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**PRICKLY PEAR IN THE EASTERN CAPE SINCE THE 1950S – PERSPECTIVES FROM  
INTERVIEWS**

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We are presenting two linked papers. The first is a chapter from a forthcoming book, by way of background, on the history of prickly pear in the midland and Eastern Cape.<sup>1</sup> This draws largely on documentary evidence to trace the spread of opuntia species in the Cape, and analyse the conflicts over their eradication up to about 1950. The discussion is largely focussed on white farmers and agricultural officials. This second paper introduces material from a number of interviews, in Hewu, Middledrift, Fort Beaufort, and Hankey districts, that have grown out of the documentary work, as part of a project funded by the Nuffield Foundation in the UK.<sup>2</sup> The interviews concern very largely the period since 1950, and are mostly with African informants.

Plants cross boundaries of space and race. Various opuntia species have been, at some time, of importance to white commercial farmers, farm workers, African land-holders and urban communities in the midland and Eastern Cape. Although there were strongly different opinions about the value of different opuntia species, many people used these plants for one purpose or another. At the heart of this paper is a historical analysis of changing prickly pear incidence and use over the last fifty years. Are these plants still spreading and is this a problem? Are opuntia still useful and to whom? To what extent do they have an economic value? How are they viewed by different social groups? Are opuntia still best thought of as invader species?<sup>3</sup> And in view of South Africa's experience with opuntia, is optimism surrounding the potential of the cultivated spineless cactus justified?<sup>4</sup> Can and should land occupiers and the state do anything about these plants.

### **The incidence of opuntia over the last 50 years.**

Given the scale of eradication campaigns from the 1930s to the 1960s, it is interesting how much prickly pear and jointed cactus have survived. The biological eradication campaigns, even when coupled with felling and poisoning, were never completely successful. They controlled some of the heaviest stands of Opuntia ficus indica, and certainly made a major general impact, quickly reducing the estimated 900,000 ha infested in 1940 by three-quarters.<sup>5</sup> Eradication seems to have been less successful in the coastal districts (especially Uitenhage) and the Ciskei than in the Karoo. These areas had higher rainfall and it was more difficult to clear prickly pear in the denser vegetation; jointed cactus (Opuntia aurantiaca) was restricted to these areas.<sup>6</sup> Predatory beetles and ants, as well as some mammals, attacked the cactus-feeding insects and reduced their effectiveness. And the eradication campaign was resisted in places like Middledrift.<sup>7</sup>

By the 1980s, Zimmerman estimated about 100,000 ha to be infested with prickly pear.<sup>8</sup> But a great deal of scattered opuntia remained. Jointed cactus was still spreading and by 1982 covered over 800,000 ha – though much of this was not densely overgrown.<sup>9</sup> As noted above, surveys done in Karoo spineless cactus plantations around 1970 showed quite heavy infestation with cactoblastis and cochineal, which greatly reduced productivity, but did not destroy the plants.<sup>10</sup> The campaigns in South Africa were less successful than in Australia. Southern Madagascar has also experienced a recolonisation by prickly pear since the rapid clearances of the inter-war period.<sup>11</sup>

Thus informants whom Luvuyo Wotshela interviewed in Hankey, Hewu and Middledrift districts remember that prickly pear was quite widespread at least up to the 1960s. Some did note that they had heard of even denser coverage in their parents' time. But most agreed that the significant decline in the incidence of prickly pear had occurred in recent decades, since about the 1970s, and – as will be illustrated - for reasons other than the biological campaign.

Many different opuntia species were introduced in South Africa; ten are listed in the short official Declared Weeds publication.<sup>12</sup> Spiny prickly pear was one of the nine species declared invader plants under the Conservation of Agricultural Resources Act, 43 of 1983.<sup>13</sup> Five were mentioned in the interviews. We should sound a warning about identifications. We are inexperienced in this field and informants use local names in three languages. Opuntia species do hybridise, and vary in their shape and colour; moreover, some indigenous Euphorbia species are superficially similar to certain exotic cacti. Whereas farmers in the early twentieth century identified the prickly pear (in Afrikaans turksvy) species by their leaves – the doornblad, kaalblad, and rondebelaar – African people in the Eastern Cape now tend to focus on the fruit. The most widespread, and the most important, is called in Hewu, itolofiya yasendle emhlope – wild white prickly pear - or just itolofiya yasendle. This is almost certainly the variety called doornblad in the early twentieth century and was referred to in Afrikaans, in Hankey, as doringblad. Its botanical name is the Opuntia ficus indica and has been the most widespread and useful species on a global basis. The leaves are longer and narrower than other types, with many long white thorns, and a whitish, small, very sweet fruit that ripens in late summer from January to March. In Middledrift, they spoke of the fruits as light green and there may be different varieties.

This variety is recalled as most common by the oldest men interviewed; A.D. Sishuba said that his grandfather spoke of it on African settlements and white farms south of Queenstown in the nineteenth century.<sup>14</sup> In Hewu, itolofiya yasendle thrives on slopes and rocky land. In Hankey, in the southern Cape, informants suggested that this plant did best in lowlands and river valleys, and there is no doubt that rivers have been one of the main routes by which prickly pear has spread.<sup>15</sup> Hankey, in the Gamtoos river valley, was considered one of the worst infested areas in the first half of the twentieth century and one of the most difficult for biological control.

A second species of wild prickly pear had rounder leaves, and was called ebomvu or esibomvu in Hewu. The spikes are browner and shorter, and the reddish fruit, that ripens in autumn, is less sweet and tasty. This type was called suurtjie, after the sour fruit, in Afrikaans by those interviewed in Hankey and is almost certainly the kind called rondeblaar in earlier decades. In the Amatola basin of Middledrift, this variety, is called isidwedwe, or ugazini - red as blood.<sup>16</sup> It is most prevalent in wetter districts from Seymour/Stockenstrom southwards and was not found in the drier, higher parts of Hewu. These plants are almost certainly the species Opuntia lindheimeri, found very largely in the Eastern Cape, which can be variable in its shape and appearance.

A third kind (emthubi) also has long leaves, but a large yellowish fruit with fewer thorns and fewer spikes on the fruit. The spikes are shorter and brownish. It is also favoured for eating and according to Mrs Ngudle 'tastes better than the white prickly pear'. Those interviewed in the northern part of Hewu around Kamastone and Bulhoek mentioned it as more prevalent. While some thought that it had been present for a very long time, the oldest informant in Kamastone recalled that it had been brought from neighbouring white farmers in the 1920s and 1930s.<sup>17</sup> Two former headmen in the area agreed that it was planted around this time on the borders of arable lands, but by the 1940s had spread along streams and valley bottoms on the Kamastone commonage.<sup>18</sup>

It is possible that this was the variety of Opuntia ficus indica called kaalblad in the early twentieth century. Or it may be a variety of spineless cactus, which had partially reverted. The degree to which spineless cactus can revert or hybridise is not yet clear to us. According to Nobel, a leading authority on these plants, Burbank spineless cactus introduced into Australia in the early twentieth century did produce viable seed and some of the resulting plants reverted to a thorny invader plant.<sup>19</sup> However, Zimmerman, notes that the three most common Burbank varieties in South Africa, called Robusta, Chico and Monterrey, are all vegetatively produced. 'They all produce large fruit with many apparently large healthy seeds which fall to the ground' but although the fruits are eaten by wild animals they don't seem to spread as spiny plants.<sup>20</sup> The exception seems to be a case of Robusta reverting in the Free State. There are many different varieties of this spineless cactus; at least thirty were grown at the Grootfontein experimental farm. Some probably can produce fertile fruit.<sup>21</sup> Some African informants thought that the ethubi was a hybrid of kinds. In Middledrift, they noted that the yellowish fruit grows also on bushes alongside the white or light green fruit-bearers and they thought that bushes changed to produce yellow fruit by cross pollination.

