

Hyssops

Plants of the *Labiatae* family, mostly oregano, thyme and hyssop are the main ingredients of the condiment called *za'atar* in Arabic, which is consumed by both Arabs and Jews. Following over-picking, these plants were declared protected. In the Yatir region, picking is nevertheless carried out by Palestinian villagers for commercial purposes and by Bedouin for household consumption, although the Bedouin pick ten times less than the Palestinians. Collection usually takes place with the growth of new leaves between February and March. The price is US\$1.14 (NIS 5) for a kilo of unprocessed leaves. Interviewees reported that at least two tons are picked yearly in the Yatir Forest worth US\$2,280 for Palestinians and US\$228 for Bedouin. Commercial hyssop picking increased in 2003–2004 due to rising demand.

Fuelwood

Thinning and pruning the forest generates wood of varying sizes and qualities. In 2003, according to the JNF, the forest produced about 10,000 m³ of branches and 200 of high quality wood (3 in. or more in diameter). The Bedouin, including Hura residents, use little of this resource since in the town firewood is used not for heat or cooking. It is however used when camps are made or to maintain a fire in a gathering place. According to our estimate, 300 m³ of branches worth US\$6,136 and 20 m³ of quality wood worth US\$909, totalling US\$7,045 were used in 2004. On the Palestinian side, firewood collection saves US\$11 a month in energy expenses. Although we do not know how much wood the Palestinians extract from the forest, JNF rangers claim that they gather much more than the Bedouin. There are two reasons for the difference: one is that pruning and thinning trees and trucking the wood out of the forest are nowadays mainly carried out by Palestinians contractors. A second reason is that when the need for biomass fuel arises, the Israeli Bedouin can afford to pay for denser (more energy efficient) woods, such as citrus from former groves,

and to forego the use of free pine wood from Yatir since pine releases thick smoke and produces short-lasting embers. We assume that Palestinians extracted at least the amount of fuelwood the Bedouin did.

Grazing

Over 8,100 head of livestock graze in the Yatir forest and in the neighbouring forests of Meitar and Chiran. As of spring 2004, 3,255 head of livestock from Bedouin herds grazed in Yatir. The benefit of grazing was evaluated in terms of feed cost savings per head per season. A good pasture saves the breeder a daily hay consumption of US\$0.07 and a daily concentrate food consumption of US\$0.23, in total US \$0.30 per livestock head. However, as summer approaches, the pasture's nutritional value declines. The grazing season in Yatir lasts 120 days. We assume the February–March period to provide optimal value while in April and May the value shrinks by two-thirds due to decreased precipitation. The JNF charges US\$0.22 per head per month. The Bedouin herders in Yatir thus saved up to US\$56,637 in flock expenses.

Additional Community Income from the Forest through Employment

In the wake of privatization in the management of the JNF forests, contractors carry out most of the maintenance. In the past, the JNF employed 500 labourers in the Negev area. Today, they employ 50 (Blougrund 2001). Moreover, tree planting has been greatly reduced. The most senior position in the forest today is that of deputy forester currently held by a Bedouin resident of Hura. His yearly salary is US\$34,090. In the past, additional residents were employed by the JNF in permanent and seasonal positions. The total value of work in the forest by Bedouin contractors in 2004 was estimated at about US\$18,181.

In 2004, a West Bank Palestinian contractor was paid US \$9,091 for pruning and thinning the forest and trucking out of the resulting biomass. Two additional Palestinian West Bank residents have full time positions in the forest. At the minimum Israeli wage, their yearly income totals US \$18,190.

Discussion

Table 3 shows that a total income of US\$238,690 in 2004 was derived by both communities from the extraction of NTFP in the Yatir forest. Although conservative, our estimate of US\$80 ha⁻¹ appears to indicate a higher NTFP worth than that calculated by Croitoru (2007) as an average for the eastern Mediterranean region, which is viewed as

Table 3 Annual worth of NTFP collected in the Yatir forest and work resources from nearby Bedouin and Palestinian communities in US\$

Collectors	Wild artichokes	Hyssop	Fuelwood	Grazing	Total NTFP	Labor Income	Total with Labor Income
Bedouin	0	>228	7,045	56,637 ^a	63,910	52,271 ^b	116,181
Palestinians	165,480 ^c	>2,280 ^c	>7,045	0	174,805	27,281 ^d	202,086
			Grand total		238,715		318,267
			Value ha ⁻¹ (3,000 ha)		80		106

^a Involving 20 herders

^b Involving one Bedouin person working in forest management and two part time Bedouin contractors

^c Involving between 100 and 200 persons according to year and period within the collecting season

^d One Palestinian contractor and two Palestinian employees

one of the lowest for the entire Mediterranean area (US \$25.4 using the €1=US\$1.27 exchange rate of June 2004). However, our estimate is in line with that found by Croitoru (2007) in Palestine alone (US\$70). Thus, even under harsh climate conditions, and from a low resource forest, substantial NTFP may be extractable.