Fourthly, the jointed cactus (Opuntia aurantiaca), which became a major menace by the inter-war years is still widespread. The Xhosa word for this plant was then reported in the documents as 'injubalani' for its capacity to stick fast to passing livestock.<sup>22</sup> Now it is called ukatyi or isihlehle. (We are uncertain about the latter name, which is a type of euphorbia, not an opuntia and are still checking usage.)

Lastly, informants identified a few different types of spineless cactus or itolofiya engenameva. They associated this particularly with white-owned farms, including some that had been taken over by the Ciskeian government. Some of these plantations, bordering Middledrift, have spread. The plants have a thick round, green leaf with fewer thorns, and a large, yellowish, sweet fruit. They contrasted this type with those grown at Fort Cox experimental farm, with less attractive fruit.

Informants mostly perceived wild prickly pear to be declining. Different reasons were cited. In Hankey, much of the doringblad in valley bottoms was cleared for cultivation from the 1950s. The Paul Sauer and Kouga dams facilitated large-scale irrigation in the Gamtoos valley for citrus, tobacco and vegetables; naartjie plantations spread up the valley sides. Doringblad was eradicated there, and heavy machinery used for the initial clearances. For farmers this was a welcome development.<sup>23</sup> Hankey commonage still has dense prickly pear, as does the Soetkloof pass to the south-west. But one informant claimed that many plants had succumbed to the expansion of townships (Centerton and Weston), as well as recreational facilities such as football fields. On Middledrift commonage, prickly pear was also perceived to have declined recently because of housing and the prison garden.

In former Ciskeian districts, the dwindling of prickly pear is attributed more to changes in settlement patterns. As illustrated, prickly pear was very widely used for hedging by both white farmers and Africans in the nineteenth and early twentieth centuries. Before betterment (phambi kwe trusti), people would transplant wild prickly pear (itolofiya yasendle) to fence residential plots and arable lands.<sup>24</sup> Many households had arable lands or gardens alongside their homesteads; the hedges helped to keep out livestock as well as secure their crops against theft and wild animals, especially baboons. Prickly pear was thus useful to 'bazobe imida yabo delineate their boundaries and also (balawule indawo yabo) control their space'. There was the additional benefit of fruit and fodder close at hand. The use of prickly pear in this way could be construed as what later became called agro-forestry, into which a great deal of development funding has poured over the last couple of decades.<sup>25</sup> Prickly pear is not usually mentioned in this context, although it is widely planted for multi-purpose use, especially in north and north-east Africa. The major species advocated for agro-forestry in Africa have tended to be for fuelwood, as much as fodder; some favoured acacia species provide both.<sup>26</sup>

The thorny, wild, prickly pear was grazed as it stood, especially by goats, and thus was not always a secure barrier. It did not always knit together at ground level. Agave americana, with its long, spiky leaves, was a better guarantee against damage by animals, although it could become uneven. Both plants were thus used together for construction of some hedges, especially kraals. Agave (garingboom), can also be used as fodder, after the spikes are removed and it is cut across the grain of the leaf.

After homesteads were moved during betterment, the hedges could not be protected and some of the plants around the old homesteads were destroyed by animals. Even if people retained their old fields,

they lost control of the prickly pear and plants were vandalized or grazed to the ground. In Middledrift, the Ciskeian government ordered the uprooting of prickly pear on old sites during betterment. Planners also instructed people to chop down and uproot prickly pear and thorn bushes in the new villages sites.<sup>27</sup> After betterment 'it became fashionable to use wire (ucingo) as fencing'.<sup>28</sup> Households had to compete for prickly pear on the veld, which resulted in both a reduction of availability and of usage.<sup>29</sup>

Some people replanted prickly pear, but it was less suitable in the cramped conditions of the new villages and was not encouraged. They tended to have a few plants in vegetable gardens along with spineless cactus and other fruit trees such as figs, peaches and pears. Around the village of Machibini, south of the main road between Middledrift and Alice, a woman remembered that prickly pear had been so thick in her youth that they called it ezitolofiyeni.<sup>30</sup> Now she had to pick fruit across the Tyume river, in Victoria East, on former white farms which were not densely settled.

The picture is clearly uneven, and different factors – biological agents, land clearance, changing settlement patterns – seem all to have contributed to the apparent decline of the wild white prickly pear. If it is correct that the spread of prickly pear by cloning or vegetative production in the early twentieth century was partly due to denudation, then the evidence about the increased grass cover in parts of the eastern Cape and Karoo may also be a factor in reducing its recent spread.<sup>31</sup> Two landowners in the Amatola basin, Middledrift, N. Muwezi and M. Mtunzi – who were aware of the biological campaign - described some of the complex dynamics that they thought affected the spread of prickly pear locally.<sup>32</sup> Prickly pear grows amongst dense vegetation, especially around 'mimosa' (umga or Acacia karoo). On the one hand, they suggested that it did not always out-compete indigenous species, and they had noted that it had been submerged in places by acacia and 'Cape Aloe (Ikhala)'. On the other hand, people chopping acacia for firewood, or aloes for medicine, 'often free the space for prickly pear to expand'. They, and fruit collectors, also broke off leaves, which then germinated.

## Usage

As the earlier paper illustrates, a great variety of uses were evolved for prickly pear and spineless cactus by both whites and blacks. Many of these are reported from Mexico, the main home of prickly pear, as well as the Mediterranean and the Canary islands to which the plant was taken very soon after the Spanish intrusion into the Americas.<sup>33</sup> While some of this knowledge may have come with early imports of the plant to South Africa, or through international networks of information, some may have been locally developed. Prickly pear has been in the midlands and eastern Cape for over two hundred years. Rural communities have clearly been highly adaptable in incorporating it into their lives and developing a 'local knowledge' around various species and parts of the plant. It is interesting that most of the African people interviewed do not seem to see it as exotic, or an invader.

In some respects, opuntia species provided a time-saving fodder and a useful food source that required little cultivation. However, many uses involved time-consuming preparation. Prickly pear was ideal in societies where households produced many of their own manufactures and where there was sufficient labour time for processing. In discussing local knowledge and plant use, we must be aware of chronology, of changing taste and household labour time.

Perhaps the most common usage, reflected in the way that people talk about prickly pear, is for fruit. Wild prickly pear has a long season, and it is free. Its disadvantage is that pickers have to be careful not only of the spiky leaves but because the fruit itself is covered with small buds in which are embedded thin spicules or needles (glochids in the scientific literature). These remove themselves easily and lodge in the skin or the mouth.