However, a high NTFP value may contribute little to poverty alleviation. US\$240,000 is not a large sum for a population of ca. 28,000 people (10,000 in Hura and its extensions, and 18,000 in Sammu'). Even if the entire sum went to the Sammu' Palestinians exclusively, it would still remain marginal. Moreover, considerable labour input is needed to collect and market the *Gundelia tournefortii*, which is why Bedouins from the Negev do not collect wild artichoke. Not only do they look down at such work, but they prefer other sources of income in the informal sector with high added value year round, rather than seasonal income. Also, wild artichoke collection has only been going on for about 15 years, after its potential for marketing was discovered and before the separation fence⁷ was erected. Despite these constraints, underprivileged communities suffering severe income shortfalls (here due to warfare) do engage in NTFP collection, while underprivileged communities in wealthier economies refrain from doing so.

Conclusions

We assessed NTFP collection in the Yatir forest in Israel by two marginalized communities located along the Green

Line and separated by it, one Bedouin in Israel and the other Palestinian in the West Bank. We hypothesized that the Bedouin, given the wealthier Israeli economy, have access to better income generating alternatives than NTFP collection and would thus be less involved in it than the Palestinians. The findings supported our hypothesis.

Palestinian collectors extracted US\$174,780 worth of forest products, in addition to some grazing, even though their access to resources and markets was severely hindered. On the Israeli side, the Bedouin generated a forest related income of US\$63,910, mostly through grazing. The Bedouin extracted insignificant amounts of wood and edible plants in spite of their easier access to resources and markets.

The lower reliance of the Bedouin on forest resources can be explained by the government welfare payments, which still provide them some income, and by salaries, lawful business income and gains from the informal border economy. All of these are connected to the wealthier Israeli economy, which offers far more profitable sources of income than NTFP collection, with its low rewards for high labour inputs.

The more intensive use of the Yatir forest by Palestinians confirms the tendency to use it as a safety-net in a war-torn declining economy. The resources of dryland forests, such as Yatir are nevertheless limited and surely insufficient to sustain the livelihoods of many collectors year round. Yatir is certainly far from providing for a significant share of the needs of Sammu's 18,000 residents.

The political context affects NTFP collectors. Palestinian collectors have lost part of their livelihood due to the construction of the separation fence, which has to a great extent cut them off from the forest resources. The Bedouin controlling informal transportation networks across the Green Line and through the forest have also lost much of their income. The JNF may see its maintenance costs grow as Palestinian contractors find it harder to access the forest, unless it can keep providing Palestinian workers with permits to cross the Green Line.

The extent to which our findings can be generalized is limited since the forest studied is small and recently

⁷ Israel built the "separation fence," and in some places "separation wall" to insulate itself from the West Bank. The fence reached the Yatir area in 2006. Palestinian communities developed alternative ways to enter Israel proper. Strategies used consist of crossing with faked IDs, buying passage by giving information to the Israeli Defense Force (IDF), finding ways to limit the number of crossings by staying for longer periods of time in Israel, crossing in areas where the fence is unfinished or where gaps remain. These strategies are comparable to those used in other adjacent and contrasting economies or regimes (United States/Mexico, Morocco/Spain Ceuta, former East and West Germany). All these frontiers are to some extent permeable, despite governmental efforts of having them sealed.

planted. Furthermore, the separation fence constructed in 2006 severely hinders access to Palestinian collectors. This confirms, nevertheless, that fringe communities may engage into NTFP collection in the short term to supplement their incomes, even if they lack a tradition of forest resource use. We have shown, moreover, that the national economic environment strongly affects the extent of NTFP collection. Our findings also suggest that, in rapidly developing countries, NTFP contribution to poverty alleviation and the role of forests as safety-nets are likely to decrease due to the increasing availability of more profitable opportunities.

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