‘as young girls, we ate a lot of prickly pear on the move. Picking up fruit required good skill especially from the thorny, white, wild prickly pear. We used objects such as sticks to unhook or detach the fruit from its leaf. The difficult part was picking up the thorny fruit from the ground into a container. One has to cushion your hands with either a cloth or a plastic bag. It is trickier when one has to eat the fruit on the spot. Before unskinning or peeling off the cover, the fruit needs to be rubbed very hard on the grassy surface (engceni) so that spikes are crushed. But even so in the process of dissecting the cover one expects to be needled ... A number of parent used to discourage children from eating the fruit on the move ... because they tended to finish skinning off the cover with their teeth and mouth, just as monkeys and baboons do’.<sup>34</sup>

One man recalled that as youths they tried not to pick when it was windy as the spicules blew into their eyes. Clearance teams in the 1940s had enormous difficulties with the spicules in the skin and eyes of workers. This was one reason why Italian prisoners of war, who were initially used for this purpose, struck work.

In Hewu, Mrs Ngudle recalled

‘Most of my friends including myself preferred the yellowish fruit even though it was a bit scarce and difficult to access from Mceula’s veld. But we were always keen to move and gather wood from other areas around Kamastone where we knew we would get the yellow prickly pear. Most times this involved longer trips, fortunately we always had white prickly pear to fall back on’.<sup>35</sup>

Prickly pear fruit are part of childhood memories and, as in other childhood contexts, a certain freedom and adventure. This could include association across races that became difficult in adulthood. A white woman, graduate of Rhodes, recalled ‘a number of occasions [when] we used to walk some distance with some coloured children on our farm just to pick prickly pear and we used to be stung on our hands and our mouths because we ate the fruit as we moved along’.<sup>36</sup>

Prickly pear is still widely eaten by African people 'on the move', hunters (abasingeli), herders (abelusi) and firewood collectors. But some interviewees suggested that it was less accessible now either because, in Hewu, it was no longer so bountiful on old kraal sites, or in Hankey, because so much had been cleared around the commonage.<sup>37</sup> As one Hankey woman remembered: 'even though we still crave for the prickly pear fruit . . . areas where I used to walk in order to pick the fruit . . . are now either part of the municipal parks or are rugby and soccer fields'. 'We feel disappointed because we are buying what we used to obtain freely'.<sup>38</sup> She did acknowledge, however, that tastes were changing and some preferred cheap citrus.

Prickly pear brought home in any quantity is soaked in water so that the buds soften and the spikes detach themselves. The skin can then be wiped and peeled. Both the white and yellow wild fruits, and some spineless varieties, are suitable for eating and for making jams, syrups, and preserves. In Hankey, the most common product on the farms, which was widely produced up to the 1950s, was syrup. A 75 year old woman described the method in detail.<sup>39</sup> Five litres of fruit would produce about 750 ml. syrup. The fruit had to be peeled, boiled until dissolved into a thickish, soup-like liquid. Some of the fruit pips were then removed, honey and brown sugar added, the mixture reboiled for another hour, by which time it had turned dark brown. It was then poured into containers and sealed.

In African households in Hewu, jam was commonly made. In the 1950s, 'Hewu women were part of the Do It Yourself (Zenzele) Cooperatives. . . Women were trained in church circles and in a number of agricultural societies in social and household skills and particularly they used itolofiya and other summer fruits such as peaches (iipesika) and figs (amafiya) to process a number of products such as jam (inyhobanyhoba) as well as preserve cooked fruit in sealed bottles. My mother taught me how to cook prickly pear fruit with little amount of water (amanzi) then filter away fruit stones, add the cooked thick-liquid with a bit of syrup and then boil slowly again. When simmering, a bit of gelatine would be added on the mixture and then would be left for a day to cool down. When cool it should attain a soft thickish shape.<sup>40</sup> Brown sugar and a little honey was sometimes mixed in and the jam stored for several months. In both Hewu and Middledrift, it was used with homemade bread (umbhako), including steamed breads, 'which tasted very good with homemade prickly pear jam'.<sup>41</sup> Sometimes it was mixed in jam with other fruits such as peaches, apricots, plums and figs. Some was sold but there was always a problem with finding sufficient containers. It was used at school concerts, sports and church functions.

Jam and syrup are less widely made now by African households: 'at that stage prickly pear was much part of people's lives because they lived around and used it', but no longer.<sup>42</sup> In Hewu, Mrs Mpenduka explained this through the easier availability of transport and cash incomes, which made shops and canned fruit accessible. She did occasionally process fruit from the garden, but not on the same scale. In Middledrift, one informant thought that tinned jam from spaza shops displaced it in the 1980s.<sup>43</sup> In Hewu another mentioned 'it is a long while since I have heard of households producing prickly pear fruit jam . .

. People seem to buy jam from the shops nowadays'. As one man noted, 'most of the current generation rely on buying finished products from retailers and do not have time to process prickly pear leaves or its fruit'.<sup>44</sup> A clear distinction was made by some informants in Hewu between fruit and jams. While many people harvested the fruit for consumption during the summer, few still processed fruit into jam and preserves.

As noted in the earlier section, prickly pear beer was widely produced in the eastern and midland Cape during the late nineteenth and early twentieth century – so much so that farmers saw it as a menace to their labour supply. This view was echoed by a white farmer in Hankey, who explained that the brewing season coincided with a period of high demand for agricultural labour. The brewing season was longer than the fruit season because the reddish suurtyjies from the rondebelaar could also be used, and they could be harvested into May and even June. Prickly pear 'wine' has still been brewed over the last couple of decades by coloured people on the farms and in the township in Hankey even though there was 'a general hostility from farmers towards brewers and at times they would be arrested by police for illegally brewing'.<sup>45</sup>

Informants in Hewu suggested that brewing was less common in that area. It is possible that the interviews, largely with the respectable rural elite, including former headmen and agricultural officers, gave a partial picture. Prickly pear brew (iqhilika) was strongly discouraged, even 'ruled as an illegal substance' by the Ciskeian authorities. They saw Middledrift, regarded as '(ikhaya letolofiya) the home of prickly pear' and Peddie, as the chief brewing centres. Some households produced prickly pear fruit soft drinks. In Fort Beaufort, prickly pear fruit sellers were also brewers. They preferred overripe fruit, and late-season fruit, for brewing.

Mrs Xhaphé in Middledrift described brewing in some detail. The outer cover of the fruit was peeled with a knife, leaving the softer inner white tissue. This was boiled until liquid and then cooled, and filtered to get rid of the pips. The crushed roots of the moerplantjie, or mula (an indigenous plant), was added, for yeast, and the mixture fermented for two days. After a further filtering process it was ready to drink. The beer was partly sweet and partly bitter, and very intoxicating. Prickly pear beer was largely drunk at the homestead like utywala but some did sell it. The recipe for the non-alcoholic drink was slightly different. The fruit had to be peeled more thoroughly, to get rid of all the bitter outer skin, mixed with sugar, boiled, cooled and filtered. Anchor yeast was added but not mula, and the mixture fermented only for a day.

Informants suggested that both beer and the cool drink were less frequently made during the Ciskeian period when headmen ordered raids: some brewers had to appear before tribal courts and received fines. Lack of access to prickly pear in sufficient quantity was a factor for some people, and in the larger settlements, shebeens and taverns selling bottled beer catered to new tastes. Women in Middledrift noted that home brewed honey beer was now preferred and sold in Grahamstown. But after a good harvest

seasons, such as 2002, they did brew and produce soft drinks, although most people preferred 'Oros and coco-pine from the shops' – to which, of course, they had only to add cold water.

In Fort Beaufort, prickly pear brewers still seem to be thriving and they extended their brewing season by producing honey beer.<sup>46</sup> Men are also involved in honey beer production: 'they farm the bees, preserve the honey and use it for a number of purposes including brewing'. Iqhilika brewers sold to the rural and small-town poor, farmworkers and labourers, who could not afford to go to shebeens and taverns. But they could make up to R1,000 a month at the height of the season. Since the 1980s, police raids have stopped, and brewers are no longer troubled even by the comrades some of whom, at that time, felt that they were selling too much liquor.

Prickly pear and spineless cactus leaves, as opposed to fruit, had long been valued as fodder. White farmers, as illustrated, expressed doubts about prickly pear many years ago, because of its low nutritional value and the damage caused to animals. One recently interviewed noted 'I hardly use it as fodder and my father last used it during the 1960s.'<sup>47</sup> Some African informants shared this view. But leaves are still picked and brazed, or burnt, in order to remove the thorns before feeding to livestock. Goats, especially, eat wild prickly pear, nibbling away around the thorns.<sup>48</sup> This is one reason why the remnant stands around old homesteads have gone – and goat numbers have probably increased in these districts during recent decades.

Leaves are also important for some home manufactures, and here the wild white itolofiya yasendle is preferred. Spineless cactus leaves were thought to be less effective because they did not carry the same type or strength of 'fluids'. Leaves continued to be used for soap making up to the 1960s, and a Hewu woman recalled how her mother boiled large quantities of leaf, mixed it with soda and then let it solidify into a hard soap which was sold.<sup>49</sup>

'I remember after I got married in the 1960s it became almost fashionable that wood-stoves were used in a number of households that were headed by either teachers, or by policemen or even migrant workers. These stoves led to the advent of shiny steel pots and kettles that were more difficult to clean. Some of the Zenzele women initiated a plan of mixing the bar-soap with dry egg shells (amakhoba amaqanda) and then grinding (ukucola) the mix so that it resulted in a yellowish pot washing powder (umgubo wokuhlamba omthubi) that was used to scrub off dirt or over-burn on the outer and inner surfaces of the kettles or pots. . .(laughing) not exactly as strong as the Vim 99 was, but this powder soap could clean all enamel dishes, steel pots and kettles and we also used it on our three legged black pots and it worked very well.'

But, as one man noted, 'in the long run, people opted to buy soap even though they could have continued producing it. My wife has always pointed out to me that it is cheaper anyway to buy bar soap and that does not cost much time'.<sup>50</sup>

In Hewu, Cape aloe (Ikhala check species Aloe ferox?) was brewed with prickly pear leaves to produce (iyeza lesisu) a stomach medicine, which worked in the same way as (iyeza lokuhambisa) – or a laxative.<sup>51</sup> (Prickly pear was considered to induce the runs in animals if fed in too great a quantity. Aloe was also used as a laxative.) People came from as far as East London to pick aloe for herbal medicines on the Shiloh commonage. The outer cover was skinned, the leaf boiled for a long period, and the liquid then mixed with very bitter green aloe juice. Aloe leaves were used when green and young because they carried more juice, which was an important ingredient for a number of homemade medicines. The mixture was re-boiled, simmered gently for a long period, filtered, cooled and bottled. Patients were always recommended to drink the mixture cold.

A different recipe was used for a blood purification (or puritone) medicine. In this case, the prickly pear and aloe leaves were squashed and boiled together with water and a small quantity of sea water or Epsom salts added. When sufficiently simmered and cooled, it formed a gell.<sup>52</sup>

Informants suggest that medicinal manufacture and use remains common. This is a higher value product, that makes the labour involved worthwhile, and it is clearly seen to be effective. Hawkers in Whittlesea sell 500ml. bottles for between R10 and R15.<sup>53</sup> Medicines purchased in the shops are relatively expensive.

Prickly pear leaves were used for the treatment of boils. `Xhosa people tend to agree that boils generally grow as a result of blood infection hence they treated them with the laxative and puritone mixture.<sup>54</sup> To precipitate the swelling and bursting of the boil, the cladode was skinned on one side, heated on a fire and then placed directly onto the boil and bandaged. The prickly pear leaf was seen to soften the tissue, hasten the bursting and clean out the dirt. This process was repeated until the boil was cured. The treatment is still used in Hewu.

Overall, the use of prickly pear as a multi-purpose plant appears to be declining, partly because of availability but largely because of the labour time involved. Informants clearly felt that some processing, especially for jams and syrups, was no longer cost effective. Most of the processing was done by women and, given the demands on the time of many rural women, it is not surprising that they have sought replacements. However, a wide range of people still like and eat the fruit, and medicinal use is not perceived to be declining. Usage is in any case unpredictable. Prickly pear was of most interest to poorer families and prickly pear still provides a gathered resource to fall back on. Taste, fashion and ideas of modernity also clearly play a part.

### **Markets and sale**

Prickly pear fruits have been marketed through the southern and eastern Cape for over a century. The

problem for African households was not only finding labour on a sufficient scale to pick and wash the fruit, but transport. In Hewu, in the 1950s and 1960s, villagers supplied the local general dealers or had informal stalls on Sundays after church services or at social events.<sup>55</sup> In the 1960s fruits were sold at about 1c. Even so, 'If one picked a lot of fruit, washed and cleaned it, one stood a chance of accumulating some cash. Remember even the school fees were just about 10c a quarter of year those days and some of us did pay our annual school fees through prickly pear sales'.

Mrs Ferreira outlined the recent history of marketing in Hankey. During the 1950s, Coloured farmworkers used to load and transport fruit by ox-wagon to Humansdorp and other towns. They supplied local agents who in turn sold on the fruit and vegetable market.<sup>56</sup> Returns on the sale of fruit would be split in half between the farmers and the workers who picked and transported the fruit, although the workers would have to pay the agents out of their share. Sometimes, farmworkers would stay with relatives in Humansdorp and sell the fruit themselves so that they did not have to pay the commission fee. In the 1960s, the clearance of land and the absorption of workers into the new irrigation schemes diminished the amount of prickly pear and labour for picking and preparing. Although this was a major task, some farmworkers bemoaned the loss of prickly pear income: 'we felt with prickly pear that we had our own control'. Citrus picking and sales were completely controlled by farmers.

Africans in Weston took over the business. Those with vans hired women fruit pickers and sold along the roads and in towns. The advent of taxis in the 1980s made it possible for a wider range of people to engage, in that they could use them for transport of small quantities. Vehicle-owners still employ people to pick and load fruit in the Soetkloof pass where there is a dense thicket of wild pear. The fruit is sold in Hankey, Patensie, Jeffreys Bay, Humansdorp and Tsitsikamma. Hawkers keep stalls along the main roads from Hankey to Humansdorp and Patensie. There is a fairly standardized set of measures: 5 and 10 litre containers are priced respectively at R6-10 and R14-20. Prices are lower in early and mid-season with a 20 litre container selling for as little as R20; late in the season, prices rise sharply - to R15 for 5 litres in March.<sup>57</sup> Bulk purchases are sometimes made for syrup and chutney.

A white farmer in that area also marketed prickly pear commercially up to the 1980s. He recalled transporting bakkie loads to an East London fruit merchant, who in turn supplied hawkers and supermarkets. Supermarkets, made good money out of the fruit because they bought in bulk and they would sell in bits. By the mid-1980s they were already selling at about 50c per fruit and prices can be R1 now. The problem for farmers was that labour costs were high. The fruit is delicate, and does not last long. Picking, washing, packing and offloading had to be done by hand. Unlike citrus, economies of scale were harder to achieve and it may be that prickly pear lends itself to handling on a smaller scale. Fruit was also displayed and sold at agricultural shows in places such as Cathcart, Queenstown, Stutterheim and King William's Town. A prickly pear festival was launched at Uitenhage in .

One farmer in Upper Cathcart on the border with Hewu was reluctant to allow farmworkers, or outsiders, to pick and sell prickly pear because it disturbed work programmes, and created disorder. 'We could have a case of the usual harvesters assigning kids to pick up the fruit. Once that happens, kids would invite their friends, tree leaves could be broken, and fruit would be peeled off and eaten on the spot. The last thing we need is uncontrolled growth. Moreover, the tendency is once you start allowing people free access to any protected resource our fences tends to go.'<sup>58</sup> In fact women interviewed on the R67 roadside claim that they do get fruit from farms and sold it at the weekends. They said it was their only chance to generate quick cash; a 5-litre container sold at R10. Farmworkers near Queenstown sell on the Queenstown/Whittlesea road.

Two women who sell at Ngwenya on the R83 between Middledrift and Alice came from villages just south of the road (Macibini and Capo). In 2002, a particularly good season, they harvested enough to sell for 3-4 days a week from January to March.<sup>59</sup> (The 2003 harvest was less bountiful.) In 2003, the women were selling 2.5 kg (18-20 fruits) at R4, up by 50p from 2002. They usually sold between R50-70 a day, mostly in small quantities to motorists but occasionally in larger quantities to the owners of supermarkets and spaza shops in Alice and Middledrift. They claim to have made about R2,000 in January 2002. This is a very useful income supplement for a poor rural family, even if it lasts only a few months a year. (They had to give some of the money to their husbands in recognition of the long periods they spent absent from household duties.) For women to earn on this scale involves very considerable labour. These two women walked a couple of kilometers to thickets (probably originally spineless cactus) on the former farms in Victoria East across the Tyumie. They prefer to pick in the afternoons, soak the fruits overnight, clean them and then carry them about five kilometers to the road in two 20 litre containers.

Sometimes groups of women hire men or youths to transport bulk loads with donkey carts or bakkies. Two Fort Beaufort women picked their fruit for sale partly on the town commonage but largely on two farms near Grahamstown.<sup>60</sup> They paid R10 in 2003 (R6 in 2001 and 2002) for entry to the farm, by arrangement with its owner and caretaker, and could pick as much as they wished. As part of a group of seven women, they hired a bakkie for transport. They were charged R35 each and they could carry 100 kg each. They sold as individuals, on stands on the main road, near the taxi rank and garages, and door to door in Fort Beaufort to both white and black households. In 2003 they received about R6 per 5 litre container.

When demand was strong, they could get about R160 from their loads, and the squashed or leftover fruit was brewed or fed to livestock. At the peak of the season, they picked and sold three times a week. The prickly pear season lasted from January to March, following which they would pick and sell citrus till June. Citrus hawking was more competitive, because fruit was easily available through farmstalls and supermarkets. But these informants suggest that a significant income could be generated from hawking

and brewing, over some months of the year, and that it could be financially worthwhile hiring vehicles for transport. This also diminishes the strenuous walks to thickets and marketing points.

Although there are some suggestions of a decline in the marketing of prickly pear, the interviews show that there is still a good deal being transported and sold in the Eastern Cape. It is interesting that prices are much the same in Middledrift, Fort Beaufort and around Hankey, suggesting a regional market of kinds. Hankey seems to be a more important center for the supply of towns and supermarkets. There is clearly space in and around the former Ciskei for informal marketing, especially by women.

### **Ciskei plantations:**

Spineless cactus (etolofiya engenameva) has been available for many decades. In Hewu, A.D. Sishuba remembers that his uncle obtained leaves from a farmer and planted them at Upper Hukuwa in the 1940s.<sup>61</sup> His plantation became a source of cladodes for others. During the drought of the mid-1960s, people in Didimana (near Tsolwana) purchased cladodes at about R2 per wagon, from neighbouring white farmers.<sup>62</sup> Mr. Mxiki, later an agricultural extension officer, remembered doing so as a youth.

‘Mind you those days that was not regarded as cheap, and, in fact a number of villagers used to make a collective contribution. One would provide draught oxen, one would provide the wagon and maybe two households would provide the R2 for the load and once it was fetched it would be split up. We were so amazed with the density of spineless cactus and the . . . plantations on white owned farms. The trees were fenced, arranged in linear rows and the pruning was well regulated. It was quite clear that the trees varied in their stage of development and they were different in size.’

They were already using wild prickly pear for fodder and this promised a more secure supply with less labour. Using wild prickly pear on any scale for fodder was

‘always a painstaking process. First one had to endure the process of pruning thorny leaves from the trees and carrying them from the veld to home. . . Once picked and collected these leaves were (rhawula) brazed with fire in order to burn thorns. People were quite apprehensive about thorns spiking livestock on their mouths.’

In the 1970s the Ciskeian Department of Agriculture and Forestry (later Rural Development) developed spineless cactus projects with Peddie as the main distribution centre. They ran a nursery growing mainly two types: a round leaf spineless cactus which produced a large light green fruit (indyumba) and a long leaf type which produced reddish coloured fruit (ugazini). Plantations were established under tribal authorities, supervised by extension officers, and the department carried the costs. They were designed partly as a soil conservation (ulondolozo mhlaba) measure, as an element in rural planning, and partly for fodder.<sup>63</sup> In some areas of Middledrift, spineless cactus was planted, along with agave (garing boom) and salt bush, at the same time that betterment and rotational grazing were introduced. Areas that suffered

from particularly severe erosion were prioritized. By the 1980s, trial plots had been established in 35 of 43 Tribal Authorities.<sup>64</sup> Spineless cactus projects were introduced in Bulhoek and Nqobokeni in Hewu.

Transplantation of spineless cactus, initial irrigation, and the fencing of the planted area, was largely done by volunteers who were promised access to leaves for fodder, and fruit for household consumption. The local communities also supplied draught oxen and ploughs to prepare the ground. But as the Ciskei moved towards 'independence', the department subsidised and controlled these projects more directly. Draught oxen were replaced by departmental tractors, which also ploughed other fields. Workers were paid. Rangers were appointed to guard the plantations. However, the tribal authorities were responsible for selecting the workers, as also distributing the leaves to livestock owners (for a small payment) and also for access to fruit. 'The department subsidised the operation of the entire projects, whereas the output was under the control of the respective tribal authorities'.<sup>65</sup>

A former Ciskeian agricultural officer felt that before 'independence' in 1981, these were generally regarded as community plantations. But as the political position polarized, and as Tribal Authority supporters gained disproportionate advantage, hostility grew and they heard complaints about '(itolojiya karhulumente) or the government's prickly pear'. As another informant recalled, 'during fruiting seasons, the rangers and some tribal authority members would pick fruit . . . [that] was sold on the open market.'<sup>66</sup> They made some quick cash out of it.<sup>67</sup> One woman in Hewu noted 'women like us did not benefit from the Ciskei spineless cactus plantations. While they were there we continued picking fruit from the wild prickly pear on the veld.'<sup>68</sup> As with other government projects, by the mid-1980s, these became a target. Fences were cut, livestock grazed on plantations, and fruit stolen. Occasionally, livestock was impounded and people arrested for taking leaves and fruit. But, this only exacerbated the problems and it became difficult to maintain the plantations or extend them – as was planned – to Mceula and Kamastone. Rangers were assaulted by comrades (amaqabane). Hewu was particularly intensely politicized because of conflicts over the fate of people who had moved from Glen Grey and Herschel.<sup>69</sup> As the tribal authorities collapsed in the late 1980s and early 1990s, the plantations became open access and the plants disappeared. A similar pattern was reported from Middeldrift, although the plantations seemed to have survived a little longer. Agave plants, which could not be grazed directly by livestock, survived.<sup>70</sup>

### **The future**

A number of informants suggested that the use of prickly pear for multiple purposes was declining. Spineless cactus – the most valuable resource of all – has largely disappeared in the former Ciskeian districts, except within garden plots. There were, however, reports of plantations, partly run wild, on former white farms that have not yet been densely settled. The picture in respect of white, wild prickly pear is uneven, but it is probably on the decline.

By contrast the least useful and most dangerous species of opuntia, jointed cactus, is probably spreading. There is little enforcement of noxious weeds legislation and, according to a former headman, the 'comrades who are now in control do not even visit the veld'.<sup>71</sup> We have some evidence that it is being used as fencing because it is not grazed like spineless cactus and prickly pear, and it is not poached and cut like wire fencing. We are not certain about the species involved at present, and there may be a confusion by informants, or us, between jointed cactus and a species of Euphorbia called isihlehle (possibly *E. triangularis*).<sup>72</sup> One informant at Kamastone noted that even former Ciskeian headmen, of whom he was one, are using this plant as fencing, even though they know it is illegal.<sup>73</sup> (It is very unlikely that a euphorbia, which is indigenous, would be considered illegal.) In addition to its other advantages, this plant 'knits from a very low height and does prevent passage'.<sup>74</sup>

The current position does provide opportunities for small-scale collection, consumption, processing and sale. From an ecological point of view, the gradual demise of itolofiya yasendle, or the wild, white prickly pear since the 1940s can be considered a success. But in other respects the Eastern Cape has the worst of both worlds. The most dangerous species, jointed cactus, is uncontrolled, and presents an environmental threat; the most valuable spineless cactus plants are in short supply.<sup>75</sup>

Opinions are still divided about prickly pear. Most people who have grown up in Hewu villages Mr Mrubatha noted, care about the future of prickly pear: 'we still rely much on our wild prickly pear on the veld'.<sup>76</sup> In Hankey, a number of poorer black families 'live on it' during the fruiting season.'<sup>77</sup> In one interview, it transpired that some herdboys had planted itolofiya yasendle from the veld onto a roadside homestead site. They did so for easier access to the fruit. The plants grew slowly because they were eaten by livestock.

Yet even in Hewu, it was not always popular. A member of the Farmers Association argued for the removal of the prickly pear on the Shiloh commonage:

'I wish it could be uprooted. Our fence on that perimeter boundary is gone since prickly pear harvesters as well as hunters who hunt wild animals such as baboons and bush pigs do not have a respect for fences. You often see and hear hunters from either Langedraai or Sada with a pack of dogs, proclaiming that they would be hunting (ezintabeni zetolofiya) on the prickly pear hills. It seems as if prickly pear has made it convenient for them because these wild animals tend to live around it. But unfortunately areas where there is dense growth of prickly pear have also become graveyards for our livestock. If they are not targeted by hunters themselves they often become prey to renegade hunting dogs'.<sup>78</sup>

A couple of white farmers who were interviewed also expressed uneasiness about prickly pear. Certainly, they might purchase some, or have some picked for home consumption. But as one in Hankey recalled: 'We used to joke, but in a serious manner that we could not continue living on prickly pear as baboons did'.<sup>79</sup>

A number of informants regretted the loss of spineless plantations, which have the capacity to provide local employment and resources. Reintroduction on communal lands would be difficult, and would require not only large investment but effective policing, land administration and control of livestock.<sup>80</sup> As one former agricultural officer said: 'You probably know that a number of people are no longer cultivating their fields because they cannot keep out animals and their fences are either cut or are disappearing on a regular basis. I can imagine it could be even more difficult to control a communal project'.<sup>81</sup> Spineless cactus is particularly attractive to livestock.

It is unlikely that opuntia can be eradicated completely, and 50 years of intensive campaigns in the first half of the twentieth century made only limited impact. It also seems unlikely that the Eastern Cape government would now regard eradication as a priority. However, there is a strong argument for changing the status quo and in particular discouraging those species that are ecologically most dangerous and encouraging types of infertile spineless cactus that also bear edible fruit. Opuntia is well-embedded in Eastern and midland Cape society and many people still have the skills to use and market its products.

There is certainly a case for encouraging landowners who have thickets of prickly pear to allow access by women to pick and sell the fruit. Renewed state support for spineless cactus nurseries and plantations within the communal tenure areas could be valuable. There have been a number of attempts at vegetable and irrigation projects in the Eastern Cape, with mixed success. Spineless cactus, while it does have to be protected against livestock, presents certain advantages over irrigation projects. There may be people locally with skills in establishing and managing such plantations. There is also a South Africa Cactus Pear Growers Association for commercial growers and a number of well-established scientific researchers on opuntia. Production of large fruit for major produce markets, especially in Gauteng, is growing. A good deal is known about the best methods of planting and cultivating for high yields. In some Sicilian plantations, flowers of spineless cactus are removed when they first appear.<sup>82</sup> The plants then flower again, later in the season, and generally produce bigger fruits. This practice extends the season and allows growers to reach markets when prices are at their highest. It was tested successfully at Fort Hare in 1989-90.<sup>83</sup> Two key questions that would require investigation, if this has not yet been clarified, are: which types of spineless cactus varieties can reproduce by seed and potentially 'go wild' and thorny; and which types can hybridise. It would clearly be dangerous to create conditions for new invasions. Research and consultation would also be needed on which might be the most useful for particular communities.

There is also a case for education in the local media, both in respect of the dangers of jointed cactus and the encouragement of reproduction of favoured thornless species by cladode/cloning only. The clearance of wild white prickly pear is no longer so great a priority, but it may be valuable to link control programmes with its use. Further investigation of techniques of processing medicines, alcohol and

preserves might facilitate new products, or ways of preserving products. Brutsch and Zimmermann believe that mass rearing of cochineal insects is still possible on the dense stands around Uitenhage for red dye-stuffs. These might replace synthetic dyes in the food industry; in the early 1990s, the bulk of world production came from Peru and the Canary Islands. The Eastern Cape districts generally have too high a rainfall, and too heavy downpours for cochineal production in the open. Experimental production under cover was started in Uitenhage in the 1980s.<sup>84</sup> They also advocate production and consumption of young leaves as nopalitos. A low-technology method of drying the inner layer of the wild prickly pear peel has been developed: 'it has a good flavour, texture and appearance, with wide appeal, and stores satisfactorily for up to five months'.<sup>85</sup> It may be that local organizations or NGOs could assist individuals who would like to develop household manufacture. And there is surely a case for advertising prickly pear fruits and linking rural communities with markets, including supermarkets, and prickly pear festivals. There may be possibilities of expanding markets beyond the Eastern Cape, to urban centres elsewhere. The danger in formalizing markets and supplies, however, might be to exclude those poor rural women for whom informal marketing provides a valuable income.

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<sup>1</sup> William Beinart, The Rise of Conservation in South Africa: Settlers, Livestock and the Environment, 1770-1950 (OUP, 2003 forthcoming).

<sup>2</sup> The interviews have been done by Luvuyo Wotshela over the last couple of years and the paper has been written by William Beinart. Dr Karen Middleton was the main researcher on the Nuffield-funded project, concentrating on southern Madagascar and William Beinart thanks her for discussions.

<sup>3</sup> H.G. Zimmerman, V.C. Moran, and J.H. Hoffman, 'Insect Herbivores as Determinants of the Present Distribution and Abundance of Invasive Cacti in South Africa' in I.A.W. Macdonald, F.J. Kruger and A.A. Ferrar (eds.), The Ecology and Management of Biological Invasions in Southern Africa (Oxford University Press, Cape Town, 1986), 269-274; Harold A. Mooney and Richard J. Hobbs (eds.), Invasive Species in a Changing World (Island Press, WashingtonDC, 2000), 314-5; M.O. Brutsch, 'A Comparative Assessment of the Status and Utilization of naturalized Opuntia ficus-indica in the Eastern Cape Province of South Africa' (abstract), all suggest that it is more or less stable.

<sup>4</sup> P.S. Nobel, Remarkable Agaves and Cacti (Oxford University Press, 1994).

<sup>5</sup> F.W. Pettey, 'The Biological Control of Prickly Pears in South Africa', Union of South Africa, Department of Agriculture and Forestry, Scientific Bulletin, 271 (Government Printer, Pretoria, 1948) is an extended analysis by the key entomologist involved. D.P. Annecke and V.C. Moran, 'Critical reviews of biological pest control in South Africa: 2. The Prickly Pear, Opuntia ficus-indica (L.) Miller', Journal of the Entomological Society of South Africa, 41, 2 (1978), 161-188.

<sup>6</sup> Marc O. Brutsch and Helmuth G. Zimmermann, 'The Prickly Pear (Opuntia Ficus-Indica [Cactaceae]) in South Africa: Utilization of the Naturalized Weed, and of the Cultivated Plant', Economic Botany, 47, 2 (1993), 154-162.

<sup>7</sup> Interview, Luvuyo Wotshela with N. Muwezi and M. Mtunzi, Mhlambiso villege, Amatola basin, Middledrift, 12.11.2002. (Landowners in their 50s)

<sup>8</sup> Zimmerman, Moran and Hoffman, 'Insect Herbivores'.

<sup>9</sup> H. G. Zimmermann and V.C. Moran, 'Ecology and Management of Cactus Weeds in South Africa', South African Journal of Science, 78(1982), 314-320.

<sup>10</sup> D.P. Annecke, W.A. Burger and H. Coetzee, 'Pest Status of Cactoblastis cactorum (Berg) (Lepidoptera: Phycitidae) and Dactolopius opuntiae (Cockerell) (Coccoidea: Dactylopiidae) in Spineless Opuntia plantations in South Africa', Journal of the Entomological Society of South Africa, 39 (1976).

<sup>11</sup> Karen Middleton, 'Who Killed Malagasy Cactus' and personal communication.

<sup>12</sup> M. Henderson, D.M.C. Fourie, M.J. Wells, L. Henderson, Declared Weeds and Alien Invader Plants in South Africa (Department of Agriculture and Water supply, Pretoria, 1987); Zimmerman et.al., 'Insect Herbivores' lists a few more related species.

<sup>13</sup> Brutsch and Zimmermann, 'The Prickly Pear'.

<sup>14</sup> Interview, Luvuyo Wotshela with A.D. Sishuba, Lower Hukuwa, Hewu (born 1929, former headman).

<sup>15</sup> Interview, Luvuyo Wotshela with Tony Jones, The Grange, Hankey South, 13.4.2002 (born 1937)

<sup>16</sup> Interview, Luvuyo Wotshela with N. Muwezi and M. Mtunzi, Mhlambiso villege, Amatola basin, Middledrift, 12.11.2002. (Landowners in their 50s)

<sup>17</sup> Interview, Luvuyo Wotshela with R. Sokhaba, 27.10.2001, Kamastone, Hewu (born 1908).

<sup>18</sup> Interview, Luvuyo Wotshela with V. Mpendukana, Kamastone, 7.10.2001 (born 1937 former headman); Interview, Luvuyo Wotshela with S.M. Matshoba, Bulhoek (born early 1930s, former headman).

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- <sup>19</sup> Nobel, Remarkable Agaves and Cacti, 66.
- <sup>20</sup> Correspondence, Helmuth Zimmermann to Dave Richardson and William Beinart, 15.10.2002.
- <sup>21</sup> Personal communication, Dr H. Zimmerman who is one of South Africa's leading experts on opuntia and invaders.
- <sup>22</sup> Agricultural Journal of the Cape of Good Hope, V, 7, 28.7.1892: A. Fischer (editor), 'New Cactus. (Prickly Pear.)', 93-4; Agricultural Journal, 23.8.1894: John B. Bowker, 'Jointed Cactus' (*Opuntia aurantiaca*), 405. Here the Xhosa word is given as Injubalinie. The Xhosa name came from the root ukujuba which can mean to hold fast, or rebound and scratch in the manner of a thorn tree (Kropf and Godfrey, Kafir-English Dictionary, 174; there is no direct reference to jointed cactus in Kropf).
- <sup>23</sup> Interview, Luvuyo Wotshela with Dirk Schellingehout, Thorndale farm, Hankey, 1.5.2002 (born about 1919)
- <sup>24</sup> Mr. Mxiki (55 years old) former extension officer in the Shiloh Irrigation Scheme, interviewed at Whittlesea, 23 April 2002.
- <sup>25</sup> Nobel, Remarkable Agaves and Cacti; for a recent survey of North Africa, A. Nefzaoui and H. Ben Salem, 'Opuntiae: a Strategic Fodder and Efficient Tool to Combat Desertification in the Wana Region', published on the Web, Institut National de la Recherche Agronomique de Tunisie, n.d.
- <sup>26</sup> For a survey of projects Paul Kerkhof, Agroforestry in Africa: a Survey of Project Experience (Panos, London, 1990). *Calliandra calothyrsus*, which has met with some success in Kenya, also produces fodder.
- <sup>27</sup> Interview Muwezi and Mtunzi.
- <sup>28</sup> Interview Sishuba
- <sup>29</sup> Interview Matshoba
- <sup>30</sup> Interview Xhappe and Joko
- <sup>31</sup> M.T. Hoffman and R.M. Cowling, 'Vegetation Change in the Semi-arid Eastern Karoo over the Last 200 Years: an Expanding Karoo – Fact or Fiction?', South African Journal of Science, 86 (1990), 286-294; A.R. Palmer, C.G. Hobson and M.T. Hoffman, 'Vegetation Change in a Semi-arid succulent Dwarf Shrubland in the Eastern Cape, South Africa', South African Journal of Science, 86 (1990), 392-395.
- <sup>32</sup> Interview Muwezi and Mtunzi.
- <sup>33</sup> Nobel, Remarkable Agaves and Cacti; Park S. Nobel, Environmental Biology of Agaves and Cacti (Cambridge University Press, Cambridge, 1988).
- <sup>34</sup> Interview Luvuyo Wotshela with Mrs. N. Ngudle, Mceula, Zulukama, 23.11.2001 (born in early 1960s).
- <sup>35</sup> Interview, Ngudle.
- <sup>36</sup> Interview le Roux.
- <sup>37</sup> Interview, Ferreira.
- <sup>38</sup> Interview, Ferreira
- <sup>39</sup> Interview, Luvuyo Wotshela with Daphne le Roux, Spes Bona farm, Rooivlakte, Hankey West, 13.4.2002.
- <sup>40</sup> Interview Luvuyo Wotshela with Mrs N. Mpendukana at Kamastone, 24 June 2003 (60 years old, wife of former headman).
- <sup>41</sup> Interview Joko.

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- <sup>42</sup> Interview Mpenduka.
- <sup>43</sup> Interview Joko.
- <sup>44</sup> Interview Matshoba.
- <sup>45</sup> Interview Ferreira.
- <sup>46</sup> Interview, Luvuyo Wotshela with Mrs Alice Ningiza (born 1937), and Mrs Nocingile Platyi (born 1954), Fort Beaufort Location, 22 And 23<sup>rd</sup> June 2003 (both prickly pear hawkers).
- <sup>47</sup> Interview Luvuyo Wotshela, with Mr. F. Miles (57 years old), farm Roslin, Upper Cathcart, 24 June 2002.
- <sup>48</sup> Interview Mr. J. Ngoma, 78 years old, former Ciskei agricultural officer Hewu district, interviewed at Whittlesea, 22 April 2002
- <sup>49</sup> Interview Mrs Mpenduka.
- <sup>50</sup> Interview Matshoba.
- <sup>51</sup> Mr. S. Kata, 67 years old, member of the Shiloh Farmers Association, interviewed at Lower Shiloh, 14 June 2002
- <sup>52</sup> Interview Sokhaba.
- <sup>53</sup> Interview, Luvuyo Wotshela with M. Ngundle, Mceula, Zulukama, 23.11.2001 (born late 1950s).
- <sup>54</sup> Interview Mpendukana
- <sup>55</sup> Mr. Mxiki (55 years old) former extension officer in the Shiloh Irrigation Scheme, interviewed at Whittlesea, 23 April 2002.
- <sup>56</sup> Interview, Luvuyo Wotshela with Mrs N. Ferrera (Ferreira), Phillipsville, Hankey, 1.5.2002 (born about 1929).
- <sup>57</sup> Interview, le Roux.
- <sup>58</sup> Interview, Miles.
- <sup>59</sup> Interview, Luvuyo Wotshela with Mrs N.Xhaphe (born 1952) and Mrs N. Joko, Ngwenya village, 28-9.1.2003. Both hawkers.
- <sup>60</sup> Interview, Ningiza and Platyi.
- <sup>61</sup> Interview, Sishuba.
- <sup>62</sup> Mr. Mxiki (55 years old) former extension officer in the Shiloh Irrigation Scheme, interviewed at Whittlesea, 23 April 2002.
- <sup>63</sup> Interview, Ngoma.
- <sup>64</sup> Brutsch and Zimmerman, `Prickly Pear`.
- <sup>65</sup> Interview, Ngoma.
- <sup>66</sup> Interview Sishuba
- <sup>67</sup> Interview , Matshoba.
- <sup>68</sup> Interview, Ngudle.

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- <sup>69</sup> Luvuyo Wotshela, 'Homeland Consolidation, Resettlement and Local Politics in the Border and Ciskei Region of the Eastern Cape, South Africa, 1960 to 1996', unpublished D.Phil. thesis, University of Oxford (2001).
- <sup>70</sup> Interview, Gege.
- <sup>71</sup> Interview Matshoba.
- <sup>72</sup> Kropf identifies this as noorsdoring, which is another euphorbia species.
- <sup>73</sup> Interview, Mpendukana.
- <sup>74</sup> Interview, Luvuyo Wotshela with M. Mrubatha, Bulhoek, Hewu, 26.10.2001. (born 1960s).
- <sup>75</sup> Interviews have not yet been done with officials and it may be that eradication programmes are still being pursued. One informant mentioned that some Departmental financing for eradication was made available in 2002.
- <sup>76</sup> Interview, Luvuyo Wotshela with M. Mrubatha, Bulhoek, Hewu, 26.10.2001. (born 1960s).
- <sup>77</sup> Interview, Jones.
- <sup>78</sup> Mr. S. Kata, 67 years old, member of the Shiloh Farmers Association, interviewed at Lower Shiloh, 14 June 2002
- <sup>79</sup> Interview, Luvuyo Wotshela with Dirk Schellingehout, Thorndale farm, Hankey, 1.5.2002 (born about 1919)
- <sup>80</sup> Interview, Ngoma..
- <sup>81</sup> Interview Mxiki.
- <sup>82</sup> Nobel, Remarkable Agaves and Cacti
- <sup>83</sup> Brutsch and Zimmermann, 'Prickly Pear'.
- <sup>84</sup> Brutsch and Zimmermann, 'Prickly Pear'; Nobel, Remarkable Agaves and Cacti.
- <sup>85</sup> A.P. Mnkeni and M.O. Brutsch, 'A simple solar drier and fruit-processing procedure for producing an edible, dried product of high quality from the peel of Opuntia ficus-indica fruit in the Eastern Cape Province of South Africa', in Abstracts of the 14th International congress on Cactus Pear and Cochineal, Hammanet, Tunisia, 2000